Year 2020-2021

जल शक्ति मंत्रालय
MINISTRY OF JAL SHAKTI
DoWR, RD & GR

ATAL BHUJAL YOJANA (Atal Jal)

Report of the 1st Round of Verification in respect of Disbursement Linked Indicators (DLI)

Prepared by :

QUALITY COUNCIL OF INDIA
QCI
Creating an Ecosystem for Quality

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ABBREVIATIONS

Ca	Calcium
CGWB	Central Ground Water Board
Cl	Chloride
CO_3	Carbonate
DLI	Disbursement Linked Indicators
DoWR, RD&GR	Department of Water Resources, River Development and Ganga Rejuvenation
DSPC	Data Storage & Programming Cell
DWLRs	Digital Water Level Recorders
EC	Electrical Conductance
F	Fluoride
GSDA	Groundwater Surveys and Development Agency
GEMS	Groundwater Estimation and Management System
GIS	Geo-Informatics System
GoI	Government of India
Govt.	Government
GPs	Gram Panchayats
GWD	Ground Water Department
GWDES	Ground Water Data Entry System
GWRDC	Ground Water Resources Development Corporation
Ha.m	Hectare Meter
HCO_3	Bicarbonate
HGR	Hydrogeological Reports
IMIS	Integrated Management Information System
IT	Information Technology
K	Potassium
KN	Karnataka

m.bgl	Meter below ground level
M/o Jal Shakti	Ministry of Jal Shakti
Mg	Magnesium
MIS	Management Information System
MPWRD	Madhya Pradesh Water Resources Department
Na	Sodium
NABL	National Accreditation Board of Laboratories
NO_3	Nitrate
NPMU	National Program Management Unit
OW	Observation Well
PAD	Program Appraisal Document
PforR	Program for Results
pH	potential of hydrogen or power of hydrogen
PMU	Program Management Unit
Pz	Piezometer
QCI	Quality Council of India
QCI HQ	Quality Council of India Head Quarters
SGWD	State Ground Water Department
SO_4	Sulphate
SPMU	State Program Management Unit
TDS	Total Dissolved Solids
TPGVA	Third-Party Government Verification Agency
UP	Uttar Pradesh
WL	Water Level
WQ	Water Quality
WQDES	Water Quality Data Entry System
WSPs	Water Security Plans

EXECUTIVE SUMMARY

Atal Bhujal Yojana (Atal Jal) is a central sector scheme that envisages improving groundwater management in select water-stressed areas of identified states viz. Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and, Uttar Pradesh. The total outlay of the scheme is Rs. 6000 crore, of which Rs. 3000 crore shall be in the form of a loan from the World Bank. It is being implemented over a period of five years from 2020-21. The World Bank is financing the scheme under its Program for Results (PforR) lending instrument, in which disbursements are linked to achievements of predefined results.

The scheme has two components, viz.,
i) Institutional Strengthening and Capacity Building Component, aimed at strengthening the groundwater governance mechanism in the participating States and **ii) Incentive Component,** aimed at rewarding/incentivizing the States for various measures aimed at improving groundwater management practices and ensuring the long-term sustainability of groundwater resources. Disbursements under the incentive component shall be linked to the performance of states against identified Disbursement Linked Indicators (DLIs), duly verified by an independent Third-Party Government Verification Agency (TPGVA). To carry out independent verification of results in respect of the DLIs, M/s Quality Council of India (QCI) has been engaged as the TPGVA by the Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of India.

The first round of verification of achievements by the participating States was carried out by QCI from 16th December 2020. During the first round of verification, results/achievements against DLI#1 (public disclosure of groundwater data) were verified through the MIS (ataljal.in) and subsequently through sample field verifications.

DLI#1 incentivizes improvement in the quality of groundwater monitoring and data dissemination by the participating States. As mentioned in the verification protocol, the achievement by a State against DLI#1 shall be verified with respect to the year-on-year increase in the following:

a. No. of observation wells in the program blocks for which water level data, monitored using a functional measuring device is available

b. No. of observation wells in the program blocks for which water quality data is available

c. No. of wells equipped with functional meters for measuring energy consumption or volumetric groundwater usage (Not taken into consideration as data was not provided by States)

d. No. of program blocks for which 'Hydrogeological Reports' with information pertaining to groundwater level and water quality monitoring is available.

Concerning water level and water quality data disclosed by the states in the MIS, a random sample of 20% drawn at the block-level or 6 blocks, whichever is higher, was taken for verification. Digital and/or physical records of source data were checked with the MIS to identify any mismatch between the two.

The percentage of discrepancies found in the sample size was extrapolated to the total data disclosed by the states to arrive at an effective number of wells for which data disclosure was deemed as achieved. Hydrogeological Reports disclosed by the states were assessed for their completeness following a prescribed procedure.

A total number of successful occurrences was arrived at based on the summation of effective number of observation wells in respect of water level and water quality for which data was disclosed as per the verification protocol, as well as the number of Hydrogeological Reports that were deemed complete.

Based on the verification of all the eligible indicators against DLI#1, a total of **3435 occurrences** was recommended for all the seven states for disbursement of incentives.

Total Successful Occurrences: Disbursement Linked Indicator#1

	Water Level Observation Wells	Water Quality Observation Wells	Block-wise Hydrogeological Reports	Total Number of Occurrences (WL+WQ+HGR)
Gujarat	255	26	0	281
Haryana	611	117	0	728
Karnataka	295	123	14	432
Madhya Pradesh	185	33	4	222
Maharashtra	698	64	9	771
Rajasthan	380	403	0	783
Uttar Pradesh	192	26	0	218
(WL+WQ+HGR)	2616	792	27	3435

Table A: Summary table of successful occurrences across 7 states, for disbursement of funds under DLI#1

Part-I

INTRODUCTION

1.1 Introduction

Atal Bhujal Yojana was launched by the Hon. Prime Minister Shri Narendra Modi on 25 December 2019, the 95th birth anniversary of former Prime Minister Sh. Atal Bihari Vajpayee. The scheme endeavors to improve groundwater management in identified water-stressed areas of seven states.

Atal Bhujal Yojana (Atal Jal) is a Central Sector Scheme with an outlay of Rs. 6000 crore, out of which Rs. 3,000 crore will be a loan from the World Bank and Rs. 3,000 crore as a matching contribution from the Government of India (GoI). The funds under the scheme shall be provided to the states as grants-in-aid. The World Bank financing will be done under a new lending instrument, that is, Program for Results (PforR), wherein funds under the scheme will be disbursed from the World Bank to the GoI based on achievement of pre-agreed results. The scheme is being implemented over a period of five years from 2020-21 till 2024-25.

The objective of the scheme is to improve the management of groundwater resources in water-stressed areas of selected states (Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh) with community participation, emphasis on demand-side management, and convergence of different schemes.

The scheme has two components, viz., **i) Institutional Strengthening and Capacity Building Component,** aimed at strengthening the groundwater governance mechanism in the participating States and **ii) Incentive Component,** aimed at rewarding/incentivizing the states for various measures aimed at improving groundwater management practices and ensuring the long-term sustainability of groundwater resources. Under the Incentive Component, states will be rewarded/ incentivized for activities such as disclosure of groundwater-related data/information in the public domain, bringing convergence among various on-going schemes of the Central and State Governments, implementing interventions to promote sustainable groundwater management through appropriate supply and demand-side measures with active community participation as well as for ensuring rise in groundwater levels/improvement in the declining trend of groundwater levels as a result of improved management practices.

Disbursements under the incentive component are linked to the performance of states against identified Disbursement Linked Indicators (DLIs). Funds shall be disbursed subject to achievement of these result indicators by the implementing agencies after due verification by a Third-Party Government Verification Agency (TPGVA).

A total of five DLIs, as described below, shall be considered:

DLI#1 - Public disclosure of ground water data/information and reports: This DLI incentivizes the strengthening of groundwater management institutions to ensure periodic collection and public disclosure of groundwater related information as a measure of improved quality of ground water monitoring and data dissemination.

DLI#2 - Preparation of Community-led Water Security Plans: This DLI incentivizes the roll-out of a standardized bottom-up participatory groundwater planning process through preparation of community-led GP level Water Security Plans (WSPs).

DLI#3 - Public financing of approved Water Security Plans through convergence of ongoing/new schemes: This DLI incentivizes the use of the standardized bottom-up groundwater planning process to improve the effectiveness of public financing through convergence of various government programs for improving groundwater management in the target areas.

DLI#4 - Adoption of practices for efficient water use, which aims to incentivize the implementation of demand-side measures in the WSPs and signals the importance of shifting focus away from supply-side measures toward demand-side measures to improve groundwater sustainability.

DLI#5 - Improvement in the rate of decline of groundwater levels: This DLI incentivizes the arrest in decline of groundwater levels in target areas.

In order to carry out independent verification of results in respect of the DLIs mentioned, M/s Quality Council of India (QCI) has been engaged as the Third-Party Government Verification Agency (TPGVA) by the Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of India. The key tasks of the agency include fixing up baseline data, building the verification protocols to verify the results/performance achieved under identified DLIs, carrying out the verification through established procedures as per the protocol and submitting reports with respect to the results achieved against various DLIs to DoWR, RD&GR within the prescribed time-frame.

The purpose of this report is to present the results of the 1st round of verification with respect to **DLI#1 broadly based on the Program Guidelines Ver.1.1.** of Atal Bhujal Yojana, carried out by TPGVA. The report is divided into 4 parts. Part 1 introduces the Atal Jal Scheme, the extent of its implementation, and the timeline of the verification process; Part 2 discusses the approach and methodology adopted towards verification and the quality control mechanisms taken; Part 3 summarizes the results of verification, the baseline data established, and the state-wise achievement of DLI#1. Further details that help understand the verification process are added in part 4 (ANNEXURE). The required data was received through NPMU between 10th to 15th December 2020.

It is pertinent to mention that DLI#1 of the Program Guidelines corresponds to DLI#5 in the Project Appraisal Document of the World Bank.

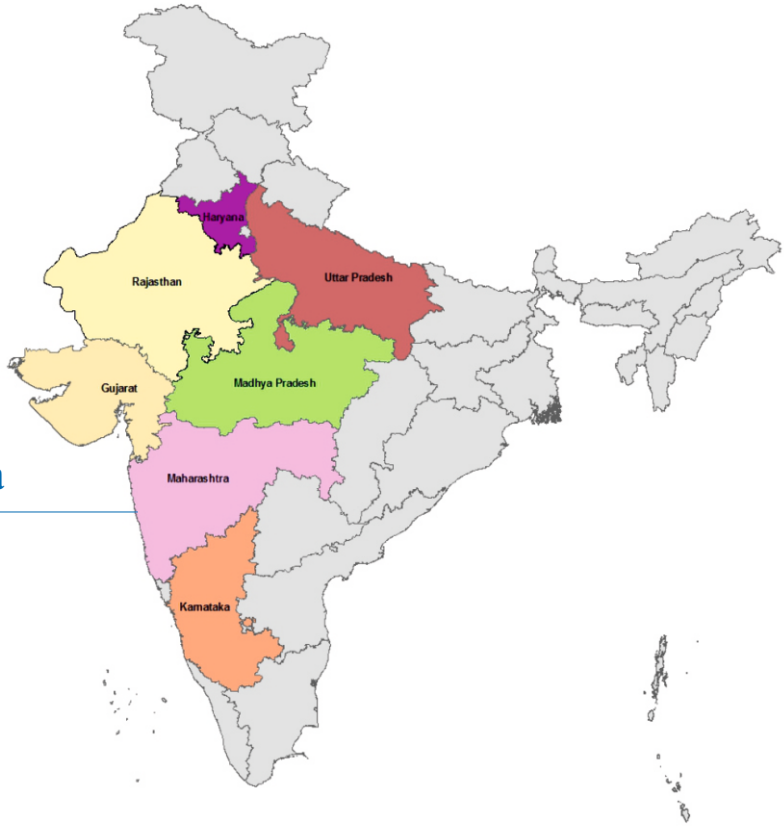
1.2 Extent of Atal Jal

The following table shows the number of Districts, Blocks and Gram Panchayats (GPs) under the Atal Jal Yojana in the 7 participating states:

S. No	State	Districts	Blocks	GPs
1	Gujarat	7	34	2,201
2	Haryana	13	36	1,895
3	Karnataka	14	41	1,199
4	Madhya Pradesh	6	9	672
5	Maharashtra	13	38	1,339
6	Rajasthan	17	38	1,144
7	Uttar Pradesh	10	26	550
	TOTAL	**80**	**222**	**9000**

Table B: Details of the area under Atal Jal in participating states

States under Atal Bhujal Yojana



1.3 Timeline for the 1st Round of Verification of Achievements of Atal Jal

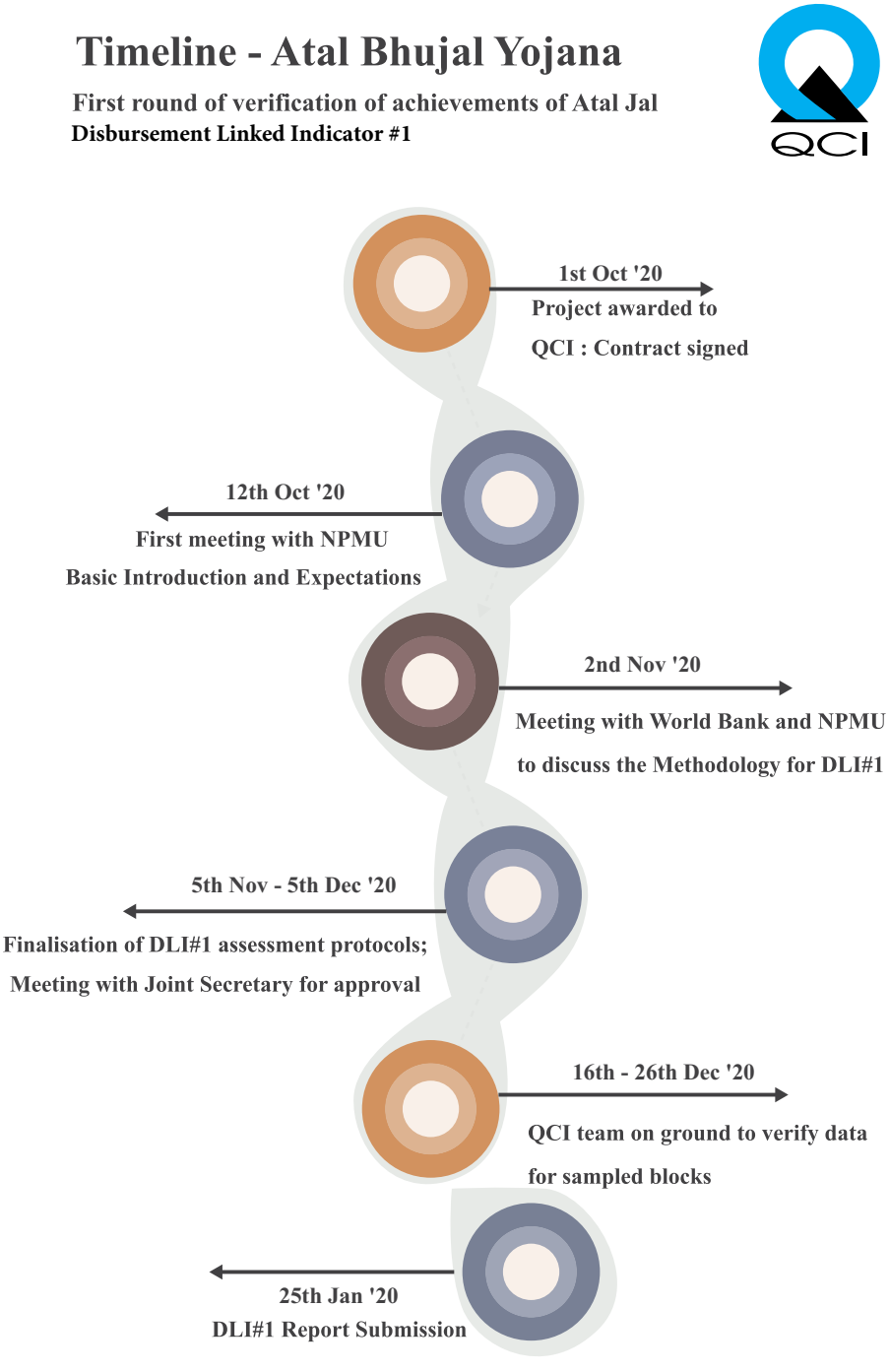


Figure 1: Timeline of verification towards DLI#1

Part-II

APPROACH AND METHODOLOGY

2.1 Approach and Methodology

The approach and methodology of data verification broadly follow the program guidelines and the verification protocol for DLI#1, as per the Program Guidelines (version 1.1) and the Project Appraisal Document (PAD) of the World Bank. The final detailed verification protocol in respect to DLI#1 is provided in ANNEXURE I.

As mentioned in the verification protocol for the 1st round of verification, the achievement by a State against DLI#1 shall be verified with respect to the following sub-indicators:

a. No. of observation wells in the program blocks for which water level data, monitored using a functional measuring device is available.

b. No. of observation wells in the program blocks for which water quality data is available.

c. No. of wells equipped with functional meters for measuring energy consumption or volumetric ground water usage.

d. No. of program blocks for which 'Hydrogeological Reports' with information pertaining to groundwater level and water quality monitoring is available.

As the data for the sub-indicator (c) was not disclosed by the states, the same was not considered for verification.

QCI devised the approach towards evaluating sub-indicators (a) and (b) with two broad steps:

Step one entailed detailed examination and scrutiny of the disclosed data in the Atal Jal MIS (ataljal.in) by implementing states in respect of various key indicators as per the protocol. This was aimed towards understanding the extent of availability of data.

Step two was ascertaining the authenticity of data disclosed through visits to data centers of states' implementing agencies, physical examination/ verification of data records, and field verification of observation wells.

The Hydrogeological Report serves the purpose of data dissemination in the form of compilation of information pertaining to the block, other than the data disclosed for Water Level (WL) and Water Quality (WQ) in the MIS. The methodology of evaluating sub-indicator (d) is discussed in the later sections.

Based on evaluating the above three sub-indicators, a total number of 'successful occurrences' was computed towards the disbursement of incentives against achievement of DLI#1 for every state. Methodology of computing successful occurrence is discussed in section 2.1.5.

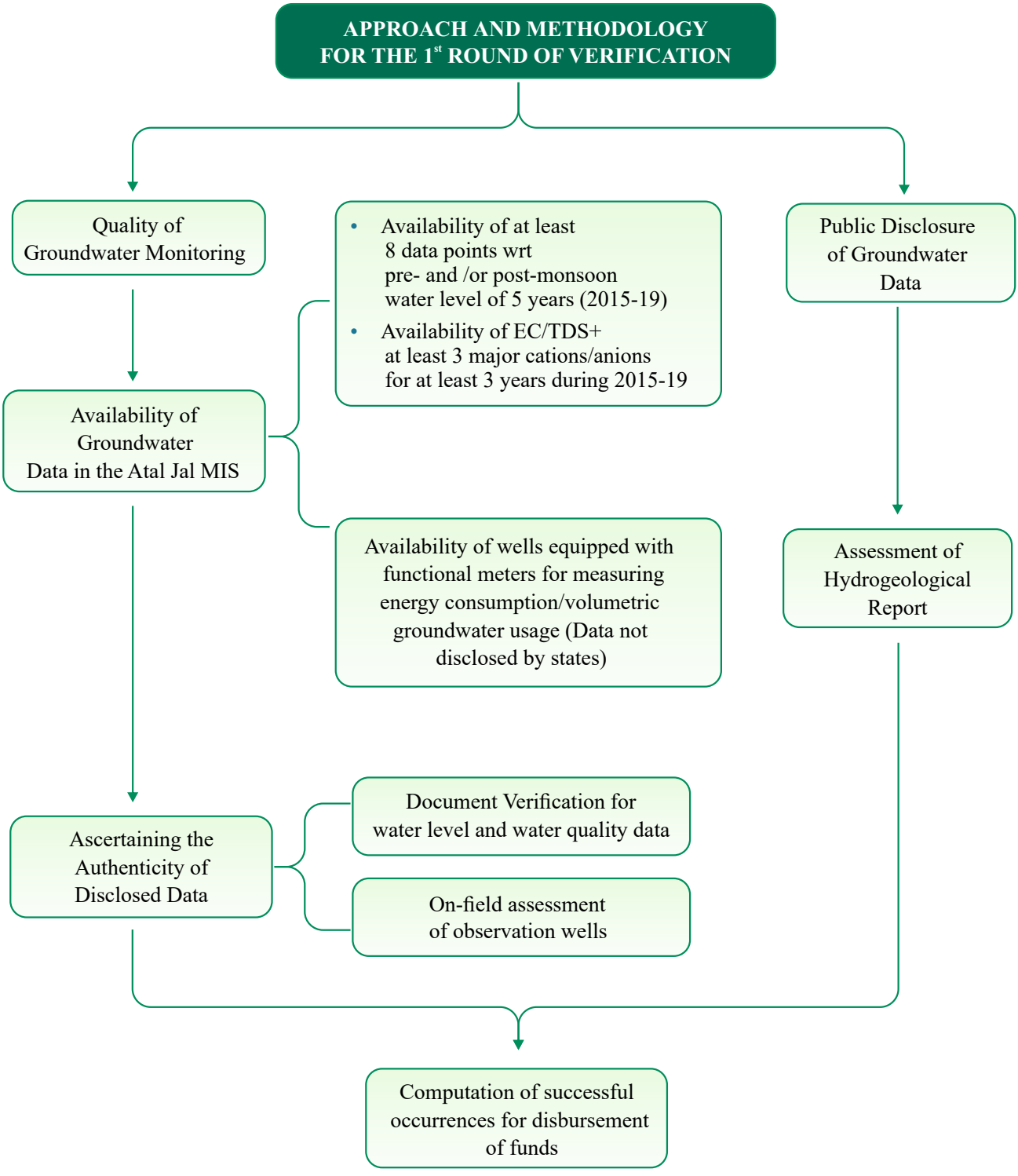


Figure 2: Methodology of verification of DLI#1 for the 1st round of verification

2.1.1 Availability of Water Level and Water Quality Data in the Atal Jal MIS

2.1.1.1 Availability of Water Level Data

For verification, among the data disclosed towards the depth to water level in observation wells, pre-monsoon and post-monsoon data is taken into consideration. Depth to water level values of May and November are considered as pre-monsoon and post-monsoon data respectively. In essence, a total of 10 data points is considered for the five years between 2015-19.

As mentioned in the verification protocol, availability of at least 8 data points (in respect of pre-and/or post-monsoon water levels) out of the total of 10 possible data points over the period 2015-19 was considered as a minimum requirement for qualification for disbursement of incentives. Hence, only such observation wells with at least 8 data points were considered to have disclosed enough data and taken for further verification.

The following table summarizes the State-wise availability of water level data:

State	Number of OWs as per the data received by QCI	Number of OWs after data cleaning ①	Number of OWs for which data is available as per the Verification Protocol
Gujarat	368	302	272
Haryana	1003	982	614
Karnataka	353	342	299
Madhya Pradesh	191	190	187
Maharashtra	747	747	699
Rajasthan	1075	701	387
Uttar Pradesh	309	308	198
TOTAL	**4046**	**3572**	**2656** ②

Table C: State-wise availability of data for water level

① Data cleaning was done in 3 steps:

1. The blocks which did not come under the extent of Atal Jal were removed.
2. OWs with no latitude-longitude data were removed.
3. OWs without a single data point were removed

② Total Sample size was 2656 (WL) as per the verification protocol. The assessment accuracy observed for water level was 98.5%, thus the successful occurrences were 2616

2.1.1.2 Availability of Water Quality Data

For verification, among the data disclosed towards water quality, only one sample is considered to be enough per year. The following parameters of water quality are considered: pH, EC/TDS, Ca, Mg, Na, K, CO_3, HCO_3, Cl, SO_4, NO_3 and F.

As mentioned in the verification protocol, availability of Specific Electrical Conductance (EC) or Total Dissolved Solids (TDS), together with at least 3 major cations/anions (Ca, Mg, Na, K, HCO_3, Cl, SO_4, NO_3, F) for at least 3 years during 2015-19 was considered sufficient for an observation well to be considered eligible for disbursement. Hence, only such wells were considered to have disclosed enough data and taken for further verification.

The following table summarizes the State-wise availability of water quality data:

State	Number of OWs as per the data received by QCI	Number of OWs after data cleaning①	Number of OWs for which data is available as per the Verification Protocol
Gujarat	269	269	26
Haryana	315	315	118
Karnataka	531	531	123
Madhya Pradesh	186	186	33
Maharashtra	180	180	66
Rajasthan	606	606	403
Uttar Pradesh	8158	8158	26
TOTAL	**10245**	**10245**	**795** ②

Table D: State-wise availability of data for water quality

①Data cleaning was done in 3 steps:

1. The blocks which did not come under the extent of Atal Jal were removed.
2. OWs with no latitude-longitude data were removed.
3. OWs without a single data point were removed

② Total Sample size was 795 (WQ) as per the verification protocol. The assessment accuracy observed for water quality was 99%, thus the successful occurrences were 792

2.1.2 Ascertaining the Authenticity of Data Disclosed

As per the verification protocol, the authenticity of data is to be assessed through verification of data sources. For the data that qualified the criteria described under 2.1.1, sources of data disclosed w.r.t water level and water quality were physically verified for a random sample.

The authenticity of data was established in two stages. In the first stage, the QCI team went to the state agencies' offices to physically verify the data submitted by states in MIS against original sources of data; the data centers and water quality laboratories were also visited. Subsequently, physical visits to a random number of OWs were conducted to gauge their condition.

A methodological approach was adopted for the selection of sample observation wells for verification, ensuring geographical representation. The sampling criteria and the approach of verification is briefly discussed below.

2.1.2.1 Document Verification for Water Level and Water Quality

For sampling, wells mentioned in the MIS against water level and water quality were considered for water level and water quality data verification respectively. As per the data qualified under 2.1.1.1, sampling was done at the block-level and a random sample of 20% subject to a minimum of 6 blocks[3] was chosen for verification.

The following table shows the sampling process for water level and water quality data:

Block Level Sampling								
State	Number of blocks for which data is disclosed as per Verification Protocol		Sample size based on 20% blocks in the state		Final sample size as per the sampling methodology		Actual % of Blocks considered as sample	
	Water Level	Water Quality	Water Level	Water Quality	Water Level	Water Quality	Water Level	Water Quality
Gujarat	30	13	6	2.6	6	6	20%	46%
Haryana	36	30	7.2	6	8	6	22%	20%
Karnataka	41	32	8.2	6.4	8	8	20%	25%
Madhya Pradesh	9	9	1.8	1.8	6	6	67%	67%
Maharashtra	38	29	7.6	5.8	8	6	21%	21%
Rajasthan	37	33	7.4	6.6	8	8	22%	24%
Uttar Pradesh	26	26	5.2	5.2	6	6	23%	23%
Total	**217**	**172**	**43.4**	**34.4**	**50**	**46**	**23%**	**27%**

Table E : State-wise number of blocks in the selected sample for water level and water quality data verification

[3] When a 20% sample was taken from the total number of blocks under Atal Jal across India, and the sample was distributed equally in all states, an average of 6.2 blocks was observed. Hence, when the sample of 20% blocks was drawn at the state level, a minimum threshold of 6 blocks was fixed.

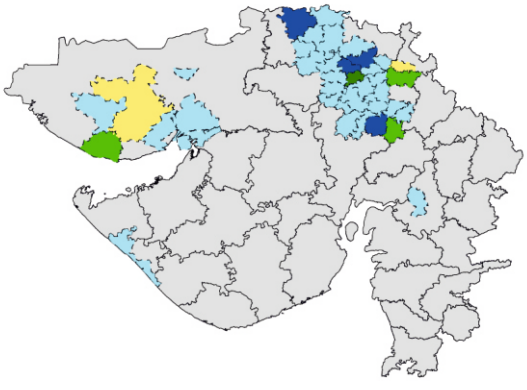
Towards verification of water level and water quality data, both digital records maintained by the concerned government offices as well as physical registers into which data is entered manually were deemed authentic sources of data. Scanned copies of original documents were also considered for verification in case a physical visit to any particular data centre/office was not possible.

Discrepancies in data points were noted, to be subsequently used for estimating the discrepancies in water level and water quality data disclosed by the states. Only those data points that reflected the depth to water level data (pre and post-monsoon) were considered towards estimating the authenticity of water level data. Similarly, data points related to EC/TDS, Ca, Mg, Na, K, CO_3, HCO_3, Cl, SO_4, NO_3 and F were considered towards establishing authenticity of water quality data. Discrepancies in other data points were also noted, though not considered in the estimation of authenticity.

Water Quality Testing Labs (one each under the State Agency and CGWB) were visited to document their accreditation status, capacity and quality of testing. Data handling and analytical procedures were also recorded.

Maps showing the state-wise blocks sampled for Water Level & Water Quality are shown below:

ATAL BHUJAL YOJANA - EXTENT & SAMPLED BLOCKS GUJARAT

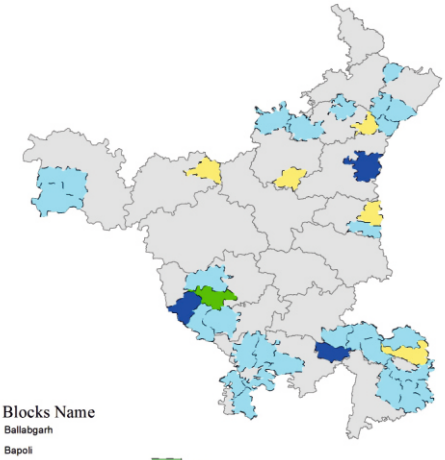


S. No.	Blocks Name
1	Bhuj
2	Dehgam
3	Gandhinagar
4	Idar
5	Mandvi
6	Sidhpur
7	Tharad
8	Unjha
9	Vadali
10	Vadgam

Water Quality
Water Level
Water Level & Water Quality
Atal Jal Extent
Other districts
District boundary
Block boundary

Not to scale

ATAL BHUJAL YOJANA - EXTENT & SAMPLED BLOCKS HARYANA

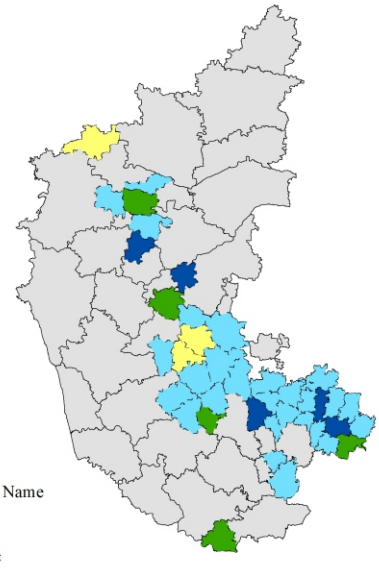


S. No.	Blocks Name
1	Ballabgarh
2	Bapoli
3	Behal
4	Kairu
5	Karnal
6	Ladwa
7	Pataudi
8	Rajound
9	Tohana

Water Quality
Water Level
Water Level & Water Quality
Atal Jal Extent
Other districts
District boundary
Block boundary

Not to scale

ATAL BHUJAL YOJANA - EXTENT & SAMPLED BLOCKS KARNATAKA

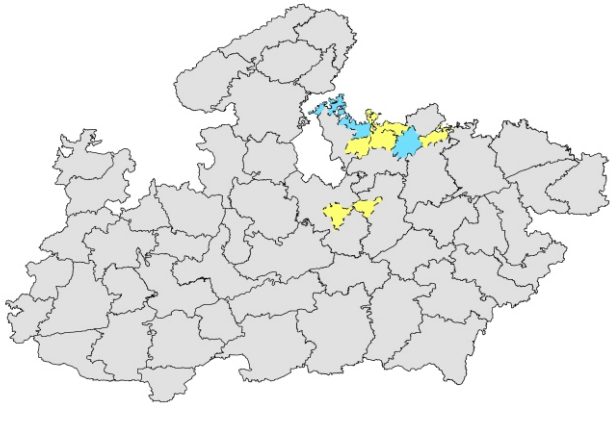


S. No.	Blocks Name
1	Athni
2	Badami
3	Bangarpet
4	Chitradurga
5	Gadag
6	Gundlupet
7	Hagaribommanahalli
8	Harapanahalli
9	Holalkere
10	Kolar
11	Sidlaghatta
12	Tiptur
13	Tumakuru

Water Quality
Water Level
Water Level & Water Quality
Atal Jal Extent
Other districts
District boundary
Block boundary

Not to scale

ATAL BHUJAL YOJANA - EXTENT & SAMPLED BLOCKS MADHYA PRADESH

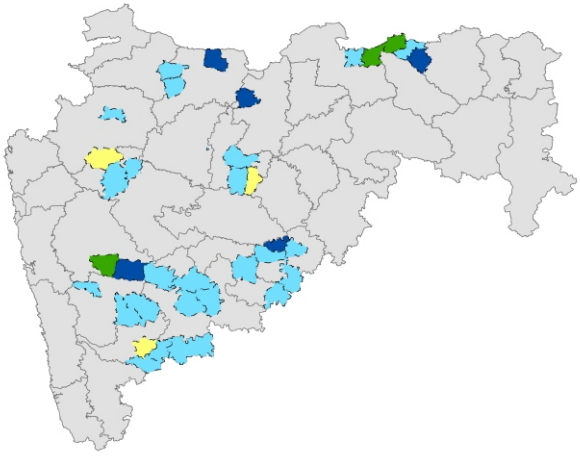


S. No.	Blocks Name
1	Ajaigarh
2	Baldeogarh
3	Chhatarpur
4	Nowgong
5	Pathariya
6	Sagar

Water Quality
Water Level
Water Level & Water Quality
Atal Jal Extent
Other districts
District boundary
Block boundary

Not to scale

ATAL BHUJAL YOJANA - EXTENT & SAMPLED BLOCKS
MAHARASHTRA



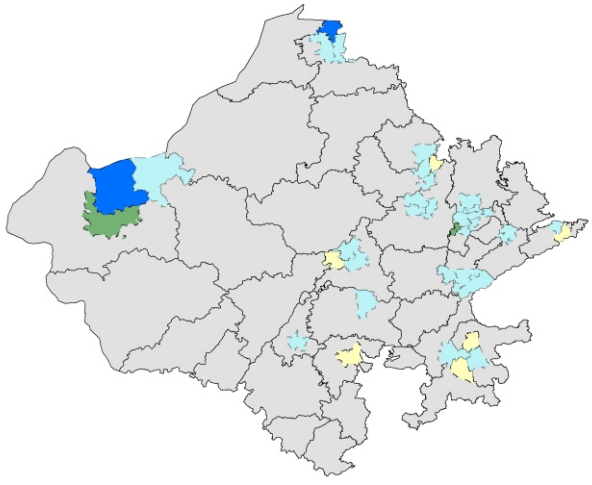
S. No. | Blocks Name

1	Baramati
2	Katol
3	Morshi
4	Motala
5	Partur
6	Purandhar
7	Renapur
8	Sinnar
9	Tasgaon
10	Warud
11	Yawal

Water Quality
Water Level
Water Level & Water Quality
Atal Jal Extent
Other districts
District boundary
Block boundary

Not to scale

ATAL BHUJAL YOJANA - EXTENT & SAMPLED BLOCKS
RAJASTHAN



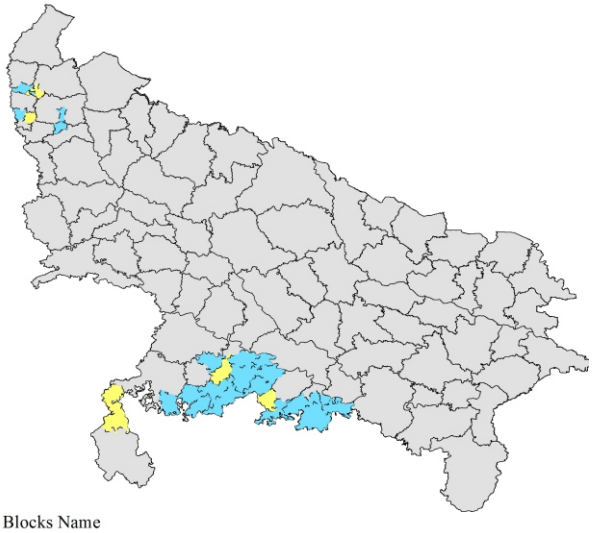
S. No. | Blocks Name

1	Baran
2	Chittaurgarh
3	Dhaulpur
4	Jaisalmer
5	Khanpur
6	Lawan
7	Mohangarh
8	Patan
9	Peesangan
10	Sangariya

Water Quality
Water Level
Water Level & Water Quality
Atal Jal Extent
Other districts
District boundary
Block boundary

Not to scale

ATAL BHUJAL YOJANA - EXTENT & SAMPLED BLOCKS
UTTAR PRADESH



S. No. | Blocks Name

1	Babina
2	Budhana
3	Mahuva
4	Muskara
5	Pilana
6	Talbehat

Water Quality
Water Level
Water Level & Water Quality
Atal Jal Extent
Other districts
District boundary
Block boundary

Not to scale

2.1.2.2 On-field Assessment of Observation Wells

For field verification, wells were chosen from the data disclosed by the States w.r.t water level. A random sample of 20% drawn at the block-level subject to a minimum of 6 blocks, was chosen for each state. Four OWs covering the geographical spread of the block were considered within each block.

To carry out the field assessment, wells were visited based on their location coordinates (latitude and longitude), as mentioned in the MIS. Upon visiting the well, details related to its accessibility, functionality, monitoring and measuring mechanism were recorded through a comprehensive questionnaire (attached in ANNEXURE - IIIA: QUESTIONNAIRE).

Findings related to on-field assessment are presented in section 3.2.

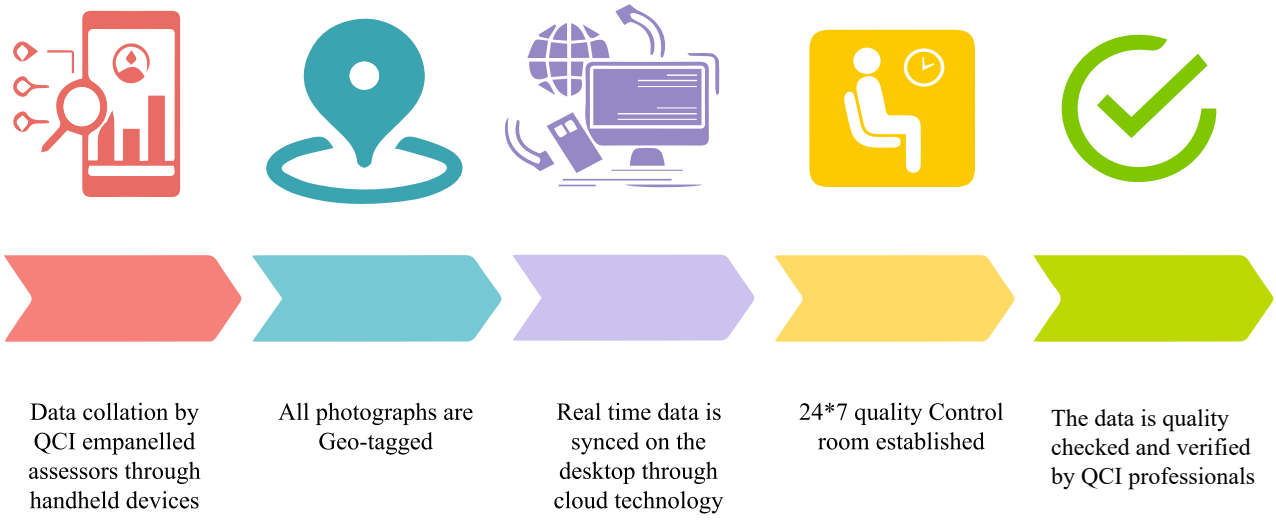


Figure 3: The process of on-field assessment

2.1.3 Block-level Hydrogeological Reports

As per the verification protocol, public disclosure of data includes placement/dissemination of the block-wise Hydrogeological Reports in the MIS, containing basic details, water level and water quality data.

Block-level Hydrogeological Reports were assessed/verified based on their completeness in terms of different parameters as per the content of the reports. Broadly, the reports consist of three major sections viz. Basic Information, Maps, and Tables that are listed in the template and mentioned in ANNEXURE-IV. Accordingly, the following key parameters were devised against which scores were allotted:

Parameter	Number of sub-parameters for scoring	Weightage allotted to each sub-parameter	Total Score Allotted
Basic Information	10	0.5	5
Maps	6	1.5	9
Tables (I, II, III)	3	2	6
Grand Total			**20**

Table F: Allocation of scores in assessing Hydrogeological Reports

Only those block reports that are 'Complete' in all aspects as required, and attain a score of 20 were considered for disbursement of incentives against this indicator.

Evaluation of Hydrogeological Reports

a. Basic Information

The scoring was done based on availability of information within a sub-parameter. In case a sub-parameter was mentioned, but no supporting inputs were provided with it, the scoring was affected accordingly.

For a report that had all the ten sub-parameters mentioned correctly with the accompanying information, this parameter was given a score of **5/5.**

b. Maps

The scoring was done based on availability and correctness of the map. A total of 7 maps were available: 6 compulsory and 1 optional. In cases where the map did not pertain to the sub-parameters, the scores were affected. Wherever a map could be better in terms of readability and the information that it provides, the same was noted, though not considered for scoring. The availability of the seventh optional map did not affect the scores in DL1.

For a report that had all the 6 compulsory maps complete and correct, this parameter was given a score of **9/9.**

c. Tables

There were three tables, each of which carried a score of 2. Table 1 specified whether the wells in each block were monitored for WL or WQ, and was also considered as the superset for Tables 2 and 3. The wells which were mentioned in Table 1 for WL and WQ should ideally have been present in Tables 2 and 3 as well. If Table 1, however, did not specify whether a well was being monitored for WL or WQ, it was not considered as the superset and Tables 2 and 3 were used to identify these wells.

In case Tables 2 and 3 had more wells than what was mentioned in Table 1, the same was flagged in the assessment reports. The wells in all the tables were compared on the basis of Well ID, Village Name, Site Name or GP, whichever was available. A threshold of 40% was set at each step of the HGR assessment, and scores were affected in case the 40% criterion was not met. Discrepancies that did not affect this criterion, however, did not affect the scores either. All the discrepancies observed were noted in the assessment for subsequent improvement.

For a report that had all the 3 tables complete, this parameter was given a score of **6/6.**

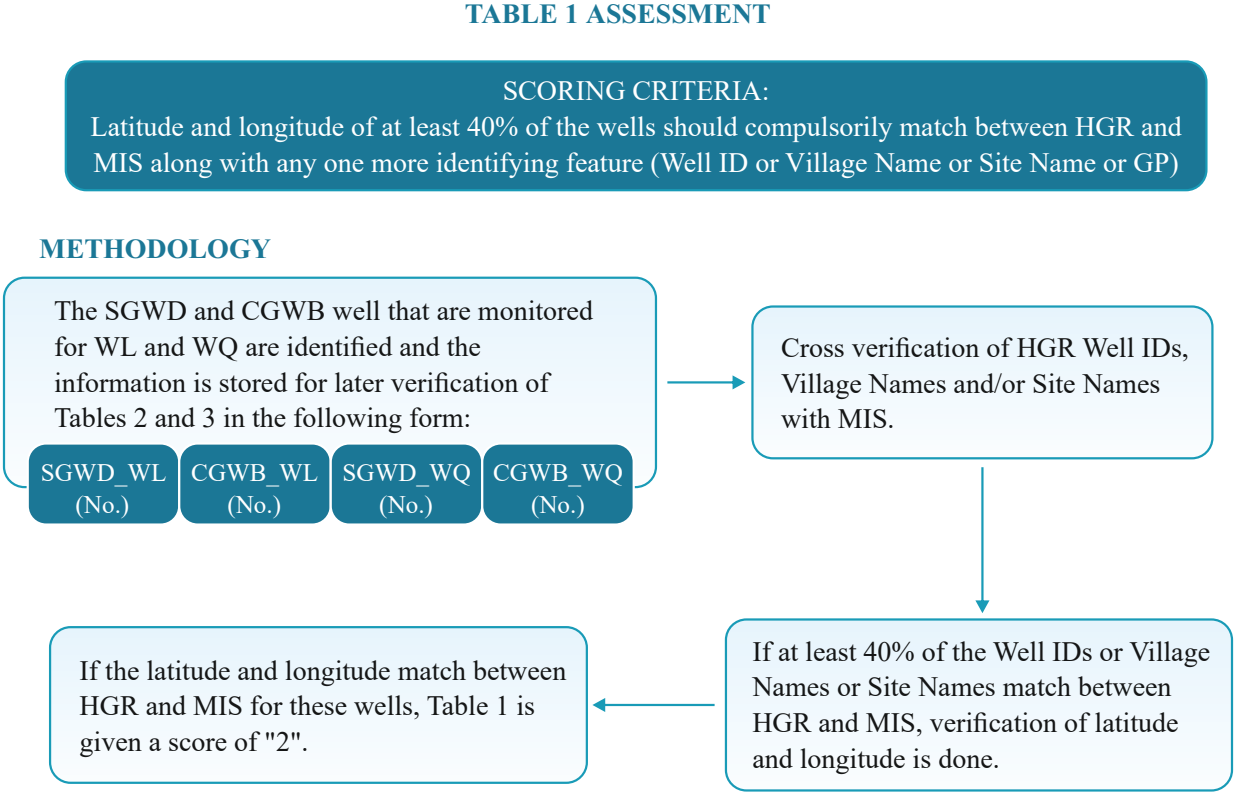


Figure 4: Methodology of evaluating Table 1 of Hydrogeological Report

TABLE 2 ASSESSMENT

SCORING CRITERIA:At least 40% of the Water Level wells should match between Tables 1 and 2 of HGR; and out of all the wells that match, at least 40% should have 8 data points for Water Level between 2015 & 2019 which is consistent between HGR and MIS.

METHODOLOGY

Comparison of WL wells between Table 1 and Table 2 through Well IDs or Village Name, whichever is available

- Case 1: At least 40% of the wells given in Table 1 (WL) are found in Table 2.
  - The water level data given in HGR is verified from MIS. (At least 8 data points between 2015 and 2019 should be found and match consistently between HGR and MIS for 40% of the wells.)
    - Case 1: At least 40% of the wells that match between Tables 1 and 2 have 8 data points which are consistent between HGR and MIS
      - Table 2 is given a score of "2".
    - Case 2: Less than 40% or no wells which match between HGR Tables 1 and 2 have 8 data points which are consistent
      - Table 2 is given a score of "0".
- Case 2: Less than 40% or no wells given in Table 1(WL) are found in Table 2.
  - Table 2 is given a score of "0".

Figure 5: Methodology of evaluating Table 2 of Hydrogeological Report

TABLE 3 ASSESSMENT

SCORING CRITERIA:At least 40% of the Water Quality wells should match between Tables 1 and 3 of the HGR; and out of all the wells that match, at least 40% should have EC/TDS and any 3 anion/cation data for at least 3 years between 2015 & 2019.

METHODOLOGY

Comparison of WQ wells between Table 1 and 3, through Well IDs, Village Names, whichever is available.

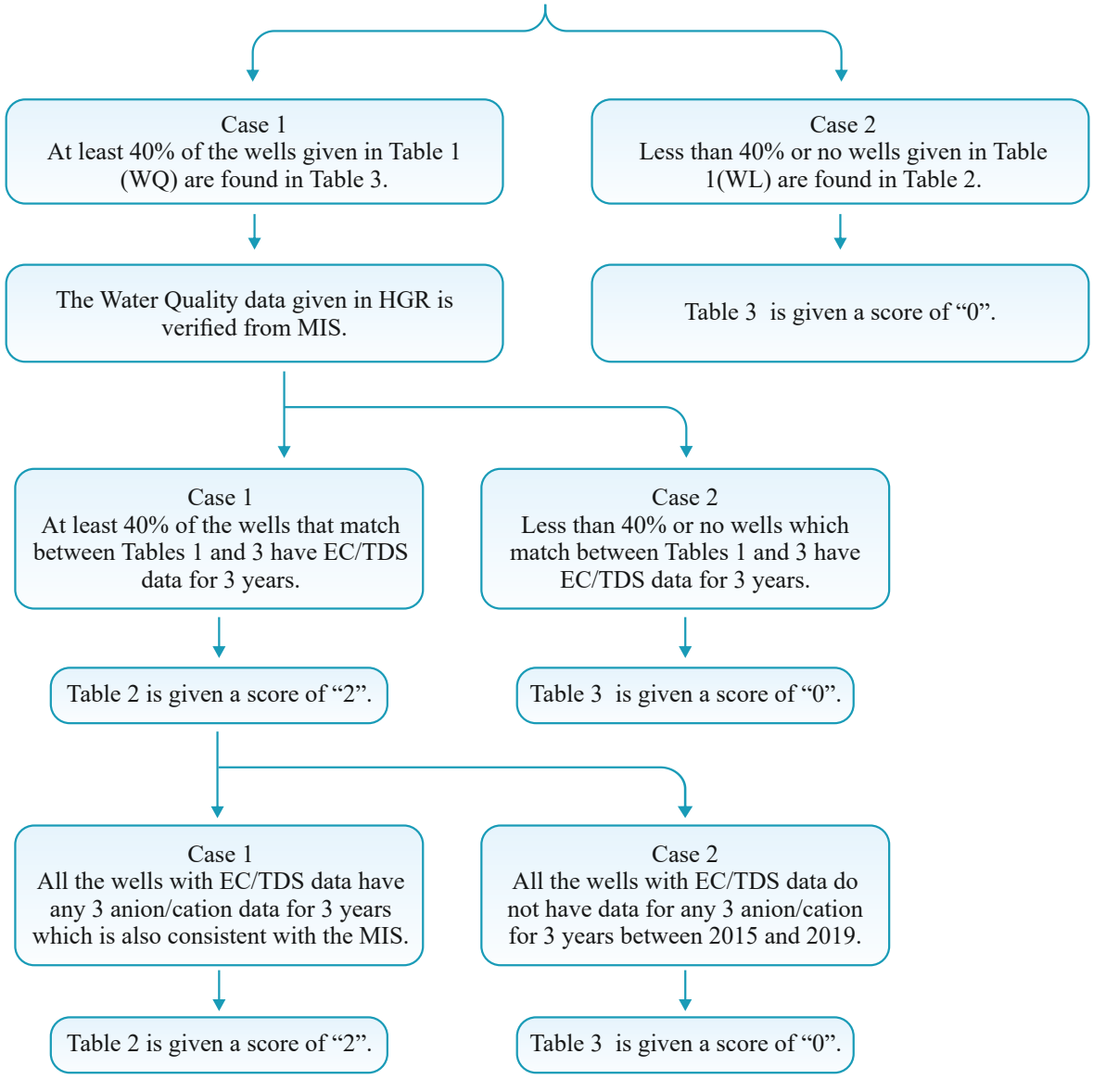


Figure 6: Methodology of evaluating Table 3 of Hydrogeological Report

2.1.4 Verification Modalities/Mechanism for Public Disclosure

Public disclosure of data by the states would be verified/checked in various ways. Verification will be based on evidence as identified in the table below.

Mechanism	Details of Verification	Remarks
Checking web portals of states	Web portals of the concerned agencies in the participating states will be checked for availability of groundwater-related data.	To start from Year 2 onwards
Check Atal Jal portal/ MIS	Atal Jal portal/MIS will be checked for historical (2015-19) data availability across states.	For the First year
Check Atal Jal portal/ MIS	Atal Jal portal/MIS will be checked for updated data availability across states.	To start from Year 2 onwards
Notice boards of Gram Panchayats	At the GP level, the Gram Panchayats shall display required data on their notice boards. Images are to be uploaded on MIS, as evidence.	To start from Year 2 onwards
Feedback from citizens to understand the penetration of public disclosure	Social Listening of 15 individuals in each GP, selected at random, will be done to verify the effectiveness of public disclosure mechanisms adopted at the GP level.	To start from Year 2 onwards
Usage of Apps	Availability of Mobile applications maintained by the states for data dissemination will be checked. For Ex: Mera Bhujal App, Atal Jal Mobile App.	To start from Year 2 onwards

Table G: Modalities of Public Disclosure accepted for DLI#1

2.1.5 Computing 'Successful Occurrences' for disbursement of funds against the achievement of DLI#1

As per the verification protocol, disbursement of incentives is to be made towards three sub-indicators related to water level data, water quality data, and Hydrogeological Reports.

During the document verification process of water level and water quality data, the data as disclosed in MIS for the sampled blocks was tallied against the original data sources. Any mismatch between the two was noted as a discrepancy. In the case of water level data, only discrepancies related to pre and post-monsoon data were noted. In the case of water quality data, only discrepancies related to EC/TDS and cation/anion data were noted.

Since the disbursement of incentives happens in terms of number of wells for which data was disclosed, the percentage of discrepancies in the sample was extrapolated to the total number of wells for which data was disclosed. After extrapolation, an effective number of wells for water level and water quality was arrived at and considered as successful occurrences.

While evaluating Hydrogeological Reports, every report that is 'Complete' (attained a score of 20) was considered as a successful occurrence.

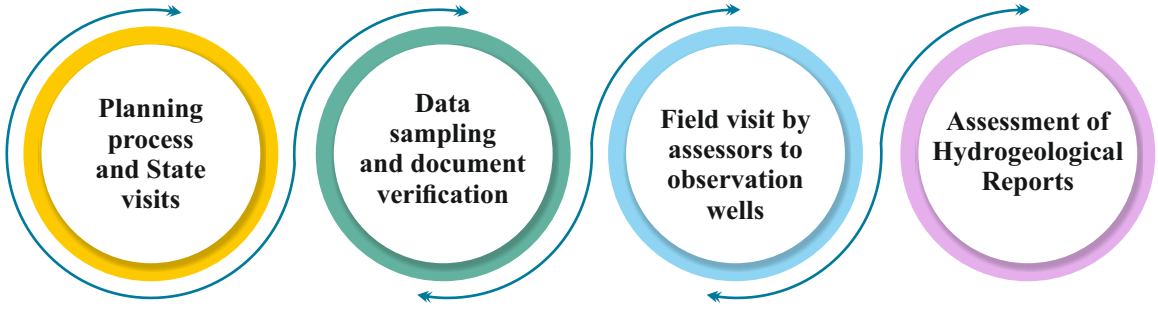
For a particular state, the summation of effective number of wells for water level and water quality, and 'complete' Hydrogeological reports was taken as the total successful occurrences.

Sub-indicator of Disbursement	Definition of 'Successful Occurrence'
Water Level (A)	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water level data)/100} x (Total number of observation wells for which data is disclosed as per the verification protocol)
Water Quality (B)	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water quality data)/100} x (Total number of observation wells for which data is disclosed as per the verification protocol)
Hydrogeological Reports (C)	Total number of blocks that achieved completion of Hydrogeological Report
Cumulative number of wells & reports (Occurrences) qualifying for incentive (A, B & C)	= A+B+C

Table H: Calculation of Successful Occurrences

2.2 Quality Control Mechanisms for Credible Verification

To ensure that the verification of achievement of DLI#1 was robust, several quality checks were put in place. The following section discusses the measures taken across different aspects of verification:



2.2.1 Planning process and State visits

Experts from the field of Statistics, Groundwater Management, Institutional Development and GIS were taken on-board to guide on the methodology of verification and interpretation of results.

QCI visited the concerned State Government Departments and CGWB offices for a period of 4-10 days to develop a thorough understanding of the monitoring procedure in each state. A checklist of verification was communicated to each State's nodal officer before the visit of the QCI team. The checklist enumerated the primary areas of verification and requirements from the States.

QCI personnel did not have any correspondence with the State Agency/CGWB officials except towards the facilitation of verification. 'Verification Satisfaction Declaration' was duly signed by all states after the process of verification was finished. The format of the declaration form is attached in ANNEXURE-V.

2.2.2 Data sampling and document verification

QCI ensured that the 20% sample observation wells selected for water level and water quality data covered areas of high, medium and low density [4] of OWs across blocks. In addition to that, the blocks in the sample were selected in a way that they spread across the entire area of implementation of Atal Jal in the State.

Desktop verification of MIS data submitted by States was done at the concerned data centers for the selected sample observation wells. Digital records were downloaded personally, for future reference. The scanned copies of registers/logbooks (used for recording data) were also procured from the unit level of monitoring. In cases where a common pattern was noticed in discrepancies, the reason for the discrepancy was noted, if any.

The concerned SPMU officials were inquired about the methodology of data collection and compilation in respect of water level and water quality monitoring. In the case of physical verification to establish authenticity of data, criteria of sampling and wells in the sample were not disclosed to SPMUs in advance, except when coordination with field staff was required for making the verification possible.

The state and CGWB labs were visited to comprehend the analysis of water samples. Proof of the visit was recorded in the form of pictures of the lab, sample bottles, water testing equipment, certificate of accreditation (if any).

Documentation of discrepancies was done thoroughly and assessment sheets were maintained for cross-checking.

2.2.3 Field visit by assessors to observation wells

The authenticity of disclosed data was assessed through on-field verification of observation wells. The exercise was aimed towards capturing the ground reality of OWs, in terms of their location coordinates, state of maintenance, accessibility, frequency of government monitoring and citizen's feedback on its utility.

Before the assessors went on-ground, they were trained based on a pilot conducted in 3 participating states. Observations based on the pilot study are provided in ANNEXURE II-B.

A detailed training regarding the survey methodology, citizen interaction, usage of the application, etc., was conducted for the assessors through video conferencing.

Wells were visited based on location (latitude and longitude) mentioned in the MIS. In cases where the well was not found at the exact coordinates, the assessors visited the wells in the vicinity, as suggested by the SPMU officials. The distance between the actual well and the given coordinates was recorded.

Data was filled online by assessors at the time of visiting the wells, using a customized mobile application. Evidence of assessment was collected in the form of details of citizens

[4] 'Density' is defined as the absolute number of OWs present in a block, after applying the parameters as mentioned in the Verification Protocol.

providing feedback and geo-tagged photographs of observation wells. A central team analysed the data filled by assessors to see if it was filled correctly in all aspects before they proceeded to the next well.

A 24x7 control room was set up at QCI HQ to monitor the progress and ensure quality across the assessment. The team analyzed the data filled by assessors to see if it was filled correctly in all aspects before they proceeded to the next well. The control room also coordinated with M/o Jal Shakti and SPMUs for smooth conduct of the assessment.

To safeguard against lapses in quality occurring due to physical and mental fatigue, assessors visited not more than 4 wells a day. One assessor was deployed per block to assess on any day.

The on-field assessment of wells aided in developing a practical and robust verification process.

2.2.4 Assessment of Hydrogeological Reports

The scoring matrix for assessing the Hydrogeological Reports (Ref. Table F) was developed after a thorough preliminary analysis of all the 94 reports received from the 7 States. The groundwater expert engaged by QCI guided the team in comprehending the different parameters of HGR and developing different weightages for the same. A scorecard template was developed, outlining the scores and remarks for every section of the report.

a. Assessment of Basic Information

While the Basic Information part of most of the reports was complete, and all ten subpoints gave background information of the block and the water related issues in the area, observations were made, and noted in the few cases where the information was incomplete.

The assessment was done keeping in view that these reports are a part of public disclosure and the information available should be both accessible and relevant to a common person who is accessing these reports.

b. Assessment of Maps

In several cases in some states, it was observed that there was scope for improvement for the maps which were given in the reports. Each map was provided with an accompanying remark in case there was any scope for improvement. The major crux of this analysis was to determine if a map is understandable for a layman who might access these reports from the Atal Jal portal.

Such conclusions were drawn only after careful analysis of all 94 reports, many of which provided maps which were well made, informative and exhaustive. Hence, keeping in view that model maps were indeed available in some states for several blocks, the comments were made to catalyze an improvement for the subsequent years which would also ensure a standardization of the format in which the Hydrogeological Reports are drawn.

In cases where the maps were divided into pre-monsoon and post-monsoon pictorial representations, it was observed that only one

of the said maps was given and the second was absent. These cases were flagged. At every step, the maps were studied and comments given in such a way that future reports follow a uniform methodology which is constant across all Atal Bhujal states.

c. Assessment of Tables

The information given in all the tables were first, independently assessed and Table 1 was also considered the superset of Tables 2 and 3. This practice was adopted to ensure that the source/origin of each well mentioned in Tables 2 and 3 was verified before the data for these wells was checked for WL and WQ.

Only after Table 1 was assessed for authenticity, Tables 2 and 3 were studied, keeping the 40% threshold criteria constant for all the blocks.

The first step of verification for both, Tables 2 and 3, was determining if each type of well was found in Table 1 or not. In case there was a discrepancy in the exact number of wells between the tables, the same was flagged, and in cases where the said discrepancy exceeded the 40% criterion, scores were deducted accordingly.

Following the comparison of Tables 2 and 3 with Table 1, the WL and WQ data was also verified from MIS.

The verification was done for only those wells which met the qualifying criteria, to ensure that only those wells were taken into account which had sufficiently monitored the WL and WQ in the last 5 years.

Data round offs, data entry errors, missing or mismatching data, were all flagged in the assessment reports for all the blocks, and efforts were made to keep the assessment reports as exhaustive and explanatory as possible.

Part-III

VERIFICATION RESULTS AND OBSERVATIONS

3.1 State-wise Summary of Results of Verification

Sl No	Name of State	Total Number Recommended for Disbursement of Incentives under DLI#1			Total Number of Occurrences
		Water Level Observation Wells	Water Quality Observation Wells	Block-wise Hydrogeological Reports	
(1)	(2)	(3)	(4)	(5)	(6) = (3+4+5)
1	Gujarat	255	26	0	281
2	Haryana	611	117	0	728
3	Karnataka	295	123	14	432
4	Madhya Pradesh	185	33	4	222
5	Maharashtra	698	64	9	771
6	Rajasthan	380	403	0	783
7	Uttar Pradesh	192	26	0	218
	Grand Total	**2616**	**792**	**27**	**3435**

Table I: Summary table of successful occurrences across states, for disbursement of funds under DLI#1

3.1.1 Gujarat

In respect of water level, the total number of wells for which data is available as per the verification protocol is **273** and the effective number of observation wells for which public disclosure of data is achieved is **255.**

In respect of water quality, the total number of wells for which data is available as per the verification protocol is **26** and the effective number of observation wells for which public disclosure of data is achieved is **26.**

The total number of blocks for which Hydrogeological Report is disclosed is **1** while the total number of blocks that achieved completion of Hydrogeological Report is **0.**

Hence, the total occurrences verified in respect of Gujarat comes out to be 281.

Details of figures are mentioned in ANNEXURE-IIB

3.1.2 Haryana

In respect of water level, the total number of wells for which data is available as per the verification protocol is **614** and the effective number of observation wells for which public disclosure of data is achieved is **611.**

In respect of water quality, the total number of wells for which data is available as per the verification protocol is **118** and the effective number of observation wells for which public disclosure of data is achieved is **117.**

The total number of blocks for which Hydrogeological Report is disclosed is **0** while the total number of blocks that achieved completion of Hydrogeological Report is **0.**

Hence, the total occurrences verified in respect of Haryana comes out to be 728.

Details of figures are mentioned in ANNEXURE-IIC.

3.1.3 Karnataka

In respect of water level, the total number of wells for which data is available as per the verification protocol is **299** and the effective number of observation wells for which public disclosure of data is achieved is **295.**

In respect of water quality, the total number of wells for which data is available as per the verification protocol is **123** and the effective number of observation wells for which public disclosure of data is achieved is **123.**

The total number of blocks for which Hydrogeological Report is disclosed is **20** while the total number of blocks that achieved completion of Hydrogeological Report is **14.**

Hence, the total occurrences verified in respect of Karnataka comes out to be 432.

Details of figures are mentioned in ANNEXURE-IID

3.1.4 Madhya Pradesh

In respect of water level, the total number of wells for which data is available as per the verification protocol is **187** and the effective number of observation wells for which public disclosure of data is achieved is **185.**

In respect of water quality, the total number of wells for which data is available as per the verification protocol is **33** and the effective number of observation wells for which public disclosure of data is achieved is **33.**

The total number of blocks for which Hydrogeological Report is disclosed is **9** while the total number of blocks that achieved completion of Hydrogeological Report is **4.**

Hence, the total occurrences verified in respect of Madhya Pradesh comes out to be 222.

Details of figures are mentioned in ANNEXURE-IIE

3.1.5 Maharashtra

In respect of water level, the total number of wells for which data is available as per the verification protocol is **699** and the effective number of observation wells for which public disclosure of data is achieved is **698.**

In respect of water quality, the total number of wells for which data is available as per the verification protocol is **66** and the effective number of observation wells for which public disclosure of data is achieved is **64.**

The total number of blocks for which Hydrogeological Report is disclosed is **38** while the total number of blocks that achieved completion of Hydrogeological Report is **9.**

Hence, the total occurrences verified in respect of Maharashtra comes out to be 771.

Details of figures are mentioned in ANNEXURE-IIF

3.1.6 Rajasthan

In respect of water level, the total number of wells for which data is available as per the verification protocol is **387** and the effective number of observation wells for which public disclosure of data is achieved is **380**.

In respect of water quality, the total number of wells for which data is available as per the verification protocol is **403** and the effective number of observation wells for which public disclosure of data is achieved is **403.**

The total number of blocks for which Hydrogeological Report is disclosed is **0** while the total number of blocks that achieved completion of Hydrogeological Report is **0.**

Hence, the total occurrences verified in respect of Rajasthan comes out to be 783.

Details of figures are mentioned in ANNEXURE-IIG

3.1.7 Uttar Pradesh

In respect of water level, the total number of wells for which data is available as per the verification protocol is **198** and the effective number of observation wells for which public disclosure of data is achieved is **192.**

In respect of water quality, the total number of wells for which data is available as per the verification protocol is **26** and the effective number of observation wells for which public disclosure of data is achieved is **26.**

The total number of blocks for which Hydrogeological Report is disclosed is **26** while the total number of blocks that achieved completion of Hydrogeological Report is **0.**

Hence, the total occurrences verified in respect of Uttar Pradesh comes out to be 218.

Details of figures are mentioned in ANNEXURE-IIH

3.2 Observations from On-field Assessment of Observation Wells

A total of 83 dug wells, 74 piezometers, 15 bore wells and 12 tube wells were visited

a. 64% of the OWs were found within 500 meters of the coordinates given in the MIS

b. 67% of the OWs were in public premises

c. 2% of the OWs were found to be fitted with functional DWLRs

d. As per the 552 citizen feedback taken (48 Female & 504 Male):

i. 80% respondents claimed that the OWs were regularly monitored by government officials

ii. 28% respondents claimed that the OWs could be utilized for drinking purpose

iii. 15 wells remained dry for most part of the year

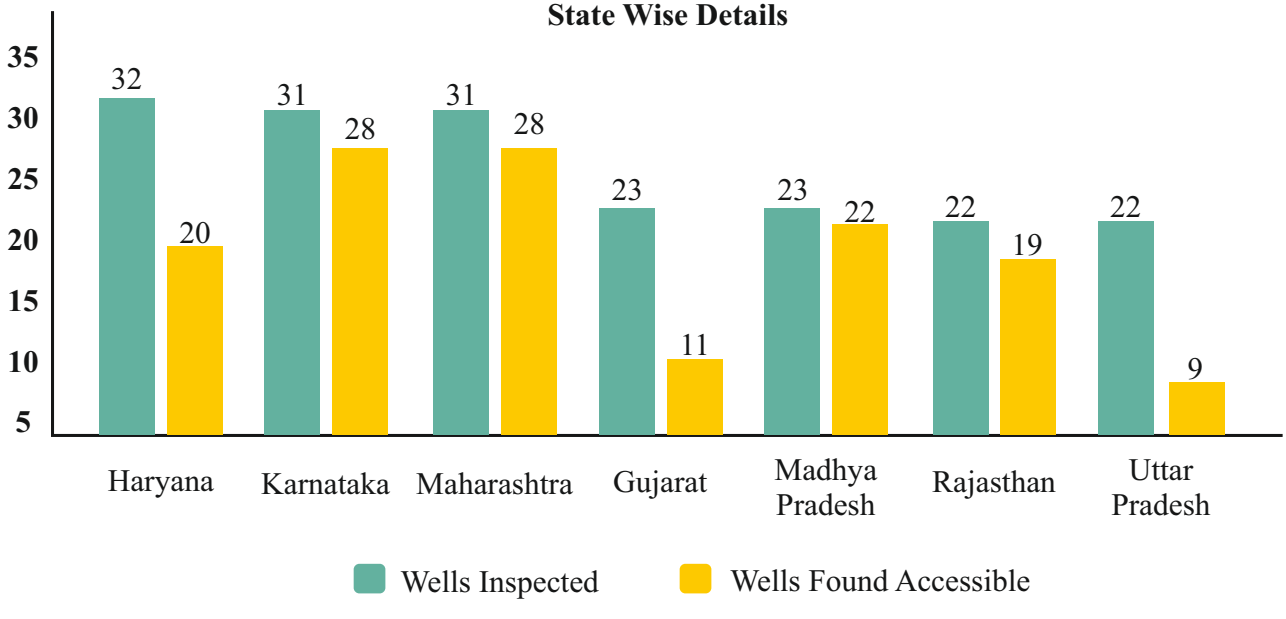


Figure 7: Details of Accessibility of wells

(Accessibility is defined as the possibility of reaching a well physically to measure the depth to water level without any hurdles)

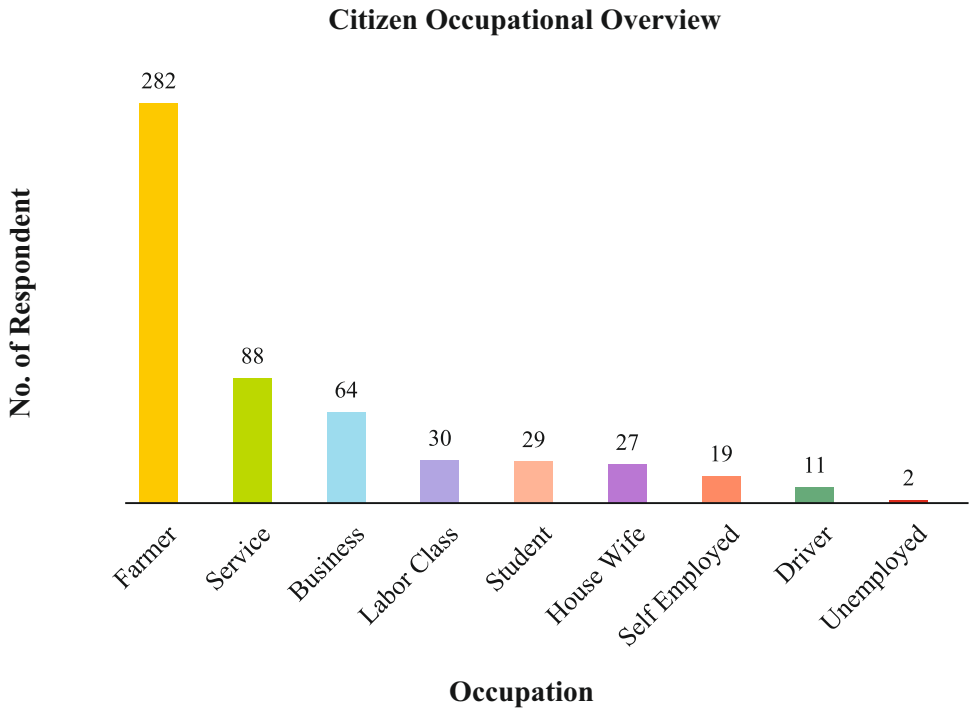


Figure 8: Occupation overview of Respondents

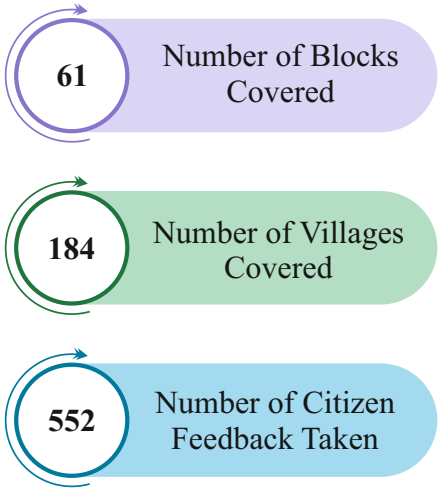


Figure 9: Details of wells visited

3.3 Summary of Baseline data and verified indicators after the first round of verification

State	Baseline for Occurrences				Occurrences after 1st round of verification (Dec 2020)				Year on Year Improvement for disbursement of incentives			
	WL	WQ	HGR	Total	WL	WQ	HGR	Total	WL	WQ	HGR	Total
	(a)	(b)	(c)	(d)= (a)+(b)+(c)	(e)	(f)	(g)	(h)= (e)+(f)+(g)	(i)	(j)	(k)	(l)= (i)+(j)+(k)
Gujarat	0	0	0	0	255	26	0	281	255	26	0	281
Haryana	0	0	0	0	611	117	0	728	611	117	0	728
Karnataka	0	0	0	0	295	123	14	432	295	123	14	432
Madhya Pradesh	0	0	0	0	185	33	4	222	185	33	4	222
Maharashtra	0	0	0	0	698	64	9	771	698	64	9	771
Rajasthan	0	0	0	0	380	403	0	783	380	403	0	783
Uttar Pradesh	0	0	0	0	192	26	0	218	192	26	0	218
Total	0	0	0	0	2616①	792②	27	3435	2616	792	27	3435

Table J : Baseline data and verified indicators after the first round of verification

① Total Sample size was 2656 (WL) as per the verification protocol. The assessment accuracy observed for water level was 98.5%, thus the successful occurrences were 2616

② Total Sample size was 795 (WQ) as per the verification protocol. The assessment accuracy observed for water quality was 99%, thus the successful occurrences were 792

Part-IV

CONCLUSION

DLI#1 envisages to incentivise improvements in the collection, processing and dissemination of groundwater related data in the 7 chosen states. The following indicators mentioned in the Verification Protocol were considered in the first round of verification:

- Number of OWs in the program blocks for which water level data is available
- Number of OWs in the program blocks for which water quality data is available
- Number of program blocks for which 'Hydrogeological Reports' with information pertaining to ground water level and water quality monitoring is available

QCI verified the availability and authenticity of historical data disclosed by the states for the period 2015-19, wrt the above-mentioned indicators. The required data was received through NPMU between 10th to 15th December 2020. The first round of verification of achievements by the participating States was carried out by QCI from 16th December 2020.

As a result of the verification, a total of 3435 occurrences was recommended against DLI#1 for disbursement of incentives.

State	Water Level Data				Water Quality Data				HGR			No of Successful Occurrences (C)+(G)+(K)
	No of OWs for which data was submitted	No of OWs that passed the protocol requirement	Effective no of OWs for disbursement of incentives under DLI#1	% of (C) against the data submitted (A)	No of OWs for which data was submitted	No of OWs that passed the protocol requirement	Effective no of OWs for disbursement of incentives under DLI#1	% of (G) against the data submitted (E)	No of Blocks	No of HGRs disclosed	Effective no of HGRs for disbursement of incentives under DLI#1	
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	
Gujarat	368	272	255	69%	269	26	26	10%	34	1	0	281
Haryana	1003	614	611	61%	315	118	117	37%	36	0	0	728
Karnataka	353	299	295	84%	531	123	123	23%	41	20	14	432
Madhya Pradesh	191	187	185	97%	186	33	33	18%	9	9	4	222
Maharashtra	747	699	698	93%	180	66	64	36%	38	38	9	771
Rajasthan	1075	387	380	35%	606	403	403	67%	38	0	0	783
Uttar Pradesh	309	198	192	62%	8158	26	26	0.3%	26	26	0	218
Total	**4046**	**2656**	**2616**	**65%**	**10245**	**795**	**792**	**8%**	**222**	**94**	**27**	**3435**

Table K : State-wise detailed break-up of DLI#1 indicators viz. water level data, water quality data and HGR; and the successful occurrences for disbursement of incentives

PART V

ANNEXURE

PART V

ANNEXURE

ANNEXURE I: Verification Protocol

DLI#1: VERIFICATION PROTOCOL

The protocol for verification of achievements against DLI#1, as elaborated in the Program Guidelines Ver.1.1 as well as the Program Appraisal Document of the World Bank is given in the Table below:

Description of DLI#1	A State is verified to have achieved the DLI if the monitoring and disclosure of groundwater-related data has improved.
Scalability of Disbursements (Yes/No)	Yes
Data Source/Agency	State and Central (e.g., CGWB) Governments' records and data verification
Verification Entity	TPGVA
Procedure for Verification for DLI#1	
Only the selected states/block/GP will be considered for this DLI. For a given state/block/GP in a given year, the achievement of the DLI will be measured as the year-on-year improvement using two sub-indicators on (a) groundwater monitoring and disclosure of data (b) disclosure of block-wise groundwater reports **Groundwater monitoring and disclosure of data.** This sub-indicator is defined as (i) the number of wells with piezometers for water levels measurement and water quality sampling locations for which water quality and quantity data are available and disclosed; and (ii) the number of wells equipped with functional meters for energy consumption or volumetric groundwater usage. **Public availability of groundwater reports.** This sub-indicator is defined as the number of block-level groundwater quality and quantity monitoring reports made publicly available online. A state/Block/GP can qualify for this DLI in multiple years.	

As per the protocol, the achievement by a State against DLI#1 shall be verified with respect to year-on-year increase in the following:

1. No. of observation wells in the program blocks for which water level data, monitored using a functional measuring device is available.
2. No. of observation wells in the program blocks for which water quality data is available.
3. No. of wells equipped with functional meters for measuring energy consumption or volumetric ground water usage.
4. No. of program blocks for which 'Hydrogeological Reports' with information pertaining to ground water level and water quality monitoring is available.

However, the above protocol does not explicitly mention the protocol for verification of achievements against DLI#1 during the 1st year of scheme implementation i.e.,.2020-21.

Essentially, DLI#1 envisages to incentivise improvements in the collection, processing and dissemination of ground water related data during and after implementation of the scheme. In order to encourage the participating States to build a database of ground water related information available from various sources during the 1st year of the scheme, historical data disclosed by the States for the period 2015-19 in respect of the above indicators shall be considered toward achievement of DLI#1 in the 1st round of verification during 2020-21.

For the 1st round of verification of DLI#1, information in respect of the indicators mentioned, collected from various available sources (State Agencies, CGWB etc.), compiled and uploaded on the Atal Jal MIS portal shall be considered by the Verification Agency. At the same time, the participating States are expected to disseminate these data after approval of the DoWR, RD&GR on their respective States/Blocks/GPs for its uptake and use by the communities through various programs and agencies. However, from the 2nd year onward, disclosure of the information on any State/National Portal in addition to the Atal Jal MIS and other means of disclosure shall be mandatory for the States/Blocks/GPs to qualify for disbursement under this DLI.

The criteria for qualification for disbursement of incentives in respect of various indicators under DLI#1 shall be as given below:

1. In the case of water levels, availability of at least 8 data points (in respect of pre- and/or post-monsoon water levels) out of the total of 10 possible data points over the period 2015-19 shall be considered as a minimum requirement for acceptance. From the 2nd year onward, availability of data for both pre- and post- monsoon periods shall be mandatory for new observation well to qualify as eligible. Additionally, from the 2nd year onward, observation wells that had been qualified in prior years would need to maintain continuity of data collection and disclosure.
2. In the case of water quality, availability of Specific Electrical Conductance (EC)/Total Dissolved Solids (TDS), together with at least three (3) major Cations/Anions (Ca, Mg, Na, K, HCO_3, Cl, SO_4, NO_3, F) for at least three
(3) years during 2015-19 shall be considered sufficient for an observation well to be considered eligible for disbursement. However, from the 2nd year onward, availability of data in respect of at least pH, EC/TDS, Ca, Mg, Na, K, CO_3, HCO_3, Cl, SO_4, NO_3 and F shall be required for a well to qualify as eligible with respect to this parameter.

3. As far as wells fitted with functional energy/water meters are concerned, eligibility requirements include: (i) availability of proof of existence of the meter(s) in the form of geo-tagged photographs and/or functional electricity bills shall be necessary for them to qualify for disbursement; and (ii) the data is also made public (i.e. for six (6) months on Year-1 and for second year and onwards from time of installation).

4. Adherence to the template shared with the States shall be the basis for verification of Block-wise hydrogeological reports with water level and water quality monitoring information. Each report submitted by the States shall be evaluated for i) completeness of descriptive information, ii) availability of six (6) maps (Location map, Hydrogeological map, Location map of Observation wells for monitoring of Water Level and Water Quality, pre- and post-monsoon water level maps & map showing distribution of Specific Electrical Conductance) and iii) availability of three (3) Tables (Basic data of WL/WQ observation wells, historical ground water level data (2015-19) and historical ground water quality data (2015-19)). The States shall be required to ensure that all the water level and water quality data disclosed in the MIS of Atal Jal and other portals are disclosed in the report of the respective block as well.

5. From Year 2, disbursements would depend on year-on-year increase in number of wells for which monitoring is available; year-on-year increase in number of wells for which water quality data is available; year-on-year increase in the number of wells with functional meters for measuring energy consumption or volumetric ground water use and year-on-year increase in numbers of Blocks with groundwater (Hydrogeological) reports containing information pertaining to ground water level and water quality monitoring prepared and disclosed on-line.

ANNEXURE II

ANNEXURE – IIA: STATE-WISE SAMPLING OF DATA

Data disclosed by all states in the MIS is subjected to the criteria discussed in 2.1.1. From the blocks that qualify the criteria, a random sample is selected as per the sampling methodology discussed in 2.1.2.

The following table provides details about the availability and sampling of water level and water quality data related to all states under Atal Jal. The total number of hydrogeological reports made available state-wise is also represented.

State	Number of Blocks as per MIS		Number of blocks for which data is available as per the Verification Protocol		Number of blocks selected as per the sampling methodology for data verification		Number of Hydrogeological Reports Available
	Water Level	Water Quality	Water Level	Water Quality	Water Level	Water Quality	
Gujarat	32	30	30	13	6	6	1
Haryana	36	34	36	30	8	6	0
Karnataka	41	41	41	32	8	7	20
Madhya Pradesh	9	9	9	9	6	6	9
Maharashtra	38	37	38	29	8	6	38
Rajasthan	38	34	37	33	8	8	0
Uttar Pradesh	28	26	26	26	6	6	26
TOTAL	**222**	**211**	**217**	**172**	**50**	**45**	**94**

STATE-WISE RESULTS

ANNEXURE – IIB: GUJARAT

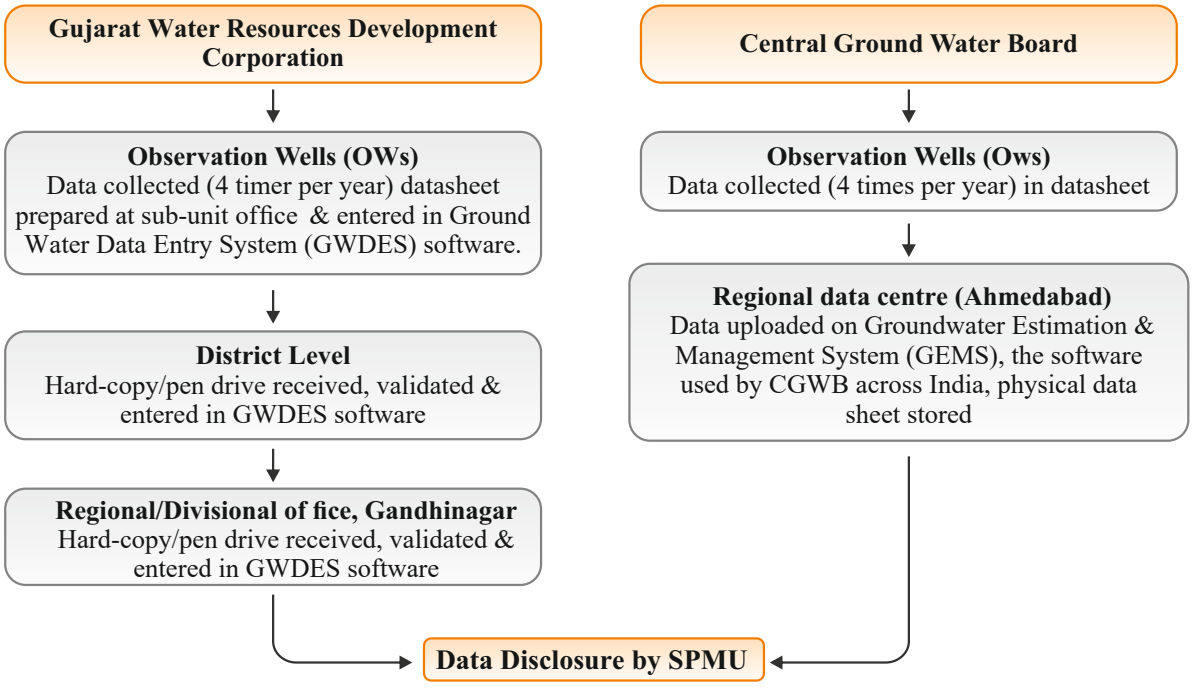
Extent of Atal Jal in Gujarat

Details of area under Atal Jal	Number
Districts	7
Blocks	34
Gram Panchayats	2201

Implementing Agency: Water Resources Department, Gujarat

Agencies sharing data: CGWB, Gujarat Water Resources Development Corporation

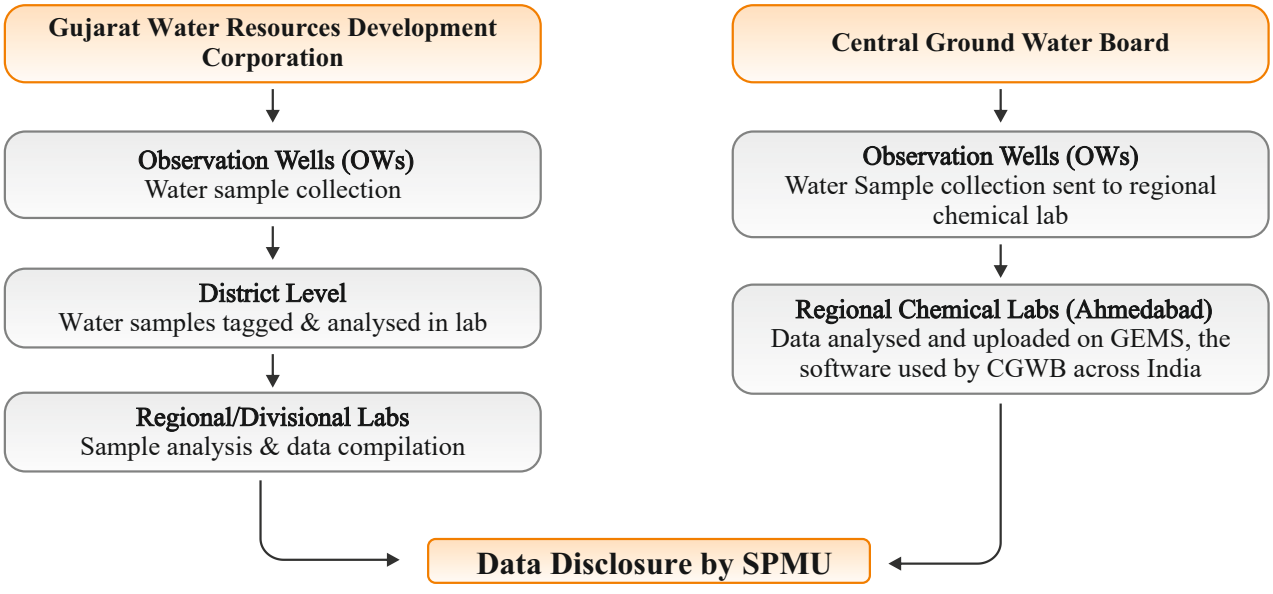
Methodology of Water Level Data Collection and Compilation in Gujarat



Water Level Data Verification in Gujarat

Verification aspects	Gujarat Water Resources Development Corporation		Central Ground Water Board	
Number of wells as per MIS	237		65	
Number of wells for which data is inspected by QCI	237		65	
Number of wells for which data is available as per the verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19)	238		35	
Number of wells selected as per sampling methodology for data verification	57		8	
Number of wells for which original records are to be verified	**57**		**8**	
Data Points to be verified (based on sample calculated above)	560		74	
Data points verified through digital source (i)	560		70	
Data points verified through physical registers (ii)	548		68	
Actual Data points verified (i+ii)	**1057**		**138**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified	560	548	70	68
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19)	31	47	0	1
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19), as a percentage of total data points verified	5.53% (31/560)	8.57% (47/548)	0% (0/70)	1.45% (1/68)
Overall percentage of discrepancies in Water Level data = 100*(Total discrepancies/Total data points verified) = 100*79/1246 = 6.34%				

Methodology of Water Quality Data Collection and Compilation in Gujarat



Water Quality Data Verification in Gujarat

Verification aspects	Gujarat Water Resources Development Corporation		Central Ground Water Board	
Number of wells as per MIS	238		31	
Number of wells for which data is inspected by QCI	238		31	
Number of wells for which data is available as per the verification protocol (at least 3-year data for at least 3 ions + EC/ TDS available between 2015-19)	0		26	
Number of wells selected as per sampling methodology for data verification	0		15	
Number of wells for which original records are to be verified	**0**		**15**	
Data Points to be verified (based on sample calculated above)	0		635	
Data points verified through digital source (i)	0		634	
Data points verified through physical registers (ii)	0		624	
Actual Data points verified (i+ii)	**0**		**1258**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified in the digital records / physical registers	0	0	634	624
Total number of discrepancies observed in water quality data	0	0	1	6
Total number of discrepancies observed in water quality data, as a percentage of total data points verified	0	0	0.15% (1/634)	0.96% (6/624)
Overall percentage of discrepancies in Water Quality data = 100*(Total discrepancies/Total data points verified) = 100*7/1258 = 0.55%				

Water Testing Lab Assessment in Gujarat

Details	GWRDC	Central Ground Water Board
Number of Labs owned	19	1
Number of Labs Accredited	15	0
Number of Labs Accredited by NABL	15	0
Details of Lab Visited	**GWRDC**	**Central Ground Water Board**
Name of Lab visited	State Ground Water Lab, GWRDC & Kherua	Central Ground Water Lab, Ahmedabad
Type and Year of Accreditation	-	-
Number of Technical and Non-Technical Staff	Technical - 5, Non-Technical - 3	Technical - 4, Non-Technical - 2
Number of samples analysed annually	Approximately 2000	Approximately 4500

Hydrogeological Report Assessment in Gujarat

Categorization	Number
Total number of Hydrogeological Reports Disclosed	1
Number of blocks for which Hydrogeological Reports are 'Complete'	0
Number of blocks for which Hydrogeological Reports are 'Incomplete'	1

Report Card for Gujarat

Water Level (A)	Total number of wells for which data is available as per the verification protocol (at least 8 data points of pre-monsoon and/or post-monsoon data between 2015-19) **= 273 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water level data)/100} x (Total number of observation wells for which data is available as required) = (1-(6.34/100))*(273) **= 255 wells**
Water Quality (B)	Total number of wells for which data is available as per the verification protocol (at least 3-year data for at least 3 ions + EC/TDS for 3 years is available between 2015-19) **= 26 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water quality data)} x (Total number of observation wells for which data is available as required) = (1-(0.55/100))*(26) **= 26 wells**
Hydrogeological Reports (C)	Total number of blocks for which Hydrogeological Report is disclosed = **1**
	Total number of blocks that achieved completion of Hydrogeological Report = 0
Successful Occurrences (A+B+C)	**281**

Remarks on Discrepancies Observed in Data Verification in Gujarat

- Discrepancies in 3 wells (Well ID: G_1_BK_088 (Site Name: Pavadasan), G_1_BK_089 (Rah-1), G_1_BK_090 (Rah-2)) were observed throughout 5 years for Water Level (Pre-monsoon & Post-monsoon)
- The WL data points of CGWB wells Sardhav Pz1 and Sardhav Pz2 were swapped for all the years; Similar was the case with Rah Pz2 and Rah Pz3
- For village Isampur Mota II and III, block Gandhinagar, longitude did not match with the digital records
- As per MIS, village Chakar is in block Bhuj. As per the digital records verified, it is in Anjar block
- Most of the WL data points of Kachch district were shifted from pre 2017 onwards in our records
- As per MIS, well with Site Name Kasturinagar (IFFCO) is in block Gandhinagar, but as per the physical records verified, it is in block Kalol.
- Different names of same OWs were found creating confusion. Example is listed below:
  - Well ID - W231500069400002 named Bhuj (Circuit House) in MIS, was found to be named as Bhuj1 in State records

Overall Observations for the State of Gujarat

- Data is entered at each unit office and software is not real time based resulting in different validation at each point
- For Water Level, GWDES software at GWRDC doesn't have baseline data such as depth & aquifer type of OWs
- Data validation occurs on yearly basis at CGWB. WQ data of CGWB is validated till 2018 as there is a single access of GEMS software handled by 1 technical person
- The data center at Gandhinagar for Gujarat Ground Water Department is not updated; data verification had to be done by sourcing data from all the unit offices
- Hydrogeological Reports:
  - Only 1 block, Gandhinagar disclosed its Hydrogeological Report
  - Maps 2 and 6 were missing
  - Major discrepancy observed in the comparison of water level data between HGR and MIS

ANNEXURE – IIC: HARYANA

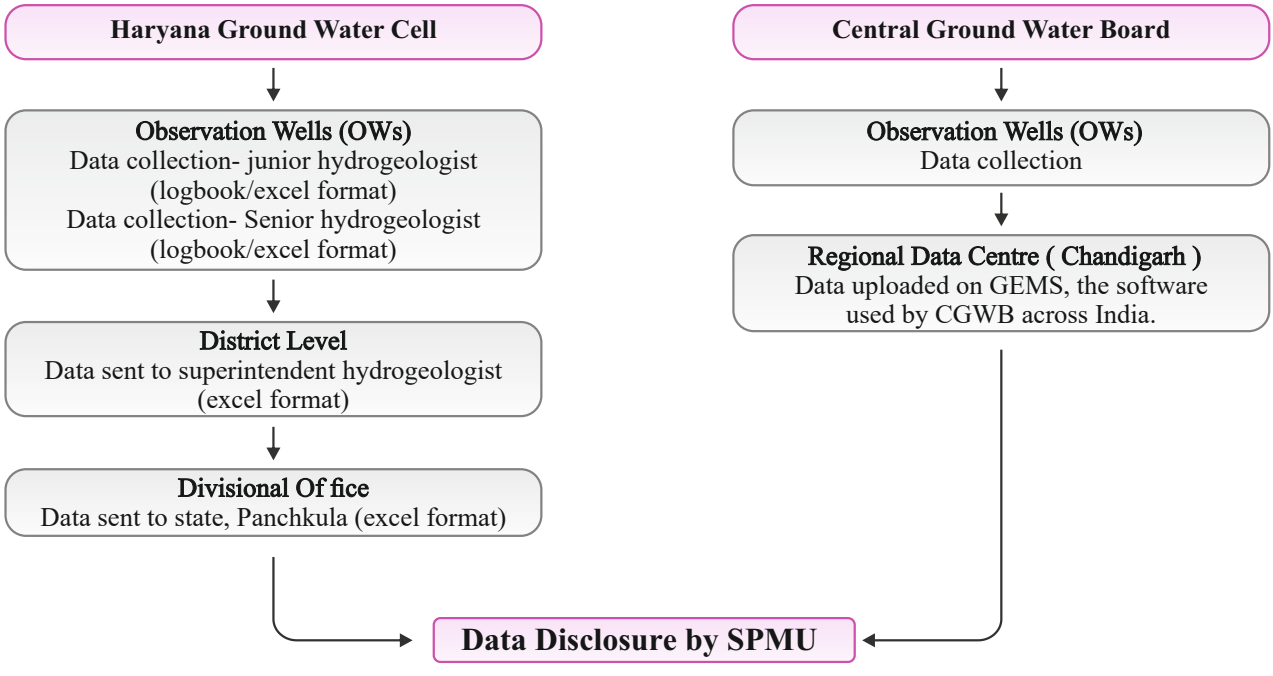
Extent of Atal Jal in Haryana

Details of area under Atal Jal	Number
Districts	13
Blocks	36
Gram Panchayats	1895

Implementing Agency: Irrigation and Water Resources Department, Haryana

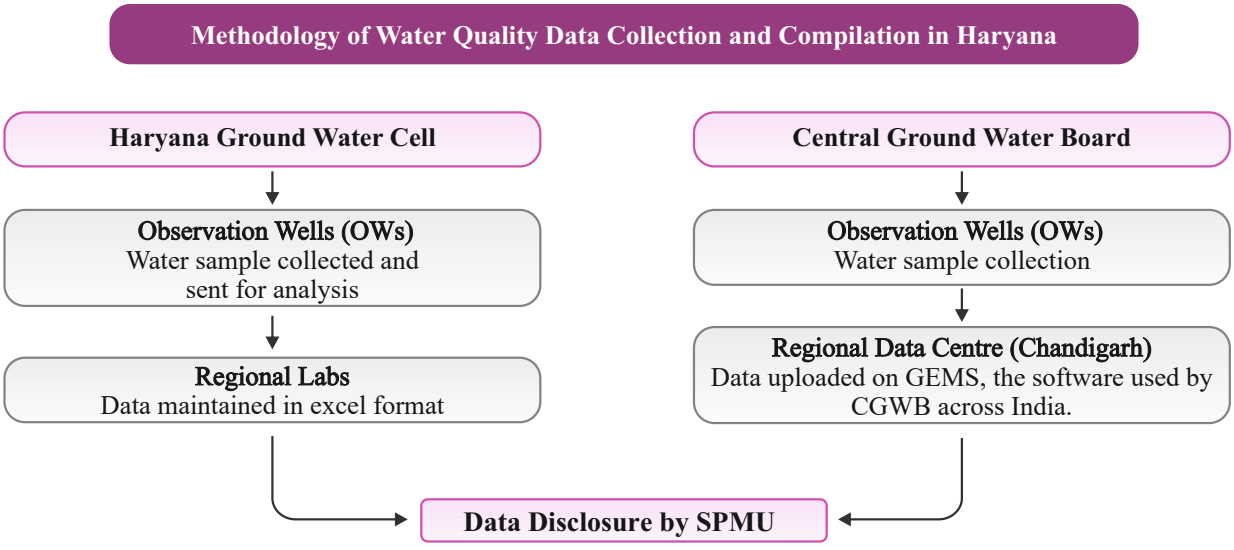
Agencies sharing data: CGWB, Haryana Ground Water Cell

Methodology of Water Level Data Collection and Compilation in Haryana



Water Level Data Verification in Haryana

Verification aspects	Haryana Ground Water Cell		Central Ground Water Board	
Number of wells as per MIS	589		393	
Number of wells for which data is inspected by QCI	589		393	
Number of wells for which data is available as per verification protocol. (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19)	546		68	
Number of wells selected based on sampling methodology for data verification	115		13	
Number of wells for which original records are to be verified	**115**		**13**	
Data Points to be verified (based on sample calculated above)	1131		117	
Data points verified through digital source (i)	1131		117	
Data points verified through physical registers (ii)	0		61	
Actual Data points verified (i+ii)	**1131**		**178**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified	1131	0	117	61
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19)	0	0	4	2
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19), as a percentage of total data points verified	0% (0/1131)	0% (0/0)	3.41% (4/117)	3.28% (2/61)
Overall percentage of discrepancies in Water Level data= 100* (Total discrepancies/Total data points verified) = 100*6/1309 = 0.46%				



Water Quality Data Verification in Haryana

Verification aspects	Haryana Ground Water Cell	Central Ground Water Board
Number of wells as per MIS	162	150
Number of wells for which data is inspected by QCI	162	150
Number of wells for which data is available as per the verification protocol. (at least 3-year data for at least 3 ions + EC/ TDS available between 2015-19)	0	118
Number of wells selected based on sampling methodology for data verification	0	14
Number of wells for which original records are to be verified	**0**	**14**
Total Data Points to be verified (based on sample calculated above)	0	546
Data points verified through digital source (i)	0	543
Data points verified through physical registers (ii)	0	0
Actual Data points verified (i+ii)	**0**	**543**

Discrepancies in data	Digital Records	Physical Registers	Digital Records	Physical Registers
Total Data points verified in the digital records/physical registers	0	0	543	0
Total number of discrepancies observed in water quality data	0	0	3	0
Total number of discrepancies observed in water quality data, as a percentage of total data points verified	0%	0%	0.55% (3/543)	0%
Overall percentage of discrepancies in Water Quality data= 100*(Total discrepancies/Total data points verified) = 100*3/543 = 0.55%				

Water Testing Lab Assessment in Haryana

Details	Haryana Ground Water Cell	Central Ground Water Board
Number of Labs owned	11	1
Number of Labs Accredited	0	1
Number of Labs Accredited by NABL	0	1

Details of Lab Visited	Haryana Ground Water Department	Central Ground Water Board
Name of Lab visited	Chemical Laboratory, Gurugram	Regional Chemical Lab, CGWB, Chandigarh
Type and Year of Accreditation	-	NABL, 2018
Number of Technical and Non-Technical Staff	Technical - 4, Non-Technical - 4	Technical - 4, Non-Technical - 2
Number of samples analysed annually	Approximately 1000	Approximately 1500

Hydrogeological Report Assessment in Haryana

Categorization	Number
Total number of Hydrogeological Reports Disclosed	0
Number of blocks for which Hydrogeological Reports are 'Complete'	0
Number of blocks for which Hydrogeological Reports are 'Incomplete'	0

Report Card for Haryana

Water Level (A)	Total number of wells for which data is available as per the verification protocol. (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19) = **614 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water level data)/100} x (Total number of observation wells for which data is available as required) = (1-0.46/100)*(546+68) = **611 wells**
Water Quality (B)	Total number of wells for which data is available as per the verification protocol. (at least 3-year data for at least 3 ions + EC/TDS for 3 years is available between 2015-19) = **118 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water quality data)/100} x (Total number of observation wells for which data is available as required) = (1-0.55/100)*(0+118) = **117 wells**
Hydrogeological Reports (C)	Total number of blocks for which Hydrogeological Report is disclosed = **0**
	Total number of blocks that achieved completion of Hydrogeological Report = 0
Successful Occurrences (A+B+C)	**728**

Remarks on Discrepancies Observed in Data Verification in Haryana

1. In CGWB, data points for water quality are missing for 2019, for all the sample blocks
2. Physical records of water level data in CGWB did not have latitude, longitude, well ID & well depth
3. In Juikalan Village, Kairu block, Bhiwani district, water quality discrepancies in CGWB were a typographical error. For e.g., the value of sodium as per the digital records is 123. However, as per MIS, it is 1230

Overall Observations for the State of Haryana

1. In State GWD, well depth is not available in the physical records for any of the wells
2. None of the GWD wells qualified the threshold as per Verification Protocol
3. Hydrogeological Reports: No reports were disclosed by Haryana

ANNEXURE – IID: KARNATAKA

Extent of Atal Jal in Karnataka

Details of area under Atal Jal	Number
Districts	14
Blocks	41
Gram Panchayats	1199

Implementing Agency: Ground Water Directorate, Department of Minor Irrigation and Groundwater Development, Govt. of Karnataka

Agencies sharing data: CGWB, Ground Water Directorate

Methodology of Water Level Data Collection and Compilation in Karnataka

Ground Water Directorate

↓

Observation Wells (OWs)
Data Collection by Sr. Geologist at the District level

↓

Regional Labs
Data Validation and Manual data entry into the observation well register

↓

Ground Water Directorate
After random checks by Directors/Dy. Directors, Observation well Register to Online GWDES System/Monthly Progress Report.

Central Ground Water Board

↓

Observation Wells (OWs)
Data Collection by Scientists of CGWB (During Jan, May, Aug and Nov)

↓

Regional Data Centre (Bengaluru)
Static and dynamic data validation is carried out before uploading the data in the database software GEMS. Quarterly bulletins in "Status of ground water regime monitoring" during Jan , May, Aug and Nov ground water yearbook for the whole year.

Data Disclosure by SPMU

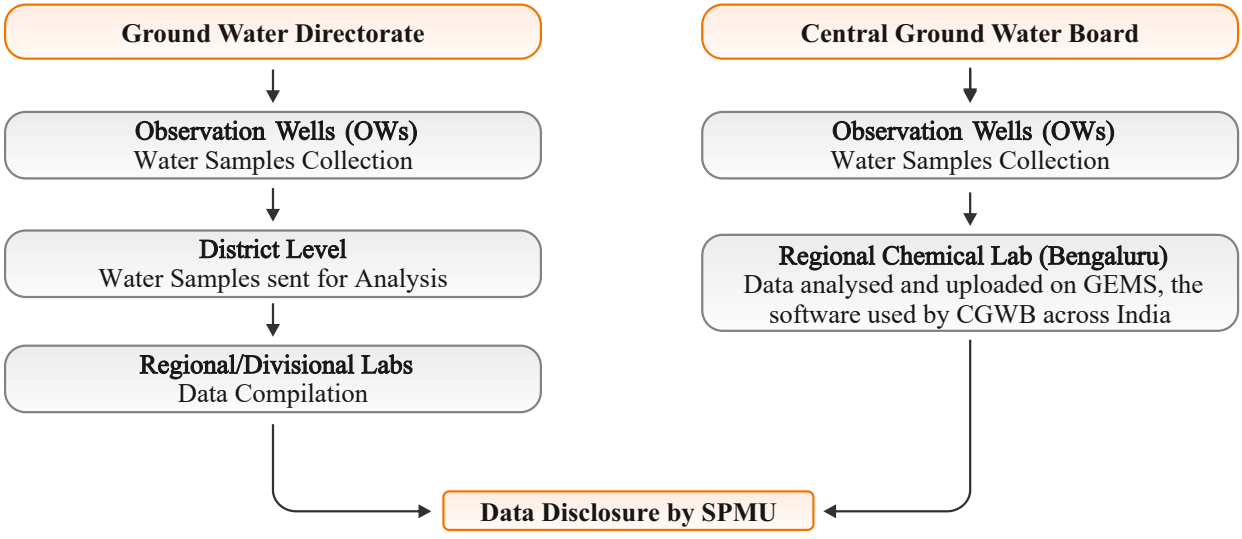
Water Level Data Verification in Karnataka

Verification aspects	Ground Water Directorate - Karnataka		Central Ground Water Board	
Number of wells as per MIS	302		40	
Number of wells for which data is inspected by QCI	302		40	
Number of wells for which data is available as per verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19)	262		37	
Number of wells selected based on sampling methodology for data verification	54		8	
Number of wells for which original records are to be verified	**54**		**8**	
Data Points to be verified (based on sample calculated above)	539		73	
Data points verified through digital source (i)	502		73	
Data points verified through physical registers (ii)	533		0	
Actual Data points verified (i+ii)	**1035**		**73**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified	**502**	**533**	**73**	**0**
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19)	**0**	**14**	**0**	**0**
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19), as a percentage of total data points verified	**0 % (0/502)**	**2.63 % (14/533)**	**0 % (0/73)**	-

Overall percentage of discrepancies in Water Level data =

100*(Total discrepancies/Total data points verified) = 100*14/1108 = 1.26 %

Methodology of Water Quality Data Collection and Compilation in Karnataka



Water Quality Data Verification in Karnataka

Verification aspects	Ground Water Directorate		Central Ground Water Board	
Number of wells as per MIS	283		248	
Number of wells for which data is inspected by QCI	283		248	
Number of wells for which data is available as per the verification protocol (at least 3-year data for at least 3 ions + EC/ TDS available between 2015-19)	0		123	
Number of wells selected based on sampling methodology for data verification	0		41	
Number of wells for which original records are to be verified	**0**		**41**	
Data Points to be verified (based on sample calculated above)	0		1161	
Data points verified through digital source (i)	0		964	
Data points verified through physical registers (ii)	0		0	
Actual Data points verified (i+ii)	**0**		**964**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified in the digital records / physical registers	**0**	**0**	**964**	**0**
Total number of discrepancies observed in water quality data	**0**	**0**	**0**	**0**
Total number of discrepancies observed in water quality data, as a percentage of total data points verified	-	-	**0 % (0/964)**	-
Overall percentage of discrepancies in Water Quality data= 100*(Total discrepancies/Total data points verified) = 100*0/964 = 0 %				

Water Testing Lab Assessment in Karnataka

Details	Ground Water Directorate	Central Ground Water Board
Number of Labs owned	5	1
Number of Labs Accredited	0	0
Number of Labs Accredited by NABL	0	0
Details of Lab Visited	**Ground Water Directorate**	**Central Ground Water Board**
Name of Lab visited	Chemical Laboratory, Dept. of Mines and Geology	Water Quality Laboratory, CGWD, Bengaluru
Type and Year of Accreditation	-	-
Number of Technical and Non-Technical Staff	Technical - 5, Non-Technical - 2	Technical - 4, Non-Technical - 2
Number of samples analysed annually	Approximately 800	Approximately 1500

Hydrogeological Report Assessment in Karnataka

Categorization	Number
Total number of Hydrogeological Reports Disclosed	20
Number of blocks for which Hydrogeological Reports are 'Complete'	14
Number of blocks for which Hydrogeological Reports are 'Incomplete'	6

Report Card for Karnataka

Water Level (A)	Total number of wells for which data is available as per the Verification Protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19) **= 299 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water level data)/100} x (Total number of observation wells for which data is available as required) = (1-(1.26/100))*(299) **= 295 wells**
Water Quality (B)	Total number of wells for which data is available as per the Verification Protocol (at least 3 year data for at least 3 ions + EC/TDS for 3 years is available between 2015-19) **= 123 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {100-(Percentage of discrepancies in water quality data)} x (Total number of observation wells for which data is available as required) = (1-(0/100))*(123) **= 123 wells**
Hydrogeological Reports (C)	Total number of blocks for which Hydrogeological Report is disclosed **= 20**
	Total number of blocks that achieved completion of Hydrogeological Report = 14
Successful Occurrences (A+B+C)	**=432**

Remarks on Discrepancies Observed in Data Verification in Karnataka

Water Quality

1. Data related to the year of 2019 is not available in the MIS, though available in the records at CGWB office
2. Data is not available in the digital records (CGWB) for Well IDs, but disclosed in the MIS:
   - W130335077343701 (Kodigehalli, Tiptur),
   - W165145076205501(Yankanchi, Badami),
   - W152705075103801(Sulla, Badami)
   - W121500075510002 (Siddapura, Chitradurga)
   - W123012076451801 (Bydarhalli, Tiptur)

Water Level

1. There are discrepancies in latitude-longitude for sites- Thambrahalli, Hunsenahalli, Lakundi, Kolar Town, Sugutur, Nagavalli, Tumkur- as per the physical registers of SGWD
2. Well ID for Gundewadi, Chikkagondanahalli, Chikkathotlakere, Holakal does not match- as per the physical registers of SGWD
3. Well depth does not match for Tambrahalli, Hulkoti, Lakundi, Muduvadi, Vakkaleri, Yellapura- as per the physical registers of SGWD

Overall Observations for the State of Karnataka

Water Quality

1. No wells of SGWD have qualified to be in the 20% sample for document verification
2. Only 3 out of 5 state-govt owned water testing labs are operational currently

Water Level

1. To better serve the process of public disclosure of data and present a coherent picture of tracking water resource in the state, GWD is planning to share data with Karnataka State Natural Disaster Monitoring Centre
2. Telemetry is expected to be installed in all observation wells to monitor depth to water level in all GPs under the area of implementation
3. Most citizen feedback during pilot study of wells confirmed the government monitoring of observation wells

Hydrogeological Reports

1. 20 blocks have disclosed their Hydrogeological Reports
2. All blocks except 1 (Kolar), did not have any CGWB wells
3. Water level data was given month-wise for the 5 years (2015-2019)

ANNEXURE – IIE: MADHYA PRADESH

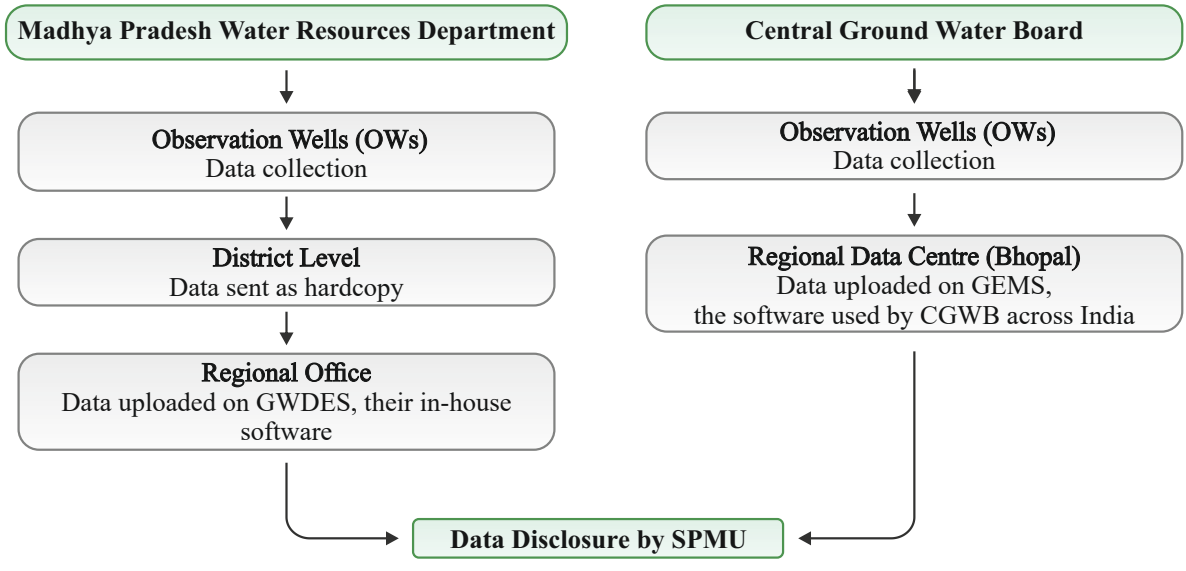
Extent of Atal Jal in Madhya Pradesh

Details of area under Atal Jal	Number
Districts	6
Blocks	9
Gram Panchayats	672

Implementing Agency: Madhya Pradesh Water Resources Department

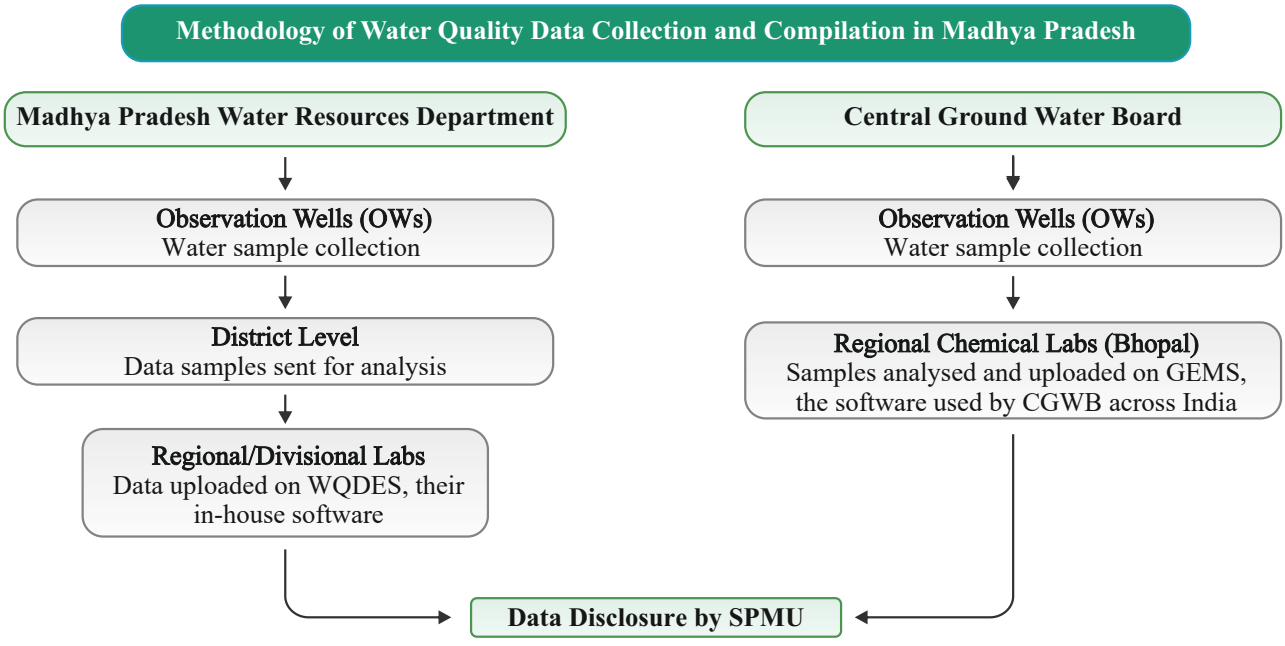
Agencies sharing data: CGWB, Madhya Pradesh Water Resources Department

Methodology of Water Level Data Collection and Compilation



Water Level Data Verification in Madhya Pradesh

Verification aspects	MP Water Resources Department		Central Ground Water Board	
Number of wells as per MIS	145		45	
Number of wells for which data is inspected by QCI	145		45	
Number of wells for which data is available as per the verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19)	145		42	
Number of wells selected as per sampling methodology for data verification	95		26	
Number of wells for which original records are to be verified	**95**		**26**	
Data Points to be verified (based on sample calculated above)	934		250	
Data points verified through digital source (i)	934		250	
Data points verified through physical registers (ii)	190		240	
Actual Data points verified (i+ii)	**1124**		**490**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified	934	190	250	240
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19)	0	0	3	11
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19), as a percentage of total data points verified	0% (0/934)	0% (0/190)	1.2% (3/250)	4.58% (11/240)
Overall percentage of discrepancies in Water Level data= 100*(Total discrepancies/Total data points verified) = 100*14/1614 = 0.87%				



Water Quality Data Verification in Madhya Pradesh

Verification aspects	MP Water Resources Department	Central Ground Water Board
Number of wells as per MIS	147	39
Number of wells for which data is inspected by QCI	147	39
Number of wells for which data is available as per the verification protocol (at least 3 year data for at least 3 ions + EC/TDS available between 2015-19)	0	33
Number of wells selected as per sampling methodology for data verification	0	24
Number of wells for which original records are to be verified	**0**	**24**
Data Points to be verified (based on sample calculated above)	0	1121
Data points verified through digital source (i)	0	1121
Data points verified through physical registers (ii)	0	1121
Actual Data points verified (i+ii)	**0**	**2242**

Discrepancies in data	Digital Records	Physical Registers	Digital Records	Physical Registers
Total Data points verified in the digital records /physical registers	0	0	1121	1121
Total number of discrepancies observed in water quality data	0	0	0	0
Total number of discrepancies observed in water quality data, as a percentage of total data points verified	0%	0%	0%	0%
Overall percentage of discrepancies in Water Quality data= 100*(Total discrepancies/Total data points verified) = 100*0/2242 = 0%				

Water Testing Lab Assessment in Madhya Pradesh

Details	MP Water Resources Department	Central Ground Water Board
Number of Labs owned	7	1
Number of Labs Accredited	0	1
Number of Labs Accredited by NABL	0	1
Details of Lab Visited	**MP Water Resources Department**	**Central Ground Water Board**
Name of Lab visited	State Water Quality Analysis Laboratory, Bhopal	Regional Chemical Laboratory, Bhopal
Type and Year of Accreditation	-	NABL, 2017
Number of Technical and Non-Technical Staff	Technical - 4 Non-technical -3	Technical -5 Non-Technical - 3
Number of samples analyzed annually	2200 to 2600	1400 to 1800

Hydrogeological Report Assessment in Madhya Pradesh

Categorization	Number
Total number of Hydrogeological Reports Disclosed	9
Number of blocks for which Hydrogeological Reports are 'Complete'	4
Number of blocks for which Hydrogeological Reports are 'Incomplete'	5

Report Card for Madhya Pradesh

Water Level (A)	Total number of wells for which data is available as per the verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19) **= 187 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water level data)/100} x (Total number of observation wells for which data is available as required) = (1-(0.87/100))*(187) **= 185 wells**
Water Quality (B)	Total number of wells for which data is available as per the verification protocol (at least 3-year data for at least 3 ions + EC/TDS for 3 years is available between 2015-19) **= 33 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water quality data)/100} x (Total number of observation wells for which data is available as required) = (1-(0/100))*(33) **= 33 wells**
Hydrogeological Reports (C)	Total number of blocks for which Hydrogeological Report is disclosed=9
	Total number of blocks that achieved completion of Hydrogeological Report = 4
Total Successful Occurrences (A+B+C)	**= 222**

Remarks on Discrepancies Observed in Data Verification in Madhya Pradesh

1. For Village Khajuria, block name, district name, latitude and longitude do not match. As per our records, it is in Nowgong block, Chhatarpur district. As per physical documents received from CGWB, it is in Sagar block, Sagar district. Latitude-longitude as per MIS 24.8497, 79.9311. Latitude-longitude as per CGWB records- 23.940, 78.686
2. Village Niwari, Chhatarpur block, Chhatarpur district, became Niwari1 after 2015. In 2015-16, there are physical documents of Niwari while from 2016 till 2019, physical documents for only Niwari1 are available in CGWB
3. In Water Level data of CGWB, most discrepancies were noted because the physical documents said 'Dry' while numerical values were mentioned in the MIS
4. The pre-post values of one of the wells were swapped for the year 2015

Overall Observations for the State of Madhya Pradesh

1. None of the Madhya Pradesh Water Resources Department (MPWRD) wells qualified for Water Quality, as per the Verification Protocol
2. MPWRD updates Well Depth twice a year, for all the years since the well has been recognized as an Observation Well (OW)
3. MP uses 3 software to store data related to OWs: Ground Water Data Entry System (GWDES) and Water Quality Data Entry System (WQDES) by MPWRD to record water level and water quality respectively; GEMS by CGWB to record both water level and water quality

Hydrogeological Reports

1. 9 blocks have disclosed their Hydrogeological Reports
2. Map 6 gives EC distribution of pre-monsoon period. A similar map for post-monsoon EC should accompany

ANNEXURE – IIF: MAHARASHTRA

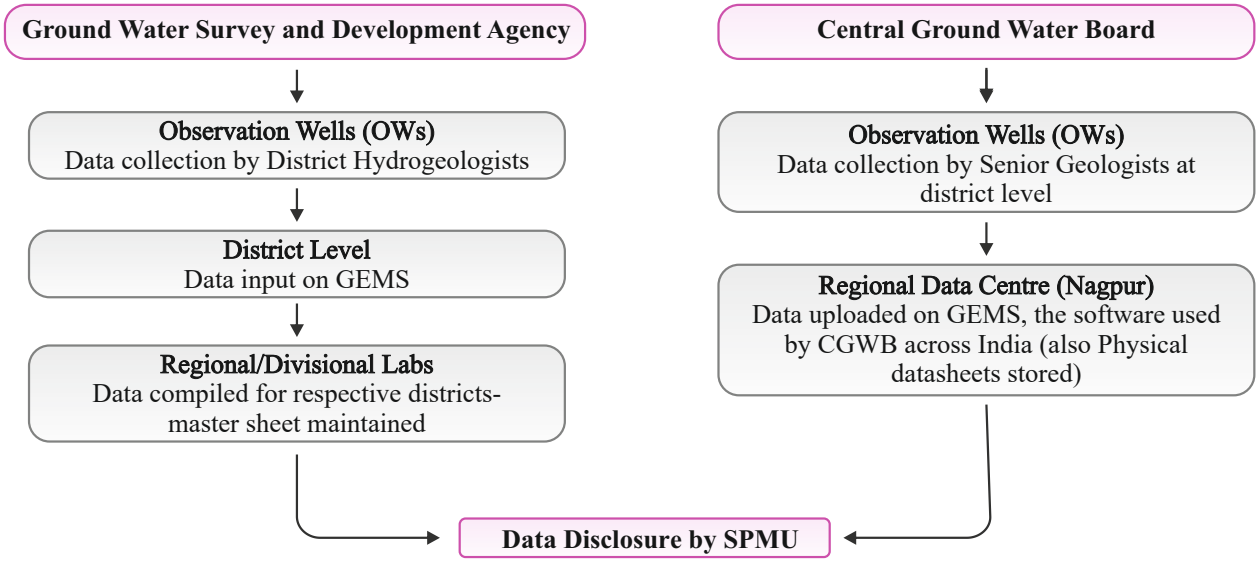
Extent of Atal Jal in Maharashtra

Details of area under Atal Jal	Number
Districts	13
Blocks	38
Gram Panchayats	1339

Implementing Agency: Water Supply and Sanitation Department, Maharashtra

Agencies sharing data: CGWB, Ground Water Survey and Development Agency

Methodology of Water Level Data Collection and Compilation in Maharashtra

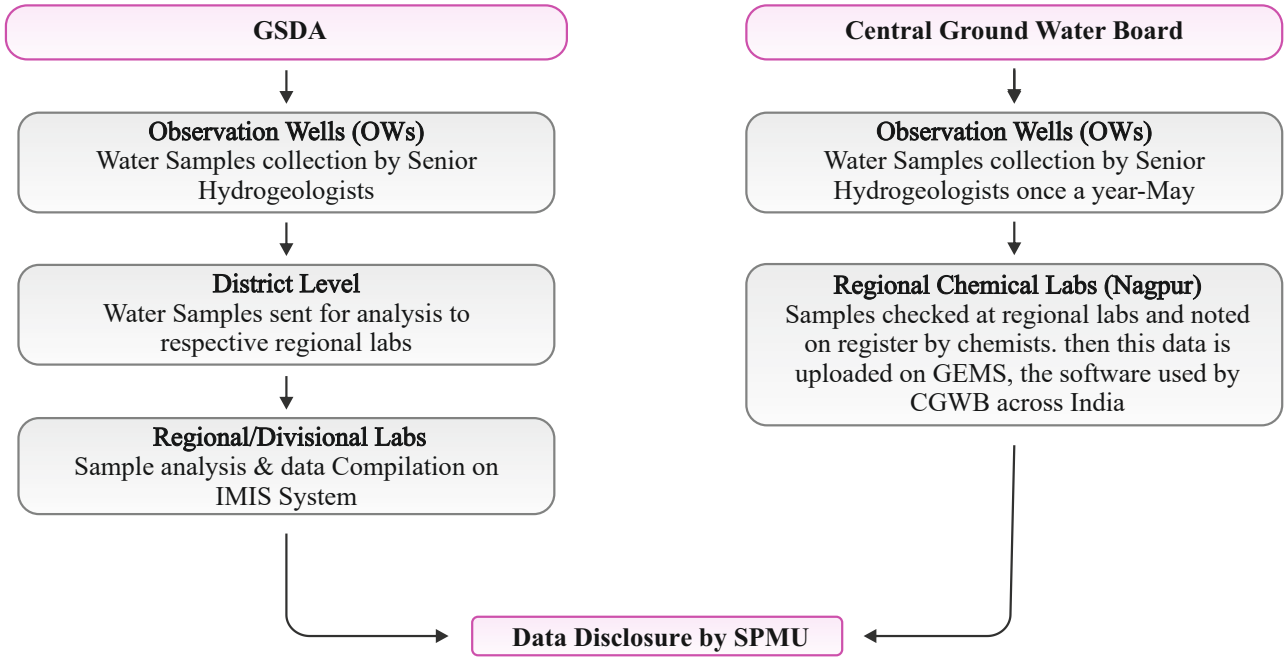


Water Level Data Verification in Maharashtra

Verification aspects	Ground Water Survey and Development Agency (GSDA)		Central Ground Water Board	
Number of wells as per MIS	511		236	
Number of wells for which data is inspected by QCI	511		236	
Number of wells for which data is available as per the verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19)	500		199	
Number of wells selected based on sampling methodology for data verification	72		39	
Number of wells for which original records are to be verified	**72**		**39**	
Data Points to be verified (based on sample calculated above)	714		376	
Data points verified through digital source (i)	714		376	
Data points verified through physical registers (ii)	150		48	
Actual Data points verified (i+ii)	**864**		**424**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified	714	150	376	48
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19)	0	0	0	2
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19), as a percentage of total data points verified	0% (0/714)	0% (0/150)	0% (0/376)	4.16% (2/48)

Overall percentage of discrepancies in Water Level data = 100*(Total discrepancies/Total data points verified) = 100*2/1288 = 0.16%

Methodology of Water Quality Data Collection and Compilation in Maharashtra



Water Quality Data Verification in Maharashtra

Verification aspects	GSDA		Central Ground Water Board	
Number of wells as per MIS	0		180	
Number of wells for which data is inspected by QCI	0		180	
Number of wells for which data is available as per the verification protocol (at least 3 year data for atleast 3 ions + EC/TDS available between 2015-19)	0		66	
Number of wells selected based on sampling methodology for data verification	0		23	
Number of wells for which original records are to be verified	**0**		**23**	
Data Points to be verified (based on sample calculated above)	0		690	
Data points verified through digital source (i)	0		680	
Data points verified through physical registers (ii)	0		0	
Actual Data points verified (i+ii)	**0**		**680**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified in the digital records / physical registers	0	0	680	0
Total number of discrepancies observed in water quality data	0	0	21	0
Total number of discrepancies observed in water quality data, as a percentage of total data points verified	0% (0/0)	0% (0/0)	3.1% (21/680)	0%

Overall percentage of discrepancies in Water Quality data = 100*(Total discrepancies/Total data points verified) = 100*21/680 = 3.1%

Water Testing Lab Assessment in Maharashtra

Details	GSDA	Central Ground Water Board
Number of Labs owned	175	1
Number of Labs Accredited	36	1
Number of Labs Accredited by NABL	6	1

Details of Lab Visited	GSDA	Central Ground Water Board
Name of Lab visited	Regional Water Testing Lab, G.S.D.APune	Regional Chemical Lab, Nagpur
Type and Year of Accreditation	Ground Water Testing, 2018	Ground Water Testing, 2016
Number of Technical and Non-Technical Staff	4	4
Number of samples analyzed annually	744201 (2019-20)	Approximately 1800

Hydrogeological Report Assessment in Maharashtra

Categorization	Number
Total number of Hydrogeological Reports Disclosed	38
Number of blocks for which Hydrogeological Reports are 'Complete'	9
Number of blocks for which Hydrogeological Reports are 'Incomplete'	29

Report Card for Maharashtra

Water Level (A)	Total number of wells for which data is available as per the Verification Protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19) **= 699 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water level data)/100} x (Total number of observation wells for which data is available as required) = (1-(0.16/100))*(699) **= 698 wells**
Water Quality (B)	Total number of wells for which data is available as per the Verification Protocol (at least 3 year data for at least 3 ions + EC/TDS for 3 years is available between 2015-19) **= 66 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water quality data)/100} x (Total number of observation wells for which data is available as required) = (1-(3.1/100))*(66) **= 64 wells**
Hydrogeological Reports (C)	Total number of blocks for which Hydrogeological Report is disclosed = 38
	Total number of blocks that achieved completion of Hydrogeological Report = 9
Successful Occurrences (A+B+C)	**771**

Remarks on Discrepancies Observed in Data Verification in Maharashtra

2. In discrepancies in WQ w.r.t CGWB MIS is broadly in the field of Magnesium; while carbonate data points were entirely not disclosed in MIS

3. Also, for one WQ well in Tasgaon block (District Sangli, Site name Ped), data was received in MIS for all 5 years. Whereas, no original records were found for 2015 for this well during data verification

Overall Observations for the State of Maharashtra

1. Maharashtra GWD WQ data was not considered in this DLI. Only CGWB wells have been considered for WQ in MIS and verification
2. For WQ, the parameters for 2018 and 2019 were not provided by SPMU in MIS, while the original records were present in the CGWB office and GEMS portal

Hydrogeological Reports:

1. 38 blocks have disclosed their Hydrogeological Reports
2. Map 3 did not specify water level and/or water quality wells for 79% of the blocks (marks not deducted)
3. Map 6 was absent for 12 blocks (marks deducted); and did not show relevant information for 13 blocks (marks not deducted)
4. Table 3 did not provide data for 2018-19
5. The purpose of monitoring of CGWB Wells has not been given in 39% of the reports.

ANNEXURE – IIG: RAJASTHAN

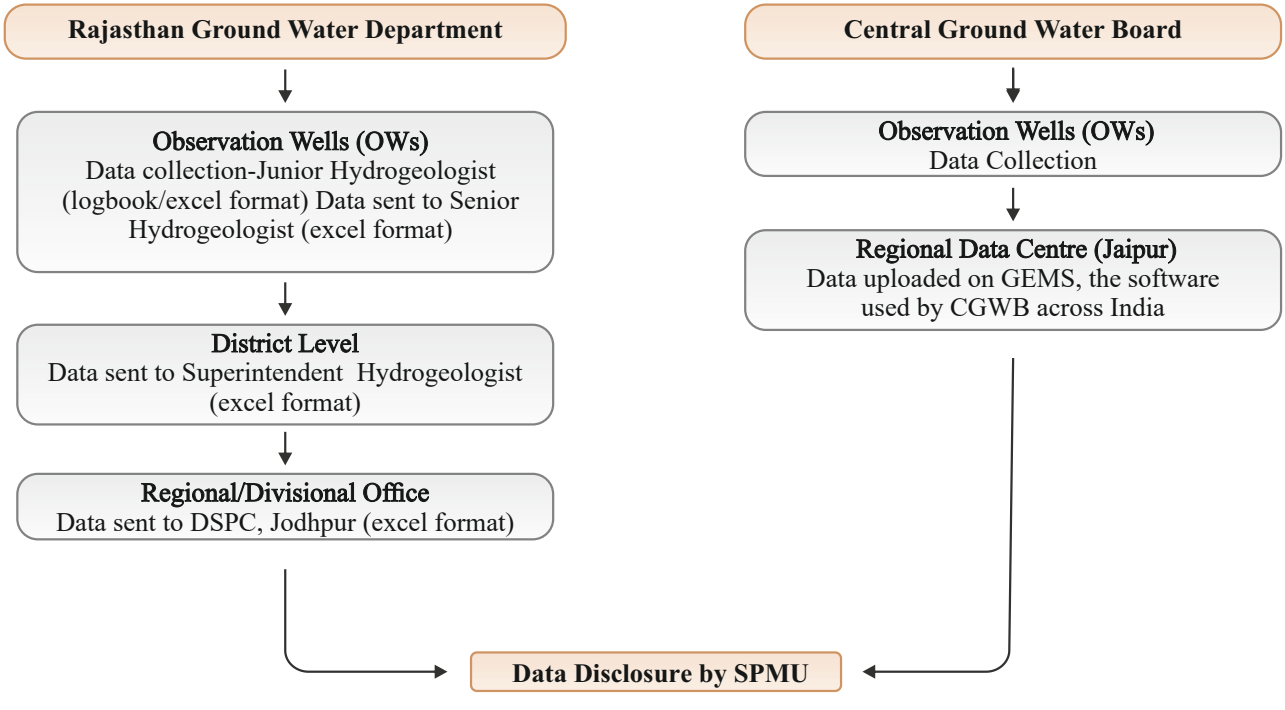
Extent of Atal Jal in Rajasthan

Details of area under Atal Jal	Number
Districts	17
Blocks	38
Gram Panchayats	1144

Implementing Agency: Rajasthan Ground Water Department

Agencies sharing data: CGWB, Rajasthan Ground Water Department

Methodology of Water Level Data Collection and Compilation in Rajasthan

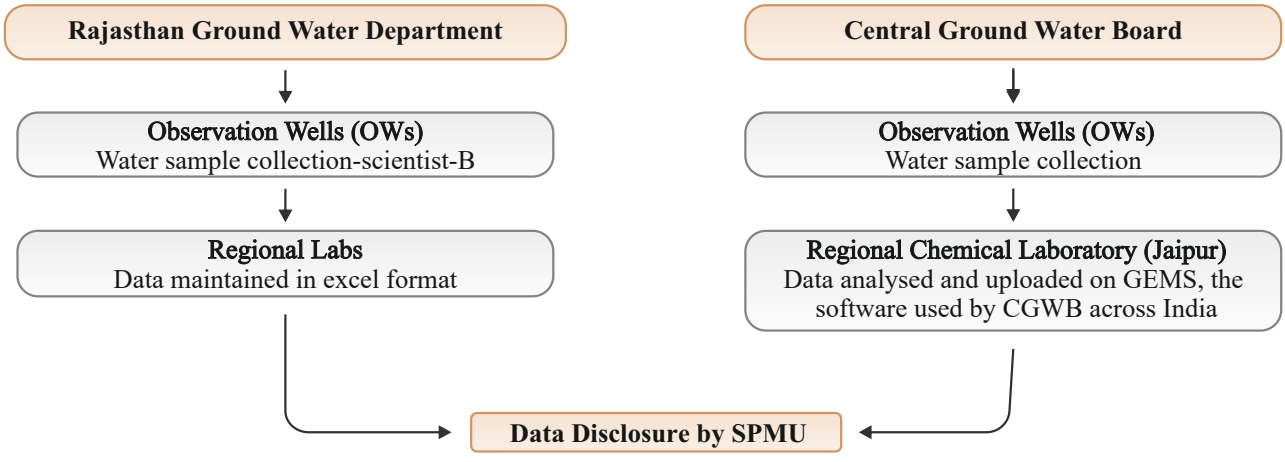


Water Level Data Verification in Rajasthan

Verification aspects	Rajasthan Ground Water Department		Central Ground Water Board	
Number of wells as per MIS	540		161	
Number of wells for which data is inspected by QCI	540		161	
Number of wells for which data is available as per the verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19)	313		74	
Number of wells selected as per the sampling methodology for data verification	69		13	
Number of wells for which original records are to be verified	**69**		**13**	
Data Points to be verified (based on sample calculated above)	677		122	
Data points verified through digital source (i)	677		122	
Data points verified through physical registers (ii)	0		122	
Actual Data points verified (i+ii)	**677**		**244**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified	**677**	**0**	**122**	**122**
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19)	**16**	**0**	**0**	**0**
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19), as a percentage of total data points verified	**2.36% (16/677)**	**0% (0/0)**	**0% (0/122)**	**0% (0/122)**

Overall percentage of discrepancies in Water Level data:
100*(Total discrepancies/Total data points verified) = 100*16/921 = 1.73%

Methodology of Water Quality Data Collection and Compilation in Rajasthan



Water Quality Data Verification in Rajasthan

Verification aspects	Rajasthan Ground Water Department	Central Ground Water Board
Number of wells as per MIS	513	93
Number of wells for which data is inspected by QCI	513	93
Number of wells for which data is available as per the verification protocol (at least 3-year data for at least 3 ions + EC/TDS available between 2015-19)	357	46
Number of wells selected as per the sampling methodology for data verification	95	16
Number of wells for which original records are to be verified	**95**	**16**
Data Points to be verified (based on sample calculated above)	4393	554
Data points verified through digital source (i)	4393	554
Data points verified through physical registers (ii)	0	0
Actual Data points verified (i+ii)	**4393**	**554**

Discrepancies in data	Digital Records	Physical Registers	Digital Records	Physical Registers
Total Data points verified in the digital records /physical registers	4393	0	554	0
Total number of discrepancies observed in water quality data	0	0	0	0
Total number of discrepancies observed in water quality data, as a percentage of total data points verified	0%	0%	0%	0%

Overall percentage of discrepancies in Water Quality data:

100*(Total discrepancies/Total data points verified) = 100*0/4947 = 0%

Water Testing Lab Assessment in Rajasthan

Details	Rajasthan Ground Water Department	Central Ground Water Board
Number of Labs owned	4	1
Number of Labs Accredited	0	1
Number of Labs Accredited by NABL	0	1
Details of Lab Visited	Rajasthan Ground Water Department	Central Ground Water Board
Name of Lab visited	Regional Chemical Lab, GWD, Jaipur	Regional Chemical Lab, CGWB, Jaipur
Type and Year of Accreditation	-	NABL, 2019
Number of Technical and Non-Technical Staff	Technical - 7, Non-Technical - 5	Technical - 4, Non Technical - 2
Number of samples analyzed annually	Approximately 1200	40-50 samples per Chemist per month

Hydrogeological Report Assessment in Rajasthan

Categorization	Number
Total number of Hydrogeological Reports Disclosed	0
Number of blocks for which Hydrogeological Reports are 'Complete'	0
Number of blocks for which Hydrogeological Reports are 'Incomplete'	0

Report Card for Rajasthan

Water Level (A)	Total number of wells for which data is available as per the verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19) **= 387 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water level data)/100} x (Total number of observation wells for which data is available as required) = (1-(1.73/100))*(387) **= 380 wells**
Water Quality (B)	Total number of wells for which data is available as per the verification protocol (at least 3-year data for at least 3 ions + EC/TDS for 3 years is available between 2015-19) **= 403 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water quality data)/100} x (Total number of observation wells for which data is available as required) = (1-(0/100)) *(403) **= 403 wells**
Hydrogeological Reports (C)	Total number of blocks for which Hydrogeological Report is disclosed = 0
	Total number of blocks that achieved completion of Hydrogeological Report = 0
Successful Occurrences (A+B+C)	**783**

Remarks on Discrepancies Observed in Data Verification in Rajasthan

1. The discrepancies in WL with respect to Rajasthan Ground Water Department's wells were found in Mohangarh Block, Jaisalmer District. Few of them seem like typographical error – i.e., data is wrongly entered in the sheet which was shared with the NPMU
2. As per MIS records, Gagron and Mandawar Village are in Khanpur Block, Jhalawar District, but in the digital records that were verified from State, it's in Jhalrapatan Block, Jhalawar District
3. For Water Quality, few of the block names were found to be different/misspelled when MIS records were compared with the digital records. For example, Borina was misspelled as Bori, Begna was misspelled as Beg etc.

Overall Observations for the State of Rajasthan

1. For Water Level, No discrepancy was found in CGWB Wells, with respect to Physical Sheets and GEMS Portal data
2. For Water Level, SGWD did not submit Well ID for 70% of the wells and Site Name for 100% of the wells
3. For Peesangan Block, Ajmer District, latitude of most of the wells vary when compared with the digital records (DSPC sheet)
4. With respect to SGWB wells for WL in Jaisalmer district, there has been a mismatch in terms of the name of block mentioned in the MIS and State records. The wells in Mohangarh block mentioned in MIS were found to be in Jaisalmer block in State records.
5. **Hydrogeological Reports:** Rajasthan did not disclose any reports

ANNEXURE – IIH: UTTAR PRADESH

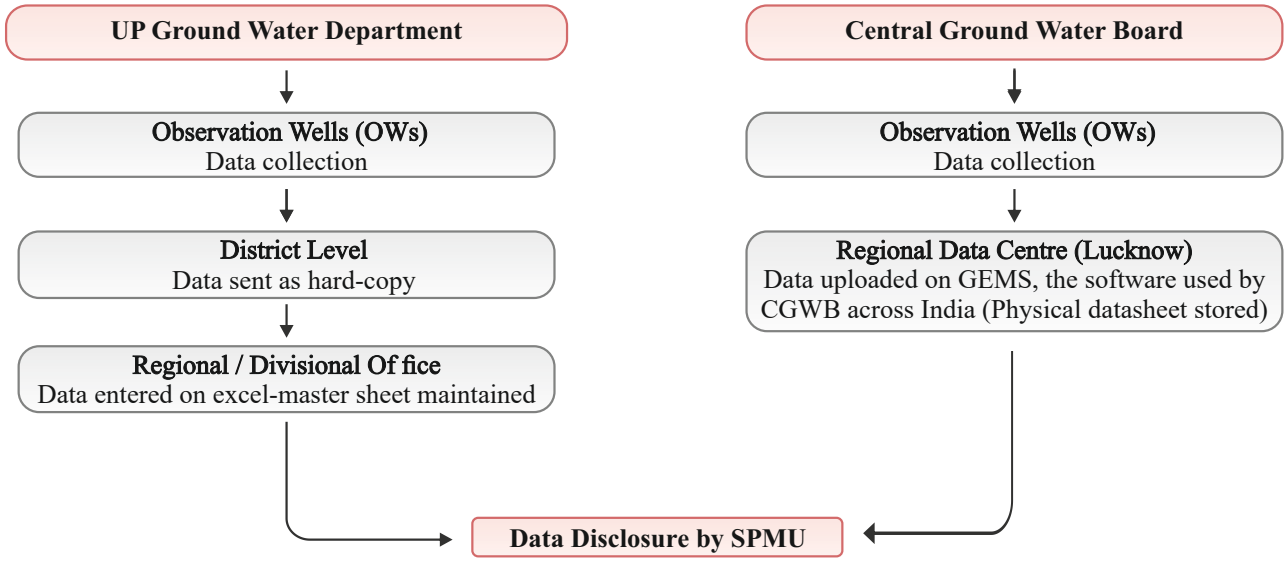
Extent of Atal Jal in Uttar Pradesh

Details of area under Atal Jal	Number
Districts	10
Blocks	26
Gram Panchayats	550

Implementing Agency: UP Ground Water Department

Agencies sharing data: CGWB, UP Ground Water Department, UP Jal Nigam (WQ Only)

Methodology of Water Level Data Collection and Compilation in Uttar Pradesh

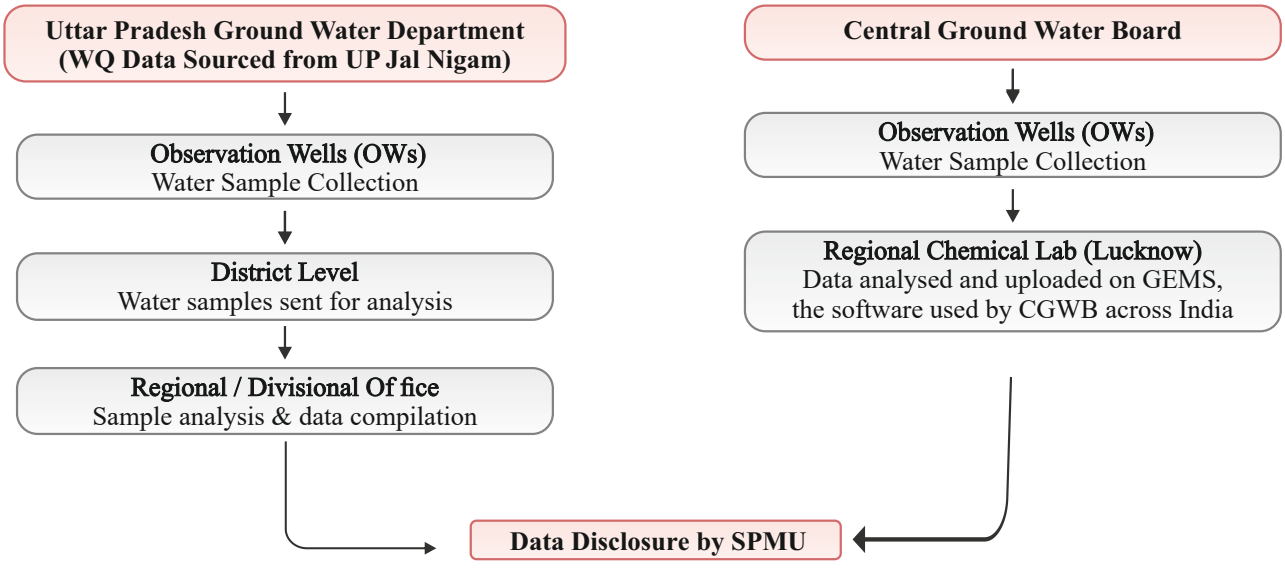


Water Level Data Verification in Uttar Pradesh

Verification aspects	UP Ground Water Department		Central Ground Water Board	
Number of wells as per MIS	222		86	
Number of wells for which data is inspected by QCI	222		86	
Number of wells for which data is available as per the verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19)	170		28	
Number of wells selected based on sampling methodology for data verification	34		9	
Number of wells for which original records are to be verified	**34**		**9**	
Data Points to be verified (based on sample calculated above)	272		86	
Data points verified through digital source (i)	272		86	
Data points verified through physical registers (ii)	200		86	
Actual Data points verified (i+ii)	**472**		**172**	
Discrepancies in data	**Digital Records**	**Physical Registers**	**Digital Records**	**Physical Registers**
Total Data points verified	272	200	86	86
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19)	0	18	0	0
Total number of discrepancies observed in water level data (pre and post-monsoon data between 2015-19), as a percentage of total data points verified	0% (0/272)	9% (18/200)	0% (0/86)	0% (0/86)

Overall percentage of discrepancies in Water Level data= 100*(Total discrepancies/Total data points verified)= 100*18/644 = 2.79%

Methodology of Water Quality Data Collection and Compilation in Uttar Pradesh



Water Quality Data Verification in Uttar Pradesh

Verification aspects	UP Ground Water Department	Central Ground Water Board
Number of wells as per MIS	8132	26
Number of wells for which data is inspected by QCI	8132	26
Number of wells for which data is available as per verification protocol (at least 3 year data for at least 3 ions + EC/ TDS available between 2015-19)	0	26
Number of wells selected based on sampling methodology for data verification	0	6
Number of wells for which original records are to be verified	**0**	**6**
Data Points to be verified (based on sample calculated above)	0	330
Data points verified through digital source (i)	0	330
Data points verified through physical registers (ii)	0	0
Actual Data points verified (i+ii)	**0**	**330**

Discrepancies in data	Digital Records	Physical Registers	Digital Records	Physical Registers
Total Data points verified in the digital records /physical registers	0	0	330	0
Total number of discrepancies observed in water quality data	0	0	0	0
Total number of discrepancies observed in water quality data, as a percentage of total data points verified	0%	0%	0%	0%
Overall percentage of discrepancies in Water Quality data= 100*(Total discrepancies/Total data points verified) = 100*0/330 = 0%				

Water Testing Lab Assessment in Uttar Pradesh

Details	UP Ground Water Department (UP Jal Nigam)	Central Ground Water Board
Number of Labs owned	1 State Lab; 5 Regional Labs; 70 District Labs	1
Number of Labs Accredited	1 State Lab	1
Number of Labs Accredited by NABL	1 State Lab	1

Details	UP Ground Water Department (UP Jal Nigam)	Central Ground Water Board
Name of Lab visited	State Level Water Analysis Laboratory	Regional Chemical Laboratory, CGWB, NR, Bhujal Bhawan, Lucknow, Uttar Pradesh
Type and Year of Accreditation	Testing; 2018	GW Chemical Testing lab; 10 Jan 2014, renewed every 2 years; T-1688
Number of Technical and Non-Technical Staff	12 Technical Staff and 6 Non-technical Staff	4 technical and 1 lab attendant; non-technical staff are hired
Number of samples analyzed annually	Approximately 8000	Approximately 2200

Hydrogeological Report Assessment in Uttar Pradesh

Categorization	Number
Total number of Hydrogeological Reports Disclosed	26
Number of blocks for which Hydrogeological Reports are 'Complete'	0
Number of blocks for which Hydrogeological Reports are 'Incomplete'	26

Report Card for Uttar Pradesh

Water Level (A)	Total number of wells for which data is available as per verification protocol (at least 8 data points of pre-monsoon and post-monsoon data between 2015-19) **= 198 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water level data)/100} x (Total number of observation wells for which data is available as required) = (1-(2.79/100))*(198) **= 192 wells**
Water Quality (B)	Total number of wells for which data is available as per verification protocol (at least 3-year data for at least 3 ions + EC/TDS for 3 years is available between 2015-19) **= 26 wells**
	Effective number of observation wells for which public disclosure of data is achieved = {1-(Percentage of discrepancies in water quality data)/100} x (Total number of observation wells for which data is available as required) = (1-(0/100))*(26) **= 26 wells**
Hydrogeological Reports (C)	Total number of blocks for which Hydrogeological report is disclosed = 26
	Total number of blocks that achieved completion of Hydrogeological report = 0
Successful Occurrences (A+B+C)	= 218

Remarks on Discrepancies Observed in Data Verification in Uttar Pradesh

1. For UP GWD, there is no fixed system to enter a particular month's data as Pre or Post Monsoon data at the district level. Subsequently, data is maintained in Pre-Monsoon and Post-Monsoon form. Thus, some discrepancies are marked because August data from physical registers has been entered as Post-Monsoon data, instead of October or November data.
2. There is mismatch in WL w.r.t CGWB physical registers and MIS because the M.P.(measuring point) for those particular wells were not updated in the GEMS software. - QCI randomly checked the different M.P.s of 2 such data points

Overall Observations for the State of Uttar Pradesh

Water Level

1. UP GWD did not submit 2019 WL data in the MIS
2. UP GWD did not submit Well Depth for all wells, except one
3. For UP GWD, there is no fixed system to enter a particular month's data as Pre or Post Monsoon data at the district level. Subsequently, data is maintained in Pre-Monsoon and Post-Monsoon form
4. As Bundelkhand is a rocky region, water sometimes gets stuck in pockets between the rocks resulting in abnormal highs and lows
5. In CGWB WL:
   - 1 Well Depth did not Match; 1 Block did not match (Digital Records)
   - 2 Well Depth did not match; 1 Block did not match (Physical Registers)
   - Site name: Pangara, Well Id: W251154080294501; Block mentioned in MIS: Mahua; Block Mentioned in Physical Registers and Digital Records: Naraini
   - For Babina1, well of Babina block and Pangara well of Mahua block, Pre Monsoon 2016 data is not entered in MIS, even though it is available in physical records

Water Quality

1. SPMU submitted UP Jal Nigam and CGWB data for Water Quality

Hydrogeological Reports

1. 26 blocks have disclosed their Hydrogeological Reports
2. Map 3 had no wells marked for water quality measurement for 92% of the blocks
3. Map 6 is absent for all the blocks
4. Tables 1 and 2 had different Well IDs of CGWB wells in 77% of the reports
5. Table 2 did not have 2019 data for any of the blocks

ANNEXURE III - ON-FIELD ASSESSMENT OF WELLS

ANNEXURE – IIIA: QUESTIONNAIRE

Questionnaire for physical assessment of well

Well Observation Questions
State
District
Block
Gram Panchayat
Village
Identification Number of Well
Latitude, Longitude- Copy from data provided
Distance of well from the provided Latitude and Longitude- Type Distance
Picture of screenshot of distance in two points
Site name of the well (Landmark)
Type of well (Select- Dug wells, Bore wells, Tube wells, Dug cum bore wells, Hand pumps, Bawari (Rajasthan), Piezometers)
Depth of well- Ask the official in case not mentioned in details
Diameter of well- Large or Small
Length of diameter
Is the well Accessible- Can citizens reach it for usage (nothing surrounding being a hurdle)
Is the well functional- Dry or not dry
Is the well monitored- Ask the officials
If yes, how many times is it monitored annually- Ask the officials
Does the well have any digital water recorder/measuring mechanism- Ask the official and select Yes/No
If yes, what is the type- Telemetric device, DWLR, piezometers, Others
If Others, please mention

Citizen feedback for the usage of the well (3 citizens of nearby area)
Name of citizen
Gram Panchayat
Village
Occupation of citizen
Photo of citizen
Do you and other citizens of this area, use this well (tell the site name reference)- Yes or No
Is the well accessible and open for public use- Yes or No
If No, why
If Yes, is the well usable for most part of the year- Not usable/ Dry for most part of the year, Usable-Yes has water for most part of the year
For what purpose do you use the water of this well- (Select multiple) Drinking, Daily chores, Irrigation, Others
If Others selected, please mention
Is the well monitored regularly by Water department officials - Yes or No
If yes, generally what is the frequency- Weekly, Fortnightly, Once a month, Every 3 months, Every 6 months, Once a year
If No, does any other (Non-Government) person monitor the well- Yes or No
If yes, Name of the person
Is the well privately owned by him- Yes or No

ANNEXURE – IIIB: PILOT STUDY

ON-FIELD ASSESSMENT OF OWs- A PILOT STUDY

A pilot study was conducted in the states of Karnataka, Haryana, and Rajasthan to establish a basic guideline for the physical assessment of OWs.

Following were the key takeaways from the study:

- Physical markings/signs identifying the well were a necessity in establishing the location of the well.
- The OWs might be situated on private lands or government properties. Accordingly, monitoring of water level could be done by private individuals or government officials.
- The accompaniment of a state official with the assessors on-ground could ease the process to a great extent.
- Interaction with people living around the well could reveal a lot of information regarding the usability, purposefulness and monitoring of the well.

Image 1: A Borewell in Kolar District, Karnataka

Image 2: A Piezometer in Kolar, Karnataka

Image 3: A Tubewell at Khol, Rewari, Haryana

Image 4: A Bawari at Amber, Jaipur, Rajasthan

Image 5: A Handpump in Faridabad, Haryana

ANNEXURE IV: HYDROGEOLOGICAL REPORT & RESULTS

ANNEXURE-IVA: REPORT TEMPLATE

Basic Information **Parameter Score: (__/5)**

All the 10 sub-parameters carry a score of 0.5 each, based on whether they are complete or not		
S No.	**Sub-parameter**	**Details**
1.	General Information	Information related to the block population. type of soil, number of Gram Panchayats, villages and towns, rainfall, and river basin
2.	Land Use	Information related to forested area, net sown, cultivable and gross cropped area
3.	Cropping Pattern (as in 2019 - 20)	Information related to major kharif and rabi crops grown in the kharif and rabi seasons, summer and perennial seasons
4.	Irrigation Facilities (as in 2019 -20)	Information related to net and gross irrigated area, sources of irrigation
5.	Geology and Hydrogeology	Information related to types of rocks, sand, and clay, as well as geological and water bearing formations, and aquifer characteristics
6.	Ground Water Conditions	Information related to the number of wells which are monitored for ground water level, monitoring mechanism and frequency, period of data availability, water level and water level fluctuation range of the villages falling in the given block
7.	Ground Water Quality	Information regarding the groundwater status in the given block. It specifies the parameters for which the block groundwater is monitored, the period of monitoring and frequency of the same, as well as the number of wells which are monitored, and whether they fall under SGWB or CGWB. Moreover, it gives the information regarding the major problems related to groundwater quality in the area
8.	Ground Water Resources	Information related to the state of groundwater availability in the block and extent of exploitation. It provides statistical information related to annual groundwater extraction in ha.m and percentage of extraction (which reflects the extent of exploitation)
9.	Water-Related Schemes	Central and State government water related schemes which are applicable in the block
10.	Ground Water-Related Issues	Issues related to water availability and quality

Maps **Parameter Score: (__/9)**

The parameter of Maps is related to representation of various themes as given below:

All the 6 sub-parameters carry a score of 1.5 each, based on whether they are complete or not	
S No.	**Details**
11	Location map of the Block/Taluk
12	Hydrogeological map of the Block/Taluk
13	Locations of observation wells for monitoring water levels and water quality
14	Map showing distribution of WL (m.bgl) of Pre-monsoon period
15	Map showing distribution of WL (m.bgl) of Post-monsoon period
16	Map showing distribution of EC (µ S/cm at 25 °C) in ground water
17	Map showing Cross-section of subsurface regionalized aquifer groups - **Not mandatory**

Tables **Parameter Score: (__/6)**

All the 3 sub-parameters carry a score of 2 each, based on whether they are available or not		
S. No.	**Sub-parameter**	**Details**
18	Basic data of observation wells for monitoring water levels and water as submitted in the MIS	Information of wells in terms of 1. Well IDs, village names, site names, and GP. 2. Location of wells with the help of latitude and longitude. 3. Purpose of monitoring of wells (Water Level and/or Water Quality)
19	Historical data of water levels in observation wells for the last 5 years or from the year of establishment as submitted in the MIS	Data related to historical pre and post-monsoon water level data of these wells between the years 2014 and 2019
20	Historical data of ground water quality (pH, EC, TDS, Important cations & anions) as submitted in the MIS	Historical water quality data of these wells between the years 2014 and 2019 related to: 1. pH, EC/TDS data for 1-5 years 2. Anion and Cation concentration data for the years 2014-2019: Ca, Mg, Na, K, HCO_3, Cl, SO_4, NO_3, F, etc.

ANNEXURE-IVB:
BLOCK-WISE RESULTS OF ASSESSMENT

S.no	State	Block	Total Score	Status
1	Gujarat	Gandhi Nagar	15	Incomplete
2	Maharashtra	Warud	20	Complete
3	Maharashtra	Deola	18.5	Incomplete
4	Maharashtra	Khanapur	18	Incomplete
5	Maharashtra	Narkhed	20	Complete
6	Maharashtra	Rahata	18.5	Incomplete
7	Madhya Pradesh	Palera	18	Incomplete
8	Madhya Pradesh	Ajaygarh	20	Complete
9	Madhya Pradesh	Baldeogarh	18	Incomplete
10	Madhya Pradesh	Chhatarpur	18	Incomplete
11	Madhya Pradesh	Niwari	20	Complete
12	Madhya Pradesh	Sagar	20	Complete
13	Madhya Pradesh	Nowgong	18	Incomplete
14	Madhya Pradesh	Rajnagar	18	Incomplete
15	Madhya Pradesh	Patharia	20	Complete
16	Uttar Pradesh	Sarila	16.5	Incomplete
17	Uttar Pradesh	Muskara	16.5	Incomplete
18	Uttar Pradesh	Pilana	17	Incomplete
19	Uttar Pradesh	Panwari	18.5	Incomplete
20	Uttar Pradesh	Manikpur	18.5	Incomplete
21	Uttar Pradesh	Mau	17	Incomplete
22	Uttar Pradesh	Talbehat	16.5	Incomplete
23	Uttar Pradesh	Mahuva	17	Incomplete
24	Uttar Pradesh	Sumerpur	18.5	Incomplete
25	Uttar Pradesh	Kandhala	16.5	Incomplete
26	Uttar Pradesh	Kabrai	15	Incomplete
27	Uttar Pradesh	Charkhari	15.5	Incomplete
28	Uttar Pradesh	Baghpat	18.5	Incomplete
29	Uttar Pradesh	Budhana	12	Incomplete
30	Uttar Pradesh	Jaitpur	18.5	Incomplete
31	Uttar Pradesh	Rajpura	18.5	Incomplete
32	Uttar Pradesh	Tindwari	18.5	Incomplete

33	Uttar Pradesh	Mauranipur	16.5	Incomplete
34	Uttar Pradesh	Ramnagar	16.5	Incomplete
35	Uttar Pradesh	Kharkhoda	15.5	Incomplete
36	Uttar Pradesh	Jaspura	17	Incomplete
37	Uttar Pradesh	Maudaha	18.5	Incomplete
38	Uttar Pradesh	Karvi	18.5	Incomplete
39	Uttar Pradesh	Babina	18.5	Incomplete
40	Uttar Pradesh	Badokhar	18.5	Incomplete
41	Uttar Pradesh	Naraini	18.5	Incomplete
42	Maharashtra	Umarga	16	Incomplete
43	Maharashtra	Morshi	14	Incomplete
44	Maharashtra	Wai	18.5	Incomplete
45	Maharashtra	Jat	18	Incomplete
46	Maharashtra	Pandharpur	18.5	Incomplete
47	Maharashtra	Malshiras	18.5	Incomplete
48	Maharashtra	Sangamner	18	Incomplete
49	Maharashtra	Yawal	18	Incomplete
50	Maharashtra	Indapur	15	Incomplete
51	Maharashtra	Ghansavangi	14	Incomplete
52	Maharashtra	Mohol	18.5	Incomplete
53	Maharashtra	Karjat	16	Incomplete
54	Maharashtra	Jalna	18	Incomplete
55	Maharashtra	Osmanabad	20	Complete
56	Maharashtra	Renapur	18	Incomplete
57	Maharashtra	Madha	16.5	Incomplete
58	Maharashtra	Khatav	16.5	Incomplete
59	Maharashtra	Nilanga	16.5	Incomplete
60	Maharashtra	Parola	20	Complete
61	Maharashtra	Amalner	18	Incomplete
62	Maharashtra	Sinnar	16.5	Incomplete
63	Maharashtra	Raver	18	Incomplete
64	Maharashtra	Chandurbazaar	20	Complete
65	Maharashtra	Matola	18	Incomplete
66	Maharashtra	Kavathe	20	Complete
67	Maharashtra	Man	18.5	Incomplete
68	Maharashtra	Chakur	16.5	Incomplete

69	Maharashtra	Tasgaon	20	Complete
70	Maharashtra	Purandhar	17	Incomplete
71	Maharashtra	Katol	18	Incomplete
72	Maharashtra	Partur	20	Complete
73	Maharashtra	Latur	20	Complete
74	Maharashtra	Baramati	12.5	Incomplete
75	Karnataka	Bangarpet	20	Complete
76	Karnataka	Chalkhere	18	Incomplete
77	Karnataka	Chitradurga	18	Incomplete
78	Karnataka	Devanahalli	20	Complete
79	Karnataka	Dodaballapura	20	Complete
80	Karnataka	Gagad	20	Complete
81	Karnataka	Gundlupet	20	Complete
82	Karnataka	Hiriyur	18	Incomplete
83	Karnataka	Holalkere	18	Incomplete
84	Karnataka	Hosadurga	18	Incomplete
85	Karnataka	Hosakote	20	Complete
86	Karnataka	Kadur	20	Complete
87	Karnataka	Kanakapura	18	Incomplete
88	Karnataka	Kolar	20	Complete
89	Karnataka	Mulbagal	20	Complete
90	Karnataka	Srinivaspura	20	Complete
91	Karnataka	Malur	20	Complete
92	Karnataka	Nelamangala	20	Complete
93	Karnataka	Ron	20	Complete
94	Karnataka	Ramanagara	20	Complete

ANNEXURE V: VERIFICATION SATISFACTION DECLARATION

Template of Declaration

I, _____, _____, authorised representative of _____ State PMU declare that the Atal Bhujal DLI#1 verification was conducted by the Quality Council of India (QCI) officials named _____ and _____during the period _____ to _____ and I am satisfied with the verification process.

We hereby confirm that we have fulfilled all the standards of data collection for the data that has been submitted to National PMU by us for the MIS update.

During the course of visit and verification, the QCI team asked for relevant documents for the verification of Water Level, Water Quality and Hydrogeological Reports data submitted by us to National PMU for DLI#1.

We have presented all the relevant data available with us, and no other information/documentation is pending from SPMU to be shared with NPMU and QCI team, to the best of our knowledge. Also, we have shared all the documentation in electronic form with the QCI team.

SPMU Team	QCI Team
Name of Officer-	Name of Officer-
Designation of Officer-	Designation of Officer-
State-	State-
Office address-	Office address-
Date-	Date-
Time-	Time-

Seal and signature of authorised SPMU official

ANNEXURE VI: EXTENT OF ATAL JAL - BLOCKS

S.no	State	District	Block
1	Gujarat	Ahmedabad	City-Daskroi
2	Gujarat	Banaskantha	Deesa
3	Gujarat	Banaskantha	Deodar
4	Gujarat	Banaskantha	Dhanera
5	Gujarat	Banaskantha	Kankrej
6	Gujarat	Banaskantha	Tharad
7	Gujarat	Banaskantha	Vadgam
8	Gujarat	Banaskantha	Lakhani
9	Gujarat	Banaskantha	Palanpur
10	Gujarat	Gandhinagar	Dehgam
11	Gujarat	Gandhinagar	Gandhinagar
12	Gujarat	Gandhinagar	Kalol
13	Gujarat	Gandhinagar	Mansa
14	Gujarat	Kachchh	Bhachau
15	Gujarat	Kachchh	Mandvi
16	Gujarat	Kachchh	Bhuj
17	Gujarat	Kachchh	Anjar
18	Gujarat	Mehsana	Bechraji
19	Gujarat	Mehsana	Kadi
20	Gujarat	Mehsana	Kheralu
21	Gujarat	Mehsana	Mehsana
22	Gujarat	Mehsana	Satlasana
23	Gujarat	Mehsana	Unjha
24	Gujarat	Mehsana	Vijapur
25	Gujarat	Mehsana	Visnagar
26	Gujarat	Mehsana	Jotana
27	Gujarat	Mehsana	Vadnagar
28	Gujarat	Patan	Chanasma
29	Gujarat	Patan	Patan
30	Gujarat	Patan	Sidhpur
31	Gujarat	Patan	Saraswati

32	Gujarat	Sabarkantha	Idar
33	Gujarat	Sabarkantha	Prantij
34	Gujarat	Sabarkantha	Vadali
35	Haryana	Bhiwani	Badra
36	Haryana	Bhiwani	Behal
37	Haryana	Bhiwani	Kairu
38	Haryana	Bhiwani	Loharu
39	Haryana	Bhiwani	Tosham
40	Haryana	Faridabad	Faridabad
41	Haryana	Faridabad	Ballabhgarh
42	Haryana	Fatehabad	Tohana
43	Haryana	Gurugram	Farukhnagar
44	Haryana	Gurugram	Pataudi
45	Haryana	Gurugram	Sohna
46	Haryana	Gurugram	Gurugram
47	Haryana	Kaithal	Gulha
48	Haryana	Kaithal	Rajaund
49	Haryana	Karnal	Karnal
50	Haryana	Kurukshetra	Ladwa
51	Haryana	Kurukshetra	Pehowa
52	Haryana	Kurukshetra	Shahbad
53	Haryana	Mahendragarh	Nangal Chaudhary
54	Haryana	Mahendragarh	Narnaul
55	Haryana	Mahendragarh	Kanina
56	Haryana	Mahendragarh	Ateli
57	Haryana	Mahendragarh	Mahendergarh
58	Haryana	Palwal	Palwal
59	Haryana	Palwal	Hassanpur
60	Haryana	Palwal	Hathin
61	Haryana	Palwal	Hodal
62	Haryana	Panipat	Bapoli
63	Haryana	Panipat	Samalkha
64	Haryana	Rewari	Khol
65	Haryana	Sirsa	Rania
66	Haryana	Sirsa	Ellanabad
67	Haryana	Yamuna Nagar	Jagadhri
68	Haryana	Yamuna Nagar	Mustafabad
69	Haryana	Yamuna Nagar	Radour
70	Haryana	Yamuna Nagar	Sadhoura

71	Karnataka	Bagalkot	Badami
72	Karnataka	Bagalkot	Bagalkot
73	Karnataka	Bangalore Rural	Doddaballapura
74	Karnataka	Bangalore Rural	Devanahalli
75	Karnataka	Bangalore Rural	Hosakote
76	Karnataka	Bangalore Rural	Nelamangala
77	Karnataka	Belgaum	Ramdurg
78	Karnataka	Belgaum	Athani
79	Karnataka	Belgaum	Saundatti
80	Karnataka	Ballari	Hagaribommanahalli
81	Karnataka	Chamrajnagar	Gundlupet
82	Karnataka	Chikaballapur	Chintamani
83	Karnataka	Chikaballapur	Sidlaghatta
84	Karnataka	Chikaballapur	Chikkaballapur
85	Karnataka	Chikaballapur	Gouribidanur
86	Karnataka	Chikaballapur	Gudibande
87	Karnataka	Chikaballapur	Bagepalli
88	Karnataka	Chikkamagalur	Kadur
89	Karnataka	Chitradurga	Challakere
90	Karnataka	Chitradurga	Holalkere
91	Karnataka	Chitradurga	Hiriyur
92	Karnataka	Chitradurga	Chitradurga
93	Karnataka	Davangere	Jagalur
94	Karnataka	Davangere	Harpanhalli
95	Karnataka	Davangere	Channagiri
96	Karnataka	Gadag	Gadag
97	Karnataka	Gadag	Ron
98	Karnataka	Hassan	Arsikere
99	Karnataka	Kolar	Srinivaspura
100	Karnataka	Kolar	Kolar
101	Karnataka	Kolar	Malur
102	Karnataka	Kolar	Mulbagal
103	Karnataka	Kolar	Bangarpet
104	Karnataka	Ramnagara	Kanakapura
105	Karnataka	Ramnagara	Ramanagara
106	Karnataka	Tumkur	Chikknayakanahalli
107	Karnataka	Tumkur	Madhugiri
108	Karnataka	Tumkur	Koratagere
109	Karnataka	Tumkur	Tiptur

110	Karnataka	Tumkur	Sira
111	Karnataka	Tumkur	Tumkur
112	Madhya Pradesh	Chhatarpur	Chhatarpur
113	Madhya Pradesh	Chhatarpur	Nowgong
114	Madhya Pradesh	Chhatarpur	Rajnagar
115	Madhya Pradesh	Damoh	Patharia
116	Madhya Pradesh	Panna	Ajaygarh
117	Madhya Pradesh	Sagar	Sagar
118	Madhya Pradesh	Tikamgarh	Niwari
119	Madhya Pradesh	Tikamgarh	Baldevgarh
120	Madhya Pradesh	Tikamgarh	Palera
121	Maharashtra	Ahmednagar	Sangamner
122	Maharashtra	Ahmednagar	Rahata
123	Maharashtra	Ahmednagar	Karjat
124	Maharashtra	Amravati	Morshi
125	Maharashtra	Amravati	Chandurbazar
126	Maharashtra	Amravati	Warud
127	Maharashtra	Buldhana	Motala
128	Maharashtra	Jalgaon	Parola
129	Maharashtra	Jalgaon	Amalner
130	Maharashtra	Jalgaon	Yawal
131	Maharashtra	Jalgaon	Raver
132	Maharashtra	Jalna	Jalna
133	Maharashtra	Jalna	Ghansavangi
134	Maharashtra	Jalna	Partur
135	Maharashtra	Latur	Renapur
136	Maharashtra	Latur	Latur
137	Maharashtra	Latur	Chakur
138	Maharashtra	Latur	Nilanga
139	Maharashtra	Nagpur	Narkhed
140	Maharashtra	Nagpur	Katol
141	Maharashtra	Nashik	Deola
142	Maharashtra	Nashik	Sinnar
143	Maharashtra	Osmanabad	Osmanabad
144	Maharashtra	Osmanabad	Umarga
145	Maharashtra	Pune	Purandhar
146	Maharashtra	Pune	Baramati
147	Maharashtra	Pune	Indapur
148	Maharashtra	Sangli	Kavathe Mahankal

149	Maharashtra	Sangli	Tasgaon
150	Maharashtra	Sangli	Miraj
151	Maharashtra	Sangli	Jat
152	Maharashtra	Sangli	Wai
153	Maharashtra	Satara	Khatav
154	Maharashtra	Satara	Man
155	Maharashtra	Satara	Pandharpur
156	Maharashtra	Solapur	Madha
157	Maharashtra	Solapur	Mohol
158	Maharashtra	Solapur	Malshiras
159	Rajasthan	Solapur	Peesangan
160	Rajasthan	Ajmer	Srinagar
161	Rajasthan	Ajmer	Ajmer Rural
162	Rajasthan	Ajmer	Rajgarh
163	Rajasthan	Alwar	Baran
164	Rajasthan	Baran	Atru
165	Rajasthan	Baran	Shahpura
166	Rajasthan	Bhilawara	Chittaurgarh
167	Rajasthan	Chittaurgarh	Bandikui
168	Rajasthan	Dausa	Baijupada
169	Rajasthan	Dausa	Baswa
170	Rajasthan	Dausa	Lawan
171	Rajasthan	Dausa	Nangal Rajawtan
172	Rajasthan	Dausa	Dausa
173	Rajasthan	Dausa	Dhaulpur
174	Rajasthan	Dhaulpur	Saipau
175	Rajasthan	Dhaulpur	Hanumangarh
176	Rajasthan	Hanumangarh	Tibbi
177	Rajasthan	Hanumangarh	Sangaria
178	Rajasthan	Hanumangarh	Amber
179	Rajasthan	Jaipur	Jalsu
180	Rajasthan	Jaipur	Govindgarh
181	Rajasthan	Jaipur	Jaisalmer
182	Rajasthan	Jaisalmer	Nachana
183	Rajasthan	Jaisalmer	Mohangarh
184	Rajasthan	Jaisalmer	Khanpur
185	Rajasthan	Jhalawar	Khetri
186	Rajasthan	Jhunjhunu	Hindaun
187	Rajasthan	Karauli	Shri Mahaveerji

188	Rajasthan	Karauli	Sikandra
189	Rajasthan	Kota	Sangod
190	Rajasthan	Rajasamand	Rajsamand
191	Rajasthan	Sawai Madhopur	Chauth ka Barwara
192	Rajasthan	Sawai Madhopur	Khandar
193	Rajasthan	Sawai Madhopur	Sawai Madhopur
194	Rajasthan	Sikar	Ajeethgarh
195	Rajasthan	Sikar	Patan
196	Rajasthan	Sikar	Neem ka Thana
197	Uttar Pradesh	Baghpat	Baghpat
198	Uttar Pradesh	Baghpat	Pilana
199	Uttar Pradesh	Banda	Tindwari
200	Uttar Pradesh	Banda	Mahuva
201	Uttar Pradesh	Banda	Badokhar Khurd
202	Uttar Pradesh	Banda	Naraini
203	Uttar Pradesh	Banda	Jaspura
204	Uttar Pradesh	Chitrakoot	Ramnagar
205	Uttar Pradesh	Chitrakoot	Manikpur
206	Uttar Pradesh	Chitrakoot	Karvi
207	Uttar Pradesh	Chitrakoot	Mau
208	Uttar Pradesh	Hamirpur	Sarila
209	Uttar Pradesh	Hamirpur	Muskara
210	Uttar Pradesh	Hamirpur	Sumerpur
211	Uttar Pradesh	Hamirpur	Maudaha
212	Uttar Pradesh	Jhansi	Mauranipur
213	Uttar Pradesh	Jhansi	Babina
214	Uttar Pradesh	Lalitpur	Talbehat
215	Uttar Pradesh	Mahoba	Panwari
216	Uttar Pradesh	Mahoba	Charkhari
217	Uttar Pradesh	Mahoba	Kabrai
218	Uttar Pradesh	Mahoba	Jaitpur
219	Uttar Pradesh	Meerut	Kharkhoda
220	Uttar Pradesh	Meerut	Rajpura
221	Uttar Pradesh	Muzaffarnagar	Budhana
222	Uttar Pradesh	Shamli	Kandhala

Quality Council of India