IMPORTANT ACHIEVEMENTS 2019-2020

Public Health Engineering Department
Government of Mizoram

TAWNLUIA

Deputy Chief Minister
Minister of PHED
Government of Mizoram

22 May, 2020

MESSAGE

It is a great pleasure to learn that Public Health Engineering Department (PHED) is publishing an e-book containing important achievements for the year 2019-2020.

As we are aware, the Department is entrusted to carry out survey and investigation in providing safe, adequate drinking water and sanitation facilities.

I fervently hope that this particular publication would serve as a useful source of information to all readers having interest in water supply and sanitation sector.

(TAWNLUIA)

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PUBLIC HEALTH ENGINEERING DEPARTMENT

The PHE Department, Govt. of Mizoram is responsible for providing safe drinking water supply and appropriate sanitation facilities to all citizens throughout the State of Mizoram.

Following are some of the major achievements of the Department.

1. RURAL WATER SUPPLY UNDER JAL JEEVAN MISSION:

On 15th August 2019, during his maiden Independence Day speech of his second term in office, the Hon'ble Prime Minister announced the Jal Jeevan Mission (JJM). A reformed approach to the water supply sector, the Jal Jeevan Mission has been designed to incorporate an integrated approach with end-to-end measures: from supply to reuse and recharge. Like the Swachh Bharat Mission, this programme will work as a Jan Aandolan.

VISION OF JJM:

Every rural household has drinking water supply **in adequate quantity of prescribed quality on regular and long-term basis** at affordable service delivery charges leading to improvement in living standards of rural communities.

MISSION OF JJM:

Jal Jeevan Mission is to assist, empower and facilitate:

1) States/ UTs in planning of participatory rural water supply strategy for ensuring potable drinking water security on long-term basis to every rural household and public institution, viz. GP building, School, Anganwadi centre, Health centre, wellness centres, etc.;
2) States/ UTs for creation of water supply infrastructure so that every rural household has **Functional Household Tap Connection (FHTC)** by 2024 and water in adequate quantity of prescribed quality is made available on regular basis;
3) States/ UTs to plan for their drinking water security;
4) GPs/ rural communities to plan, implement, manage, own, operate and maintain their own in-village water supply systems;
5) States/ UTs to develop robust institutions having focus on service delivery and financial sustainability of the sector by promoting utility approach;
6) capacity building of the stakeholders and create awareness in community on significance of water for improvement in quality of life;
7) in making provision and mobilization of financial assistance to States/ UTs for implementation of the mission.

OBJECTIVES OF JJM

The broad objectives of the Mission are:

1) to provide FHTC to every rural household;
2) to prioritize provision of FHTCs in quality affected areas, villages in drought prone and desert areas, Sansad Adarsh Gram Yojana (SAGY) villages, etc.;
3) to provide functional tap connection to Schools, Anganwadi centres, GP buildings, Health centres, wellness centres and community buildings;
4) to monitor functionality of tap connections;
5) to promote and ensure voluntary ownership among local community by way of contribution in cash, kind and/ or labour and voluntary labour (*shramdaan*);
6) to assist in ensuring sustainability of water supply system, i.e. water source, water supply infrastructure, and funds for regular O&M;
7) to empower and develop human resource in the sector such that the demands of construction, plumbing, electrical, water quality management, water treatment, catchment protection, O&M, etc. are taken care of in short and long term; and
8) to bring awareness on various aspects and significance of safe drinking water and involvement of stakeholders in manner that make water everyone's business.

COMPONENTS UNDER JJM

The following components are supported under JJM:

1) development of in-village piped water supply infrastructure to provide tap water connection to every rural household;
2) development of reliable drinking water sources and/ or augmentation of existing sources to provide long-term sustainability of water supply system;
3) wherever necessary, bulk water transfer, treatment plants and distribution network to cater to every rural household;
4) technological interventions for removal of contaminants where water quality is an issue;
5) retrofitting of completed and ongoing schemes to provide FHTCs at minimum service level of 55 lpcd;
6) greywater management;
7) support activities, i.e. IEC, HRD, training, development of utilities, water quality laboratories, water quality testing & surveillance, R&D, knowledge centre, capacity building of communities, etc.; and

8) any other unforeseen challenges/ issues emerging due to natural disasters/ calamities which affect the goal of FHTC to every household by 2024, as per guidelines of Ministry of Finance on Flexi Funds.

Efforts should be made to source funds from different sources/ programmes and convergence is the key.

Following achievements made under NRDWP and JJM may be highlighted.

Year	Coverage	Fund received
2008-2009	56 habitations	5417.26 lakh
2009-2010	124 habitations	5435.93 lakh
2010-2011	121 habitations	6157.60 lakh
2011-2012	122 habitations	3882.64 lakh
2012-2013	30 habitations	4791.93 lakh
2013-2014	57 habitations	4488.53 lakh
2014-2015	51 habitations	3449.96 lakh
2015-2016	28 habitations	1732.28 lakh
2016-2017	35 habitations	2448.75 lakh
2017-2018	20 habitations	4609.75 lakh
2018-2019	43 habitations	2625.00 lakh
2019-2020	15952 FHTC	6804.65 lakh

District-wise achievements of FHTC under JJM during 2019-20

Sl No.	District	No. of FHTC
1	Aizawl	2185
2	Champhai	2319
3	Kolasib	1447
4	Lawngtlai	1448
5	Lunglei	4240
6	Mamit	2057
7	Siaha	1748
8	Serchhip	508
	TOTAL	**15952**

2. ACHIEVEMENTS DURING 2019-2020 ON SBM-G MIZORAM

1) **Community Sanitary Complex (CSC):** 313 nos of Community Sanitary Complex (CSC) were constructed in various village along national highway.

2) **Solid Liquid Waste Management (SLWM):** 169 nos of Solid Liquid Waste Management (SLWM) / dumping ground were constructed in various villages depending on the size of population of each village.

    a. Under Solid Liquid Waste Management (SLWM), One Bio-gas plant was installed as pilot project at S. Maubuang village.

3) **Plastic Waste Collection Centre:** 308 nos of Plastic Waste Collection Centres were constructed for recycling purpose and 6 nos of plastic bailing machines were procured to be installed in appropriate blocks. One has been installed as pilot project at Aibawk.

4) **Swachh Survekshan Grameen (SSG 2019):** Swachh Survekshan Grameen (SSG 2019) is the Largest Indian Rural Sanitation survey and competition which was instituted from August 14 to September 30 2019.

    - ***Mizoram ranked 1st*** in North East, UTs and smaller states where population is less than 30lakh.
    - ***Kolasib district ranked 1st, Aizawl district 2nd and Serchhip district 3rd*** among all Districts in North East, UTs and smaller states.

5) **Swachh Bharat Awards (National Award):** The state received two National Awards from the Department of Drinking Water and Sanitation, Ministry of Jal Shakti
    - **State Award** for ODF Plus in 4+1 IEC Category
    - **National Award in Women Category**, Mrs. Laltharzeli of Mamit for her outstanding contribution in Swachh Bharat Mission Gramin.

6) **IEC:** Under IEC, 34600 nos of Wall paintings and banners were constructed and distributed all across rural villages in Mizoram.

Swachh Mahotsav 2019 was launched at Aizawl on 25th July 2019 at Vanapa Hall. Swachh Mahotsav is an initiative by the government that encourages people from all over the country to maintain and promote cleanliness in their surroundings.

Under Swachh Mahotsav, Swachh Survekshan Grameen (SSG 2019), Swachhata Hi Seva (SHS 2019) and Swachh Prerak Day 2019 was organized on different themes and objectives.

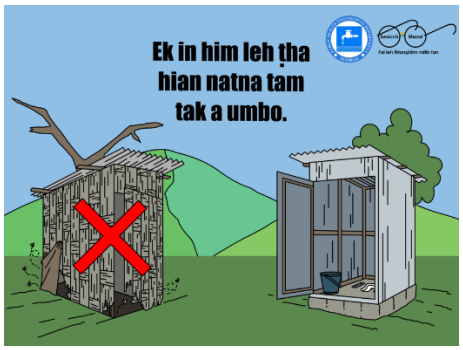
Swachh Mahotsav 2019 closing function was organized at Vanapa Hall on 19th September 2019. Chief guest has addressed the special function '**Swachh Mahotsav 2019'**, organized by the PHED. The Chief guest also presented the **Swachh Bharat Awards 2019** in various categories for outstanding contribution to Swachh Bharat Mission in Mizoram.

On 150th birthday celebration (2nd October 2019) of Mahatma Gandhi organized by Govt. of India and Govt of Gujarat at Sabharmati, Ahmedabhad, ten (10) Swachhagrahis from different district were selected to attend the function from Mizoram with officials under SBM-G.

Swachh Survekshan Grameen 2019 Awards received by Mizoram and three districts of Kolasib, Aizawl and Serchhip on 19.11.2019 at World Toilet Day Celebration, New Delhi

4+1 IEC Campaign

4 Wall paintings and ODF Board constructed in all villages.



Mizoram Awarded state Award in 4+1 IEC Category, and Mrs Laltharzeli awarded National Award in Women Category on 6.9.2019 at Swachh Mahotsav 2019 Celebration, New Delhi

Swachh Mahotsav 2019 was attended by Officials from Mizoram along with selected Swachhagrahis and Sarpanches.

Community Sanitary Complex (CSC)

Plastic Waste Collection Centres

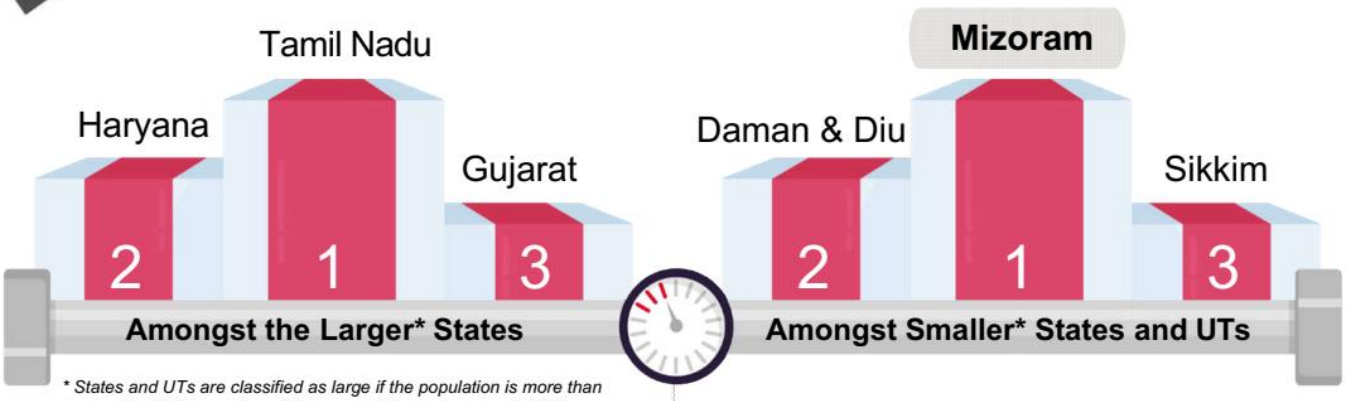
Solid Waste Management (SWM)

Swachh Gram Swachh Zila

Swachh Survekshan Grameen 2019

TOP PERFORMERS

TOP THREE STATES AND UTS



** States and UTs are classified as large if the population is more than or equal to 30 lakh and small if the population is less than 30 lakh*

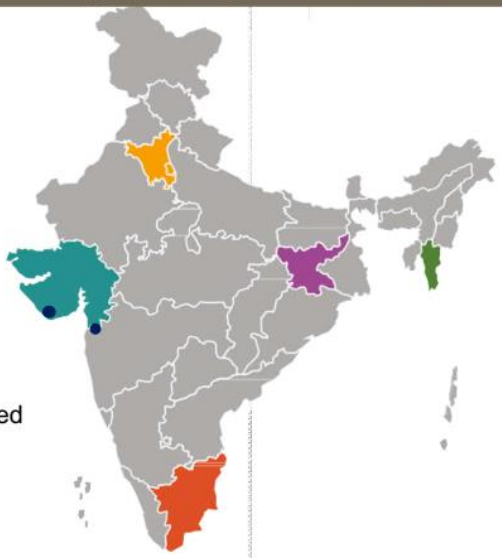
Top three districts among Small States & UTs

Top States by Zones and UT

State of Haryana ranked topmost state in **North**

State of Gujarat ranked topmost state in **West**

Daman & Diu is the top ranked **Union Territory**



State of Mizoram ranked topmost state in **North East**

State of Jharkhand ranked topmost state in **East**

State of Tamil Nadu ranked topmost state in **South**

3. ACHIEVEMENTS UNDER NABARD AND NEDP UNDER PHED DURING 2019-2020

Sl. No	Name of project	Funding Source	Amount (lakh)	Expdtr. (lakh)	Commissioned/ completed
1	Sailam (Aug) (Pumping)	NABARD	259.62	259.62	August 2019
2	Thingdawl WSS	NABARD	520.00	520.00	October 2019
3	Vanbawng WSS (Solar Pumping)	NABARD	241.10	241.10	December 2019
4	Combined Phullen & Thanglailung WSS	NABARD	1400.00	1400.00	March 2020
5	Combined WSS of Rulkual, R. Vanhne, Paithar & Saikah (Solar Pumping Scheme)	NABARD	1104.40	1104.40	March 2020
6	Combined Solar Water Pumping Scheme for Chiahpui, NE Khawdungsei & Khawkawn WSS	NABARD	942.38	742.38	March 2020
7	Combined Solar Water Pumping Scheme for Mimbung & Hrianghmun WSS	NABARD	1137.90	1137.90	March 2020
8	Imp. of SRI Laboratory Treatment Plan	NEDP	140.51	140.51	April 2019
9	Drainage of Venghnuai, Aizawl	NEDP	18.00	18.00	April 2019
10	Drainage of Dinthar veng, Aizawl	NEDP	3.00	3.00	April 2019
11	Interconnection of main Reservoir and existing Plant at Zawlnuam	NEDP	38.41	38.41	May 2019
12	Suarhliap WSS (Solar Pumping)	NEDP	130.00	130.00	May 2019
13	Imp. and Electrification of existing Tlabung WSS	NEDP	180.20	180.20	May 2019
14	Chhipphir WSS (Solar Pumping)	NEDP	80.00	80.00	May 2019
15	Thenhlum WSS	NEDP	85.40	85.40	May 2019
16	Water Supply Scheme for Belthei	NEDP	78.34	78.34	May 2019
17	Buarpui WSS (Solar Pumping)	NEDP	400.00	400.00	May 2019
18	Contruction of RCC Reservoir at W. Rotlang	NEDP	11.27	11.27	May 2019
19	Providing Water Supply to integrated Ayush Hospital, Thenzawl	NEDP	26.00	26.00	June 2019
20	Survey and Investigation of Tawi WSS	NEDP	15.00	15.00	June 2019

21	Imp. of N. Vanlaiphai WSS	NEDP	76.00	76.00	June 2019
22	Water Supply to Tualvungi Veng, Hermon Veng & Kanan at Thenzawl	NEDP	78.00	78.00	June 2019
23	Construction of Service Reservoir at Rahsi Veng including Sectional Office and replacement of PS Tank by RCC circular Resrevoir at Bazar Veng, Lunglei	NEDP	67.60	67.60	June 2019
24	Strengthening of Tuidam WSS (Pumping)	NEDP	64.51	64.51	July 2019
25	Bungthuam WSS (Ground Water Based Pumping)	NEDP	25.66	25.66	July 2019
26	Construction of RCC Reservoir at Pangzawl	NEDP	18.76	18.76	July 2019
27	Aiduzawl WSS	NEDP	39.60	39.60	July 2019
28	Dengsur WSS (Solar Pumping)	NEDP	26.98	26.98	August 2019
29	Construction of IVSS under AWDD 'N'	NEDP	21.00	21.00	August 2019
30	Restoration of damage for Marpara 'S' WSS	NEDP	61.10	61.10	October 2019
31	Const. of Gravity Pipeline and intake for Gr. Khawzawl WSS	NEDP	55.00	55.00	October 2019
32	Repair of Service Reservoir at Thingsai	NEDP	15.68	15.68	October 2019
33	Repair of Reservoir at Reiek	NEDP	34.30	34.30	October 2019
34	Const. and renovation of non-functional toilet provision of hand washing facility in Govt. Schools within Mamit 'Aspirational District' Mizoram	NEDP	183.67	183.67	January 2020
35	Storm Water drainage of Aizawl Phase-I	AMRUT	4419.73	4419.73	March 2020

4. ON-GOING WORKS TAKEN UP UNDER PHE DEPARTMENT

(Rupees in lakh)

'A' NLCPR

Sl. No	Name of scheme/ project/programmes	Approved project cost	Achievement upto March, 2020		Remarks
			Physical (%)	Financial	
1	Sainik School & Chhingchhip WSS	787.00	81.10%	611.82	Work in progress
2	Construction of Dam Reservoir and Development of Recreation Centre at Keilungliah	1988.00	63%	485.64	Work in progress

'B' NESIDS

1	Alternative Gravity Water Supply scheme of Aizawl (AGWSSA)	1141.96 (crore)	51.54%	4500.00	Work in progress

'C' NEC

1	E Lungdar Multi Village WSS	1100.00	66.05%	10.00	On hold

'D' 10% GBS

1	Greater Khawzawl W/S/S (Pumping)	2497.00	91.67%	2497.00	Work in progress
2	Biate WSS (Pumping)	1364.67	93.00%	1309.69	Work in progress

'E' NABARD

1	Combine Phullen & Thanglailung WSS (RIDF-XXIII)	1400.00	100%	1400.00	Completed
2	Combine WSS of Rulkual, R.Vanhne, Paithar and Saikah (Solar Pumping Scheme) (RIDF-XXIII)	1104.40	100%	1104.40	Completed
3	Combine Solar Water Pumping Scheme for Chiahpui, NE Khawdungsei and Khawkawn WSS (RIDF-XXIII)	942.38	100%	942.38	Completed
4	Combine Solar Water Pumping Scheme for Mimbung & Hrianghmun WSS (RIDF-XXIII)	1137.90	100%	1137.90	Completed
5	N. Tinghmun WSS (Solar Pumping Scheme) (RIDF-XXIV)	145.75	40.55%	43.72	On-going work
6	Aug. of Sumsuih WSS (RIDF-XXIV)	206.26	55.11%	61.88	On-going work
7	Imp. of Lengpui WSS (RIDF-XXIV)	237.45	48.13%	71.23	On-going work
8	Sialhawk WSS (Solar Pumping Scheme) (RIDF-XXIV)	1261.78	43.85%	378.53	On-going work
9	Hliappui WSS (Solar Pumping Scheme) (RIDF-XXIV)	680.00	50.45%	194.80	On-going work

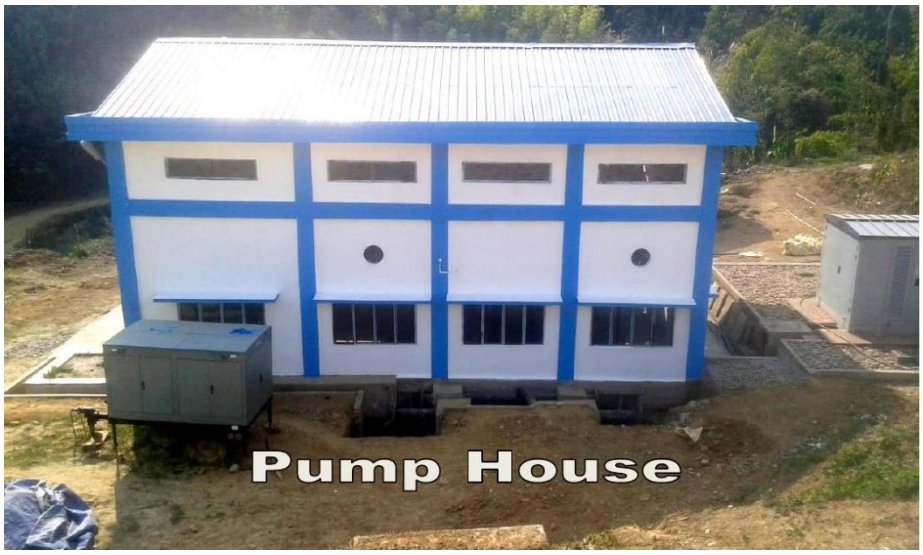
10	Aug. of Hnahlan WSS (Solar Pumping Scheme) (RIDF-XXIV)	1065.57	50.45%	196.82	On-going work
11	Aug. of Greater Mamit WSS Part-I (Raw Water (RIDF-XXIV)	670.00	29.55%	201.00	On-going work
12	N.Mualthuam WSS (Solar Pumping Scheme) (RIDF-XXIV)	174.35	92.31%	52.30	On-going work
13	Construction of feeding and pumping WSS to Reiek (RIDF-XXV)	1296.63			

'F' AMRUT

1	Storm water drainage of Aizawl – Phase –I	4419.73	100%	4419.73	Completed
2	Setting up of Septage management Unit including Anaerobic Microbial Inoculums (AMI) & Bio-digester manufacturing facility at Aizawl	1372.60	36.73%	359.10	Balance fund is awaited
3	Imp of AWSS (Dist. system, feeding main, Zonal tank, Pump & Machineries, Treatment Plant) under AMRUT (2017-19) Volume 'C': Renovation of chemical house, diesel engine, transmission line etc. under AWT Division.	3212 /Vol 'C' 821.25	80.00%	260.33	

5. Photographs of some Water Supply Schemes being taken up

GREATER KHAWZAWL WSS UNDER 10% GBS



Intake Jackwell at Tuipui

Aerator Clariflocculator Sedimentation Tank Filter House

Treatment Plant and Pump House No.-1 at Tuipui

Pump House No. I & Sump at Tuikum

Machine & Panel Board at Pump House No. 2

Water Treatment Plant and Pump House No.-1 at Tuikum

6. STATEMENT OF HOUSE WATER CONNECTION (As on 1.4.2020)

District	No. of House Water Connection		Total
	Urban	Rural	
Aizawl	58,714	3439	62,153
Champhai	6,393	4247	10,640
Kolasib	8,285	2835	11,120
Lawngtlai	3,433	2935	6,368
Lunglei	13,635	5931	19,566
Mamit	2,705	3089	5,794
Saiha	4,152	1788	5,940
Serchhip	5,491	508	5,999
Total	**1,02,808**	**24772**	**127,580**

7. STATEMENT OF HOUSE WATER REVENUE COLLECTION

Sl. No	Year	Target (Rs in lakh)	Amount collected (Rs in lakh)	Remarks
1	2008-2009	499.82	635.39	
2	2009-2010	721.00	747.40	
3	2010-2011	1000.00	764.01	
4	2011-2012	1486.00	874.83	
5	2012-2013	1332.59	1412.58	
6	2013-2014	1800.00	1870.72	
7	2014-2015	2066.00	2281.60	
8	2015-2016	2500.00	3568.62	
9	2016-2017	3700.00	3751.67	
10	2017-2018	4000.00	4005.78	
11	2018-2019	4320.00	4479.56	
12	2019-2020	5000.00	4937.77 (-62.234)	*The Deptt. has not achieved the target due to Covid-19 pandemic crisis*

8. STATUS OF URBAN WATER SUPPLY (As on 1.4.2020)

There are 1(one) no of city and 22(twenty two) nos. of notified Towns in Mizoram and out of these, 16 (sixteen) nos. are fully covered (70 lpcd and above) and 7(seven) nos. are still not fully covered (below 70 lpcd) as shown below:

Sl. No	Name of Town/City	LPCD as on 1.4.2020
1	Aizawl City	70
2	Khawhai	30
3	Saitual	70
4	Zawlnuam	38
5	Bairabi	70
6	Khawzawl	90
7	Tlabung	70
8	Hnahthial	70
9	Saiha	70
10	Lawngtlai	40
11	Thenzawl	50
12	Darlawn	70
13	Lengpui	70
14	Kolasib	70
15	Vairengte	70
16	Serchhip	70
17	Lunglei	64
18	Sairang	70
19	N.Kawnpui	70
20	Champhai	70
21	Mamit	70
22	Biate	19
23	N.Vanlaiphai	28

9. SALIENT FEATURES OF GROUND WATER RESOURCES IN MIZORAM

The total resources of the state	:	0.192 BCM
Existing development	:	0.007 BCM
Balance available for future development	:	0.185 BCM
Stage of development	:	3.8 %
Categorization of assessment units	:	Safe (All units)
Ground water recharge in Poor quality zone	:	Nil
Additional annual potential recharges	:	Nil

GROUND WATER DEPLETION SURVEY:

Ground water Level Survey has been carried out from the year 1999 in Mizoram by Ground Water Resources Assessment Cell (GWRAC) of PHE Department, Mizoram. During each field season, pre-monsoon and post monsoon ground water level data were collected from various locations covering all the districts of Mizoram. The technique of marking the locations of monitored wells evolves with times. The numbers of observation locations varies from time to time; however, at least 70 specific locations are marked and utilized consistently for measuring the ground water level for the entire state.

Prior to 2012 survey, Global Positioning Satellite (GPS) readings of the well locations were not included. However, from the 2012 season survey onwards, GPS data viz., latitude, longitude and even altitude of the well location were included. Incorporation of GPS readings enhances the accuracy and accountability of the data and reports. It was hoped that in the near future, more advanced technology like Geographical Information System (GIS) can be utilized for further development and collection of ground water data in our state. Application of sophisticated instruments may also ease the survey works and increase the accuracy of the output.

HYDROGEOLOGICAL CONDITIONS:

Hydrogeologically, the various rock types found in Mizoram can be grouped into two categories i.e. semi-consolidated formations and unconsolidated formations.

The entire area may be divided into two Hydrogeological Units viz. Un-consolidated unit and Semi-consolidated Unit.

The Un-consolidated formations with limited alluvial thickness are restricted along intermontane valleys, fractured valleys and shallow alluvial plain. The potentiality of ground water is found to be high within the areas of Un-consolidated unit. The sediments comprising alluvium and colluviums are by and large the important repositories of ground water. These are essentially comprised of sand, silt, and gravel, etc. The beds of sand and gravel and their admixtures form potential aquifers. The aquifer materials vary in particle size, roundness and sorting. Consequently, their

water yielding capabilities vary considerably. With high amount of rainfall and good recharge conditions, the ground water gets replenished every year in these zones.

The unconsolidated formations are found abundantly in the western part of the state. However, they are widely distributed in the central and eastern parts as well.

The semi-consolidated formations mainly comprise shale, sandstones and limestone. Major part of the State is occupied by Semi-consolidated unit which constitutes sandstone and shale. The Semi-consolidated formations developed secondary porosity due to tectonic disturbances. As the state is entirely occupied by hills with gentle to steep slopes, most of the rainwater flows out as surface runoff. In this type of terrain, the scope for ground water storage is limited to mostly secondary porosity and structural control in the higher elevation aquifers. These aquifers are the main source for springs. Ground water stored in the hill slopes emanates in the form of springs, which are being used as a source for water supply.

EFFECT OF GROUND WATER DEPLETION:

In areas with frequent water stress and large aquifer systems, ground water is often used as the main water source. If withdrawal of ground water exceeds the natural ground water recharge for extensive areas and long times, ground water depletion occurs. The deterioration in ground water levels can also be attributed to a various reasons like the failure of monsoons, and lack of rainwater harvesting. Some of the negative effects of ground water depletion are mentioned below:

1) Excessive pumping can lower the ground water table and cause wells to no longer be able to reach ground water.
2) As the depth to water increases, the water must be lifted higher to reach the land surface. As the lift distance increases, so does the energy required to drive the pump. Thus, power costs increase as ground-water levels decline. Depending on the use of the water and the energy costs, it may no longer be economically feasible to use water for a given purpose.
3) Ground-water levels may decline below the bottom of existing pumps, necessitating the expense of lowering the pump, deepening the well, or drilling a deeper replacement well.
4) The yield of the well may decline below usable rates.
5) Depletion of ground water may also leads to land subsidence. The basic cause of land subsidence is a loss of support below ground. When water is taken out of the soil, the soil collapses, compacts, and drops. This depends on a number of factors, such as the type of soil and rock below the surface. Land subsidence is most often caused by human activities, mainly from the removal of subsurface water.

METHOD OF SURVEY:

The Wet tape method is used for surveying the ground water level within the entire state. Graduated steel or cloth tapes were used to measure the ground water level. The advantage of this method is that it offers great flexibility when measuring water levels. One of the drawbacks to the wet tape method includes the possibility of the tape coming into contact and tangled with other objects in the borewell, or breaking and falling into the well.

The following steps are carried out in the wet tape method:

1) The most recent measurement is referred at the initial step. Depending on aquifer characteristics, the graduated steel tape is inserted approximately 2–4 metres deeper than most recent measurement.
2) Protective gloves are used then at least the first five feet of the graduated steel tape is completely chalked.
3) The graduated steel tape is slowly lowered/ slowly feed in the hole.
4) The tape will begin to feel a little heavy or "weighted". If the "weighted" feel is lost while feeding tape, the tape is reeled up the hole and then tried to feed past the obstruction.
5) Once the desired depth is reached the tape was hold for 3 to 5 seconds.
6) The tape is then reeled up the well at a rapid pace so the wetted mark does not dry before reaching the surface. If an obstruction is encountered, the tape is lowered again below the obstruction and then the tape was carefully worked past the obstruction.
7) The wetted mark on the end of the tape was noted down after reading the graduation on it.
8) We subtract the depth of the inserted tape from the wetted mark on the tape.

SURVEY RECORDS:

Ground water Level Survey has been conducted from 1999 to 2019 and the records include annual ground water level for pre-monsoon and post monsoon seasons. During 1999-2011, the entire state is represented as a single unit. From 2012 onwards ground water level data are represented in district-wise as well. The ground water level is measured in metres below the ground level (bgl).

It was observed that the level of ground water is consistent with depth ranging from 8.80-13.25m below ground level. The rate of decadal (1999 to 2009 and 2010 to 2019) depletion of ground water in Mizoram is about 0.50m, where the depletion of ground water during pre-monsoon season is 0.32m and that of post monsoon is 0.57m during the last decade.

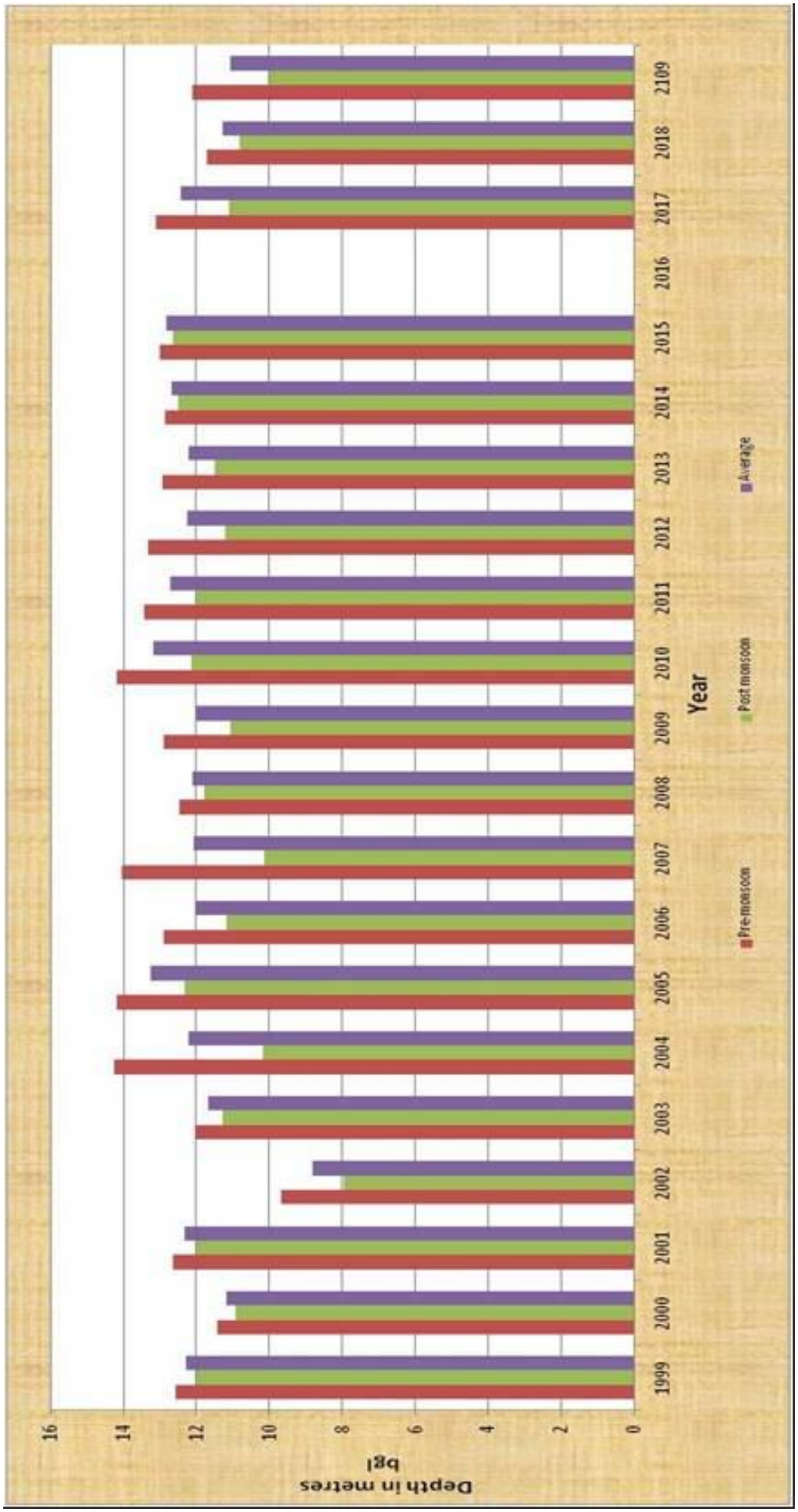
10. YEAR WISE SHOWING PRE MONSOON, POST MONSOON AND AVERAGE GROUND WATER LEVEL IN MIZORAM

Year	Pre-monsoon	Post monsoon	Average
1999	12.56	12.00	12.28
2000	11.43	10.92	11.17
2001	12.63	12.01	12.32
2002	9.68	7.94	8.81
2003	12.05	11.29	11.67
2004	14.24	10.19	12.22
2005	14.19	12.31	13.25
2006	12.88	11.16	12.02
2007	14.02	10.12	12.07
2008	12.45	11.79	12.12
2009	12.90	11.08	11.99
2010	14.18	12.15	13.17
2011	13.44	12.00	12.72
2012	13.31	11.21	12.26
2013	12.91	11.50	12.21
2014	12.84	12.51	12.68
2015	13.01	12.64	12.83
2016	Data gap	Data gap	Data gap
2017	13.09	11.11	12.41
2018	11.72	10.83	11.28
2019	12.09	10.01	11.05

Pre-monsoon, Post monsoon and average ground water level in Mizoram, 1999-2019

Note: The rate of decadal decline of ground water level is about 0.50m, indicating depletion of ground water in the state of Mizoram.

11. BAR CHART SHOWING PRE MONSOON, POST MONSOON AND AVERAGE GROUND WATER LEVEL IN MIZORAM



Vairengte Water Treatment Plant