



WATER RESOURCES DEPARTMENT NAGALAND



**ANNUAL ADMINISTRATIVE REPORT
2023-24**

INDEX

1.0	Introduction	1
2.0	Organizational Set-up	4
3.0	Activities of the Department	6
3.1)	Minor Irrigation	6
3.2)	Modernization of Minor Irrigation	7
3.3)	Ground Water	12
3.4)	Flood Management Programme (FMP)	12
3.5)	Construction of Water Harvesting Pond under NABARD	12
3.6)	Rationalization Of Minor Irrigation Statistics (RMIS)	13
3.7)	Statistical Cell (RMIS)	13
3.8)	National Hydrology Project (NHP)	13
4.0	Capacity Building	17
5.0	Conclusion	20
6.0	Future Vision	20

1. Introduction:

Water Resources Department has been designated as the Nodal Department for Water resources in the State. Having entrusted with this crucial task, the department has prepared a vision document entitled “Road Map for Water Resources Department – Immediate action plan and long term strategies”. The document deals with providing water security, water conservation, and judicious use of water for various purposes. It also addresses groundwater extraction and groundwater recharge, besides others.

It may be mentioned that though the State receives about 2200mm annual rainfall, it is not evenly spread throughout the year. About 90% rainfall is received in five months from May to September, while about 9% rainfall is received from March, April and October. The rest four months contribute 1% or less rainfall in the year. Thus, the State is in a very critical situation on how to conserve water and allocate the same for various needs during lean period. Even though the State cannot be said as industrialized, availability of water is not enough to meet water demand during lean period due to ever increasing population and gradual decrease of forest cover.

The State is also witnessing erratic rainfall which has led to drought and flash floods. To address drought and water scarcity problems, existing water bodies needs to be repaired and restored, and at the same time, more water bodies needs to be created, which will provide surface water flow during monsoon season and enriched ground water during lean season. In order to mitigate flood damages due to flash floods and landslides, stream bank erosion control and anti-erosion works are required.

In line with the UN Sustainable Development Goal for eradicating poverty, the Department is working towards providing flood security for the people through PMKSY-HKKP(SMI) and PMKSY-HKKP (GW). As data is required for taking up of any future developmental works, the department has established data centre to maintain water related data base through implementation of National Hydrology Programme.

The Department has been allotted with an outlay of ₹ **56500.11 lakh** during 2023-24 for creating necessary infrastructure to meet the needs of the farming community of the State through the Centrally Sponsored Schemes and Programmes under Pradhan Mantri Krishi Sinchayee Yojna (**PMKSY**) Har Khet Ko Paani (**HKKP**), Flood Management and Border Area Programme (**FMBAP**), National Bank for Agriculture and Rural Development(**NABARD**) and North East Council (**NEC**) funded schemes under Irrigation Flood Control & Watershed Management Sector.

The Ministry of Jal Shakti, Department of Water Resources, has approved the 'National Hydrology Project' for implementation in the State along with the rest of the country and has sanctioned an amount of ₹ **23.00 Crores** for implementation of the programme over 9 years and 6 months period (2016 to 2025).

Annexure-A

REVISED ANNUAL PLAN 2023-24

Demand No.59 – WATER RESOURCES DEPARTMENT

₹ In lakh

Sl No.	Head of Account	Particulars	Revised Annual Plan – 2023-24
A. REVENUE SECTION:			
	Major Head: 2702 – Minor Irrigation		
1.	02 – GROUND WATER: 005 - INVESTIGATION		
	01-Ground Water Development (14) Minor Works	10.00	
2.	03 – MAINTENANCE:		
	102 - Lift Irrigation Schemes. 01-Micro Irrigation (15) Machinery & Equipment	15.00	
3.	80 – GENERAL: 001 – Direction & Administration		
	03 - Pradhan Mantri Krishi Sinchai Yojana – Irrigation Census.		
	(01) Salaries	64.40	
	(03) Travel Expenses	0.30	
	(04) Office Expenses	0.30	
	(26) Other Charges	28.00	
	80-001 – Direction & Administration		
	04 – Other Minor Irrigation Works (14) Minor Works	42.00	
	(31) Other Administrative Expenses	3.00	
B. Capital Section :-			
1.	Major Head: 4059 – Capital Outlay on Public Works		
	01 – Office Buildings, 051- Construction, 01- Irrigation & Flood Control,		
	(13) Major Works	0.00	
2.	Major Head: 4552 – Capital Outlay on North Eastern Areas		
	101 – Surface Water, 01-Water Sector,		
	(14) Minor Works(NEC+SS)	377.78	
3.	Major Head: 4702 – Capital Outlay on Minor Irrigation		
	00-101-Surface Water,01-Pradhan Mantri Krishi Sinchai Yojana-Har Khet Ko Pani,		
	01 – Surface Minor Irrigation,(13) Major Works(C/S & S/S)	33066.05	
4.	Major Head: 4702 – Capital Outlay on Minor Irrigation		
	00-101-Surface Water,01- Pradhan Mantri Krishi Sinchai Yojana – Har Khet Ko Pani,		
	02 – Surface Minor Irrigation- Tribal Area Sub-Plan, CAD,PMSKAU-HKKPP(Modernization)		
	(13) Major Works(C/S & S/S)	1478.20	
5.	Major Head: 4702 – Capital Outlay on Minor Irrigation		
	00-101 – Surface Water, 02 – Irrigation Works,		
	(13) Major Works (NABARD)	56.78	
	(17) Maintenance	30.00	
	(26) Other Charges (Const. of Rain Water Harvesting)	47.70	
6.	Major Head: 4702 – Capital Outlay on Minor Irrigation		
	00-101 – Surface Water, 04 – Flood Management & Border Area Programme,		
	01-FM&BAP, (13) Major Works(C/S & S/S)	19528.07	
7.	Major Head: 4702 – Capital Outlay on Minor Irrigation		
	00-102 – Ground Water, 01 – PMKSY-HKKP,		
	01-Ground Water-General (13) Major Works(C/S & S/S)	1752.53	
Total :-			56500.11

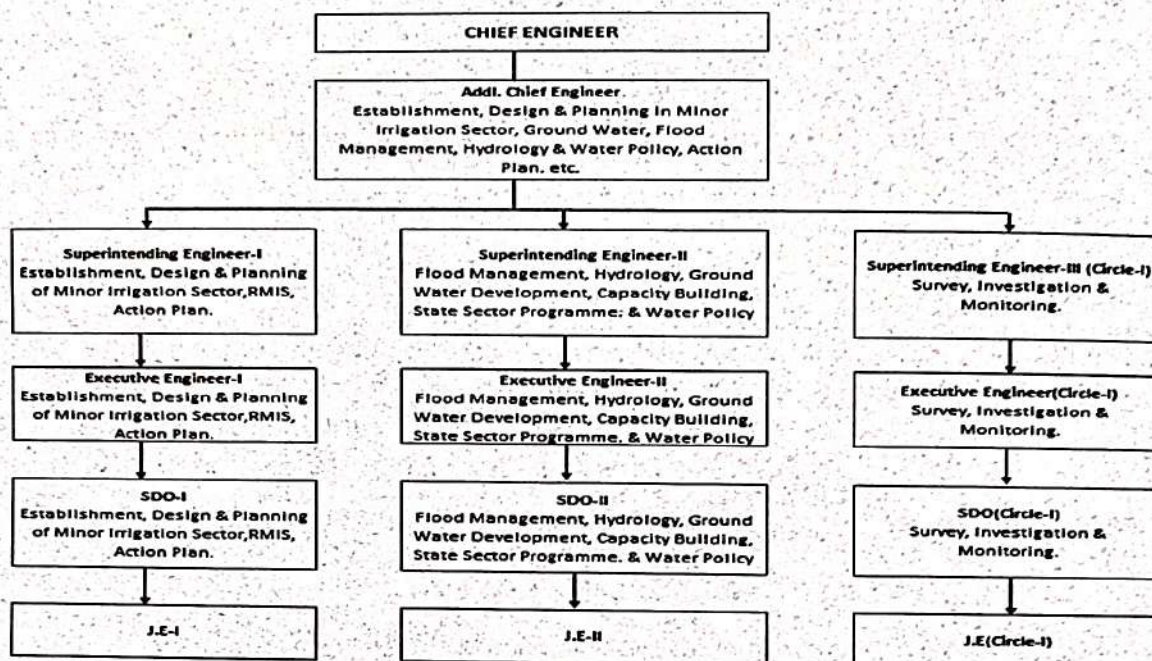
(Rupees, Five hundred Sixty five Crore and Eleven Thousand) only

[Signature]
 Administrative Head of the Department
 Additional Secretary
 to the Government of Nagaland
 Water Resources Department

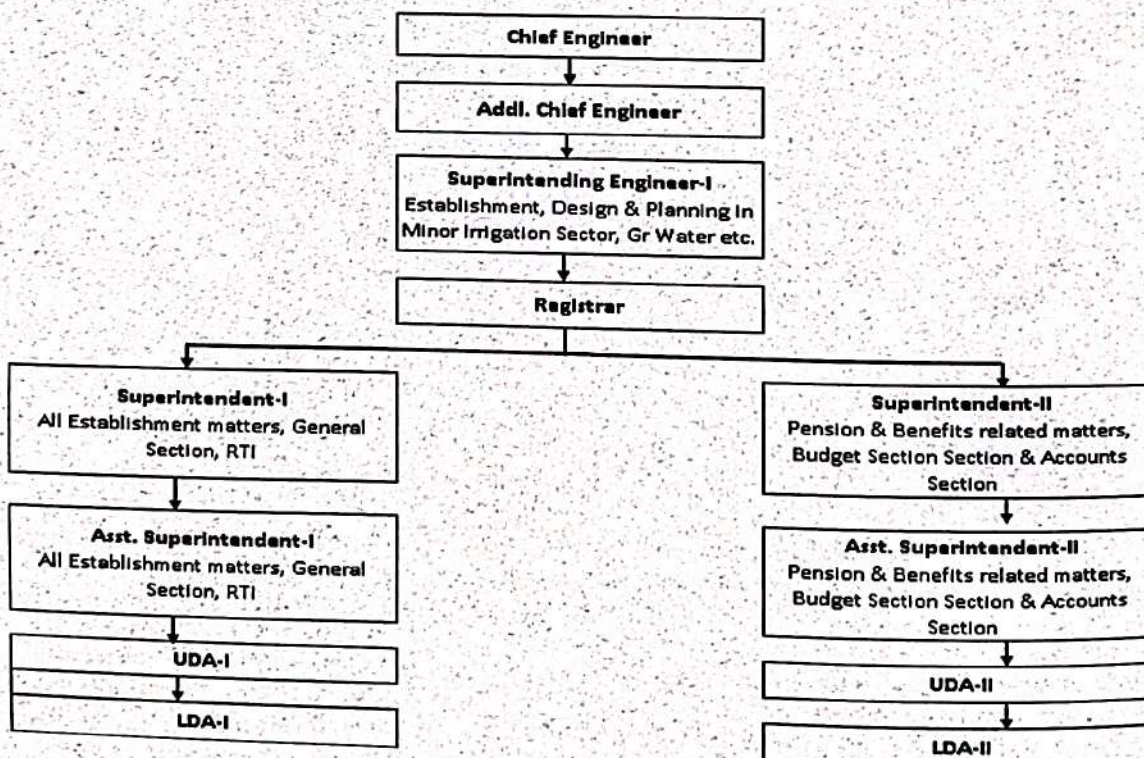
[Signature] 15/09/23
 Chief Engineer
 Water Resources Department
 Nagaland Kohima

2.0 ORGANIZATIONAL SET-UP

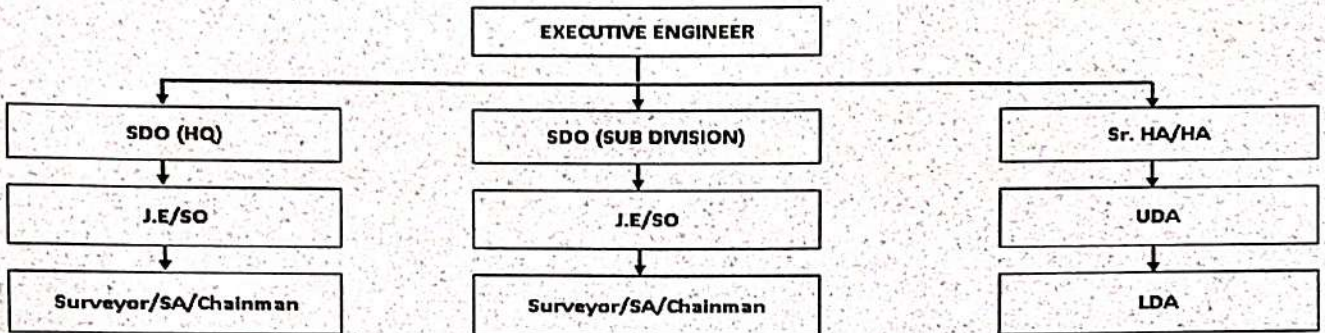
EXISTING ORGANOGRAM OF DIRECTORATE ENGINEERING UNDER WATER RESOURCES DEPARTMENT, NAGALAND



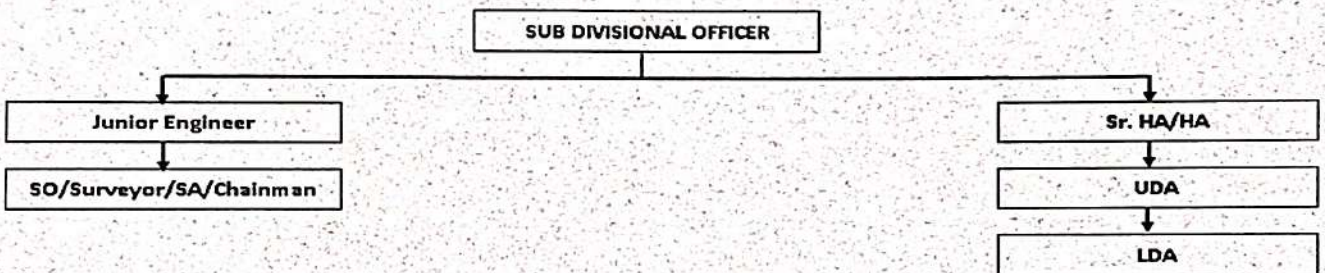
EXISTING ORGANOGRAM OF DIRECTORATE MINISTERIAL UNDER WATER RESOURCES DEPARTMENT, NAGALAND



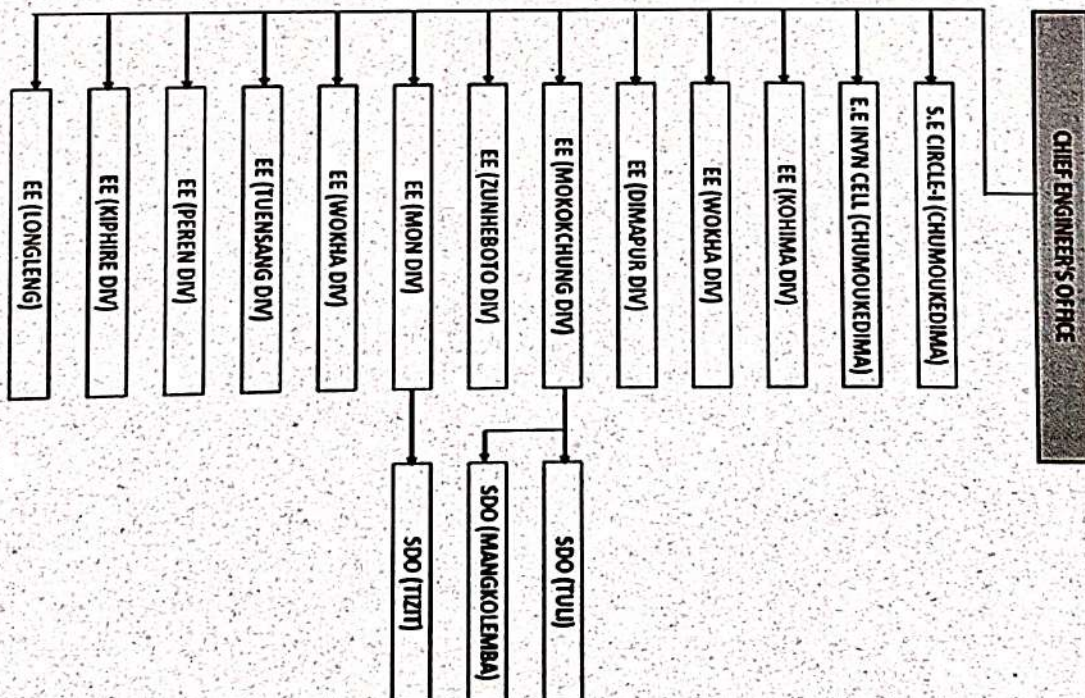
EXISTING ORGANOGRAM OF DIVISION LEVEL UNDER WATER RESOURCES DEPARTMENT, NAGALAND



EXISTING ORGANOGRAM OF SUB DIVISION LEVEL UNDER WATER RESOURCES DEPARTMENT, NAGALAND



EXISTING ORANOGRAM OF THE DEPARTMENT OFFICE ESTABLISHMENT



3.0 ACTIVITIES OF THE DEPARTMENT

The main activities of the Department are construction of Surface Minor Irrigation Projects, Groundwater Development, Command Area Development and Flood Management Programme (Anti-erosion / Drainage / Flood Mitigation). The Department also conducts Minor Irrigation Census & Census for Water Bodies every five years in consonant with all the States of the Country from 2023-24, the Department shall also conduct the census for Springs along with M.I.C & WBC.

3.1 MINOR IRRIGATION

The Department took up 270 Nos. of Surface Minor Irrigation Schemes under PMKSY-HKPP during 2018-19 with an estimated cost of ₹ 20,685.21 lakh to cover a CCA of 8544 Ha with an Irrigation Potential planned of 10508 Ha against which Central Share amounting to ₹14244.52 lakh and State Matching Share of ₹ 1582.72 lakh has been utilized till date and Irrigation Potential of 9127 Ha has been achieved. The Scheme shall be completed by 2023-24.

The Department took up 213 Nos. of Surface Minor Irrigation under PMKSY-HKPP starting from 2021-22 with an estimated cost of ₹13320.94 Lakh covering a CCA of 5444 Ha to create Irrigation Potential of 6837.30 Ha, against which Central Share amounting to ₹ 4121.00 Lakh and State Matching Share of ₹ 457.89 Lakh has been released till date and an Irrigation potential of 1585 Ha has been achieved. The Scheme is ongoing and shall be completed by 2024-25.

In addition, 2 nos. of New SMI scheme under PMKSY-HKPP in Peren District with an estimated cost of ₹1398.50 Lakh covering a CCA of 350 Ha to create Irrigation Potential of 485 Ha against which Central Share amounting to ₹ 432.655 Lakh and State Matching share of ₹ 48.07 Lakh has been released till date and an Irrigation Potential of 184 Ha has been achieved.

The Department has also submitted proposal to DoWR, RD & GR, MoJS, GOI for taking up 459 Nos. of new SMI under PMKSY-HKPP with an estimated cost of ₹ 44672.43 Lakh to cover a CCA of 11235.95 Ha to create Irrigation potential of 13318.72 Ha during 2023-24.

Irrigation Potential Status as per State Irrigation Plan upto 2023-24

1.	Ultimate Irrigation Potential (UIP)	323587 Ha
2.	Irrigation Potential Created (IPC)	166436.00 Ha
3.	Irrigation Potential Utilized (IPU)	99861.60 Ha.

3.2 MODERNIZATION OF MINOR IRRIGATION PROJECT

Irrigation projects have been operating much below the potential due to lack of fund for operation & maintenance related activities. During the lean season, the water available at the source gradually decreases and unable to meet the crop water demand at the command area, which results decrease in the yield of crop production. System deficiencies such as channel siltation; wearing of the channel side slopes; low discharge; lack of water supply in the command area; high operation & maintenance cost have been by and large responsible for reduced utilization efficiency. In this regard, modernization of existing Minor Irrigation structures has become significant measures to improve the output of the activities in the command area.

As the operation and maintenance cost of channel is very high, adoption of modernized water conveying structures such as construction of pipeline in lieu of channel can reduce the maintenance cost. As far as possible, proper survey may be taken to reduce the length of the channel, especially unlined channel and proposal for laying of main pipes may be taken between de-siltation tank and RCC storage reservoir. The reduction of length for lined channel can also be adopted by constructing cross drainage structure such as aqueduct, super passage and level crossing. This will overcome the accumulation of silt particles and overflowing of drainage water in the channel.

A much higher level of water use efficiency is targeted by implanting the modernization of existing minor irrigation projects with construction of additional irrigation structures and minor repairing such as head works and channel lining. Components of tank, RCC Storage reservoir, Tube well with solar pump, water distribution tank and pertinent devices needed for bringing efficiency in water conveyance system and field applications through installation of pipe distribution network.

In short, the concept of Modernization is to bridge the gap between the Potential Created and the Potential Utilized through the use of modern technology and scientific means.

A Concept Note has been therefore being submitted to the Ministry for consideration on a Pilot basis.

Photographs of Ongoing Minor Irrigation Projects Under PMKSY-HKKP



Izheka Ghoki MI Project at Satami Village, Zunheboto



Sangchonghong MI Project at Leangyu Village, Mon.



Longrangtsusu MI Project at Ayong Village, Mokokchung.



HEAD WORK

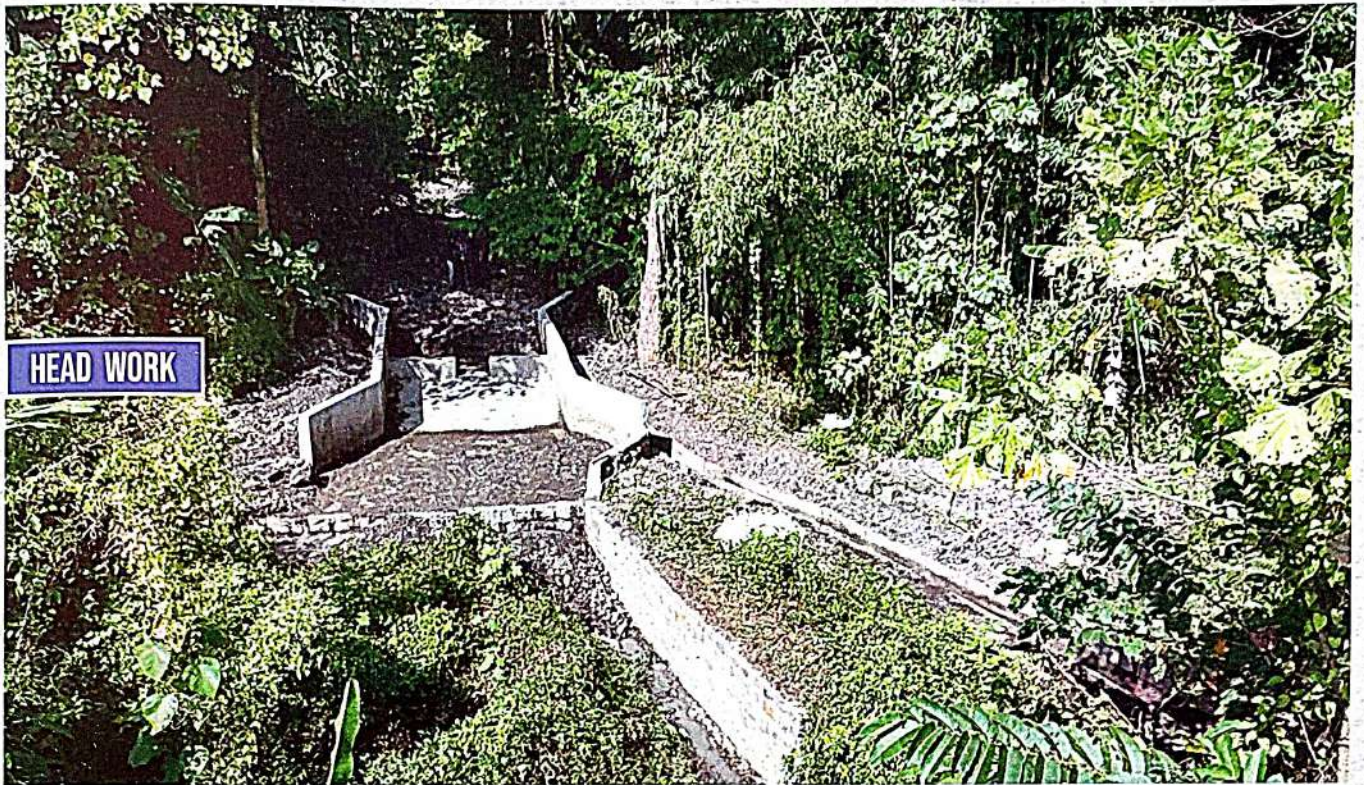
Nyangthong MI Project at Auching, Longleng.



Shiyong M.I Project at Aliba Village, Mokokchung.



Dzuza M.I Project at Kohima.



Dozolieru Dzudza M.I Project at Peducha, Kohima



Dzuza M.I Project at Jotsoma, Kohima.

3.3 GROUND WATER

The implementation of Ground Water Irrigation Scheme in Nagaland will definitely benefit the target group of farmers and there will be radical changes in food production of the State. Doubling the production will enhance the economic condition of small and marginal farmers. Poor tribal farmers will be greatly benefited from these Schemes. The Scheme shall be implemented at the Districts levels by the respective Divisional Engineers of the Department in co-ordination with other stake holders and as per guidelines

With the completion of 262 Nos. of GW Schemes in the State, the Department has also submitted proposal to DoWR, RD & GR, MoJS, GOI for taking up 179 units of Ground Water Irrigation under PMKSY-HKKP (GW) at an estimated cost of ₹ **1921.7556 lakhs** to cover a CCA of 411.6 Ha.

3.4 FLOOD MANAGEMENT AND BORDER AREA PROGRAMME (FMBAP)

This is a Centrally Sponsored Scheme for construction of Anti-Erosion Works, Drainage and Flood Mitigation Works of critical in nature. The funding pattern is 90:10 (CS : SS). 10 (Ten) New Schemes with an estimated cost of ₹ 431.420 crore (Rupees four Hundred and Thirty one Crore and forty two lakh only) covering 39.346 km length of protection work have been recommended by the State Technical Advisory Committee (STAC) and State Flood Control Board (SFCB) for funding by the Ministry of Jal Shakti, Department of Water Resources during 2023-24.

3.5 CONSTRUCTION OF WATER HARVESTING POND UNDER NABARD RIDF XXVII

The main objective of the Fund is:

- To provide loans to State Governments and State-owned Corporations to enable them to complete ongoing rural infrastructure projects.
- To promote capacity building initiatives/efforts for creation of innovative/experimental/promotional infrastructure especially in rural sector and rural areas.

NABARD has sanctioned an amount of ₹. 256.78 Lakh under RIDF XXVII for creation of 29 nos. of water bodies during 2022-24 in Dimapur, Kohima, Mokokchung, Wokha & Zunheboto districts. The works are 100 % completed.

3.6 RATIONALIZATION OF MINOR IRRIGATION STATISTICS(RMIS)

For the implementation of Minor Irrigation Census, the Ministry of Jal Shakti, Department of Water Resources, River Development & Ganga Rejuvenation, Minor Irrigation (Statistics) Wing, Government of India has sanctioned six posts in the Statistical Cell, WRD to be manned by Statistical Personnel on deputation in coordination with the Water Resource Department the Nodal Department for implementation of Minor Irrigation Schemes.

The Department has successfully completed five Minor Irrigation Census(MIC) with reference year 1986 – 87, 1993 – 94, 2000 – 01, 2006 – 07 and 2013 – 14. Currently, the 6th Minor Irrigation Census (6th MIC) and 1st Census of Water Bodies (CWBs) with reference year 2017 – 18 was carried out in the State with an estimated cost of ₹ **63.26 lakh**. The Department has completed field works and on line Data Entry of 6th MIC & first CWBs. Total Number of Surface Minor Irrigation covered during 6th MIC is 19374 and total Nos. of Water Bodies covered during 1st CWBs is 1432.

3.7 STATISTICAL CELL UNDER RMIS, WRD

The Ministry has upgraded the following technical posts in the Cell under Restructured Statistical Cell, as one post of Assistant Director to Deputy Director, one post of Inspector of Statistics to Sr. Inspector of Statistics (Sr. IOS) and two posts of Sub-Inspector of Statistics to Inspector of Statistics (IOS) with full implementation of seventh Central Pay Commission to the Statistical Cell.

Presently, the Statistical Cell is headed by Deputy Director(stats) Assisted by one Sr. IOS, two IOS, one LDA and office Peon.

3.8 NATIONAL HYDROLOGY PROJECT (NHP)

National Hydrology Project (NHP) is a Central Sector Scheme of 9 years 6 months duration starting from 2016-17 onwards with an objective to modernize the data, information and knowledge support for water resources management, planning and operation. The Project in the State is headed by State Project Coordinator in the rank of Secretary/Commissioner & Secretary and assisted by Nodal Officer in the rank of Chief Engineer. The Ministry has approved an outlay ₹ 23.00 crore for implementation of the programme with 100 % funding

from World Bank & GOI. Till date, the State has received an amount of ₹ 15.38 crore under this programme. The programme aims at assessment of water resources through real time data collection. Some of the important program taken up are:

1. **Water Quality Lab:** The Department has established a Water Quality Laboratory of level 1+ at Dimapur to focus on the various water aspects and provide a platform to various private and govt. agencies/institutions etc by means of providing the water quality data for better policy and decision making in relation to water.



Educational tour of School students in the Water Quality Lab , Dimapur on 18th Oct, 2023.

2. **State Water Informatics Centre (SWIC):** The Department on behalf of the State has signed an MOA with the National Water Informatic Centre (NWIC), DoWR, RD & GR, MoJS, GOI on 7th July 2022 for establishment of SWIC in the State. The SWIC will act as Water Data Repository of the State entrusted with collecting, collating and updating data on water and allied themes with respect to the State and to act on policy towards

uniform data acquisition, standardization, analysis and dissemination. NWIC shall be fully handholding the State for effortless establishment and implementation of SWIC as well as development of State WRIS. The Department intends to place the mandates of SWIC in line with the framework prepared by NWIC before the State Cabinet for its approval.

3. **Development of Flood Forecasting Model in Dhansiri River, Nagaland:** The Department is carrying out a Study on "Development of Flood Forecasting Model in Dhansiri River, Nagaland" tying up with the consultant RMSI Private Limited, New Delhi with the objective to develop and operationalize flood forecasting system in Dhansiri river, Dimapur, Nagaland. The study is proposed to be developed in three stages i) flood warnings based on records of water level rise upstream ii) flood warnings based on heavy rainfall in the upstream catchment and hydrologic one-dimensional iii) flood warnings based on the meteorological forecasts.



Demonstration on 2D inundation Model for "Development of Flood Forecasting Model in Dhansiri River, Nagaland under NHP" held on 6th Feb, 2024, at State Data Centre, Kohima

4. **Alleviating Water Logging Problem in Critical Areas of Dimapur, Nagaland:** The Department is also carrying out another study “Alleviating Water Logging Problem in Critical Areas of Dimapur” a joint venture with M/s. Alluvium International Pvt Ltd, Australia with the objective to prepare i) a detailed project report for Alleviating Water Logging Problem in the Dimapur Airport Area including detailed design, cost estimate, schedule of works and environmental and social impact assessment for the drainage restricting work as well as construction period ii) preparation of plan for obviating vegetation overgrowth within the airport boundary in a sustainable manner, including options for financing. The firm has prepared the draft DPR and the final DPR will be completed by 2024-25.



Power Point Presentation on draft DPR for the study “Alleviating Water Logging Problem in Critical Areas of Dimapur under NHP” held on 7th Feb, 2024, at State Data Centre, Kohima

4.0 CAPACITY BUILDING

For enhancing of Skill Development, the Officers and Staff of the Water Resources Department are trained and exposed to successful projects in the neighbouring Districts and States for sharing of experience and benefits. During the financial year of 2023-24, the Department Officers and Staff were trained in the following training programme:

1. Five days training on "Use of Geospatial technologies in flood management and erosion control" held on 8 to 12 May 2023 at North Eastern Hydraulic and Allied Research Institute (NEHARI) wherein one official attended the training.
2. Two days training on "Flood Management and Border Area Programme (FMBAP) for the State of NE region" held on 22nd and 23rd May, 2023 at NEHARI, Brahmaputra Board, Guwahati wherein two officials attended the training.
3. Five days Capacity Building training programme on "Hydraulic Model Studies for River Engineering Works" held on 12th to 16th June, 2023 at NEHARI, Guwahati wherein two officials attended the training.
4. Five days Capacity Building training programme on "Survey Investigation and preparation of Detailed Project Report for River Valley Project" at NEHARI, Guwahati wherein two officials attended the training.
5. Three days Capacity Building training programme on "Audio Visual Editing Crash Course" held on 31st July to 2nd August 2023 at State Data Centre, Chief Engineer Office, WRD, Kohima.
6. Five days Capacity Building training programme on "Watershed and Water bodies Management" held on 21st – 25th Aug, 2023 at NEHARI, Brahmaputra Board, Guwahati wherein two officials attended the training.
7. Two days Capacity Building training programme on "PMKSY-HKKP: Groundwater Irrigation" held on 26th & 27th Sept, 2023 at NERIWALM, Tezpur wherein three officials attended the training.
8. Three days Capacity Building training programme on "Service & Accounts Matters" held on 4th to 6th Oct, 2023 at Chief Engineer's Office, WRD, Kohima.
9. Five days Capacity Building training programme on "Preparation of DPR for Flood Protection, Anti-erosion and River Training Works" held on 4th to 8th Dec, 2023 at NEHARI, Brahmaputra Board, Guwahati wherein two officials attended the training.

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Two days Capacity Building training programme on "PMKSY-HKGP: Groundwater Irrigation" held on 26th & 27th Sept, 2023 at NERIWALM, Tezpur.



Five days Capacity Building training programme on "Survey Investigation and preparation of Detailed Project Report for River Valley Project" at NEHARI, Guwahati.



Training on Service & Accounts Matters at Conference Hall, Chief Engineer Office, Water Resources Department, Kohima on 4th -6th October 2023.



Two days International Water Conclave at Shillong held on 9th-10th Feb, 2024.

5.0 CONCLUSION

The Department has achieved the following during 2023-24.

- a) The Irrigation Potential area of 9117 Ha has been created out of the 10508 Ha IP proposed for construction under 270 Nos. of MI Schemes under PMKSY-Har Khet Ko Pani, with completion of 231 Nos. of projects at the time of publication of the Report and the remaining shall be completed physically by end of the CFY.
- b) The Irrigation Potential area of 1585 Ha has been created out of the 6837.30 Ha IP proposed for construction under 213 Nos. of MI Schemes under PMKSY-Har Khet Ko Pani, with completion of 19 Nos. of projects at the time of publication of the Report,.
- c) Under the National Hydrology Project (World Bank aided programme), the State Data Centre Building has been completed for use by different stake holders for the purpose of data entry, validation, analysis, retrieval and dissemination of data of meteorological, hydrological (Surface & Groundwater) and Water quality measurements. The Hydrology Project Convention Centre was also successfully completed for facilitating Department trainings, workshops and events.
- d) The Department has completed the implementation of 262 units of Ground Water Irrigation Scheme for enhancing the economic condition of small and marginal farmers.

6.0 FUTURE VISION

To develop 'state of art' facilities for Hydrological Information System in the State through RTDAS (Real Time Data Acquisition System) by Implementation of National Hydrology Project with 100% funding by World Bank through MoJS, DoWR, Gol. Also, as per the Road map of the Department it is envisioned to carry out the following activities by 2024.

Theme/activities	Baseline scenario in 2019	End line scenario in 2024
Irrigation Development and Management(IDM)	Potential created is 36.45% of Ultimate Irrigation potential	Potential created is 45% of Ultimate Irrigation potential
On-farm Water Management(OFM)	Proposal has been formulated under ISBIG	ISBIG is implemented subject sanction of funds by central government
Data base preparation and data centre	Not yet established	Data centre is established and functional
Data updating on minor irrigation schemes/projects	Latest information up to the year 2019 on minor irrigation projects is not available	Minor irrigation census will be completed and updated data on village wise MI schemes will be available
Awareness programmes for water conservation and water Management	Awareness programmes are organised when Ministry requests and provide funds	Every year district/sub-basin level awareness programmes and conducted
Flood Risk and Erosion Management FREM	Few Flood control programmes are constructed and for some others sites are identified	Requirement FREM will be assessed and 50 % of assessed works will be completed
Hydrology and Basin Planning and Climate Change adaptation	It is negligible	State Specific Action Plan on water sector under National Water Mission will be ready. Substantial progress will be made on basin planning and state water plan
Capacity addition in WRD including expansion and restructuring (CA)	Department having 1 Chief Engineer, 1 Additional Chief Engineer, 2 Superintending Engineers, 1 S.E circle	One Chief Engineers, Two Additional Chief Engineers heading separate branches on (i) Irrigation Design & Planning (ii) Flood Management (iii) Hydrology and Water Plans are in position in WRD along with 4 SEs and 4 EEs. One Additional Chief Engineer, 1 Superintending Engineers and 2 Executive Engineers posts needs to be created.



CONSERVE WATER : SAVE LIFE