Annexures

India's Participatory Groundwater Management Programme
Learnings from the *Atal Bhujal Yojana* Implementation in Rajasthan

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Annexure 1: Brief profile of states where *Atal Bhujal Yojana* (ABY) is implemented

1.1 Gujarat

Gujarat, located on India's western coast, boasts the country's longest coastline, stretching 1600 kilometres. Covering an area of 196,024 square kilometers (sq km) which is 5.96 per cent of India's total geographical area, the state features distinct physiographic zones. It ranges from the alluvial plains in northern Gujarat to the upland tracts of Saurashtra and the saline deserts of the Rann of Kutch.

The state exhibits significant hydrogeological variation due to its diverse geological formations, ranging from Archaean/Precambrian to Recent periods. Approximately 60 per cent of Gujarat's geological formation consists of hard rocks, while the remaining portion is soft rock and alluvium. In areas with steep topographic gradients in the eastern and north-eastern parts of the state, groundwater development opportunities are limited due to high runoff. Saurashtra and Kachchh regions are characterised by hard rocks with fissured formations, resulting in discontinuous aquifers with moderate yields. The most promising groundwater aquifers extend from Banaskantha district in the North to Valsad and Surat districts in the South, covering a large alluvial tract. Despite the presence of highly potential aquifers, salinity remains a significant constraint to groundwater development, particularly in coastal regions.

Along with geological structures, rainfall and cropping patterns significantly influence the groundwater regime. Gujarat receives annual rainfall of 835 mm during monsoon period, which has huge spatial variation, with southern Gujarat experiencing 1476 mm while Kutch receiving less than 500 mm. With the rising impact of climate change, rainfall distribution has further witnessed significant shifts both spatially and temporally. As per the trend analysis, Gujarat received about 70 per cent of its average rainfall by July 2022 and at the same time Kutch saw a remarkable 117 per cent increase in average rainfall from 1992 to 2021. These extreme climate events lead to frequent floods and drought-like conditions, impacting annual groundwater recharge. Moreover, prevailing water-intensive cropping patterns (cotton, paddy, and sugarcane) in the state further exacerbate the pressure on groundwater resources through indiscriminate extraction leading to rapid decline in groundwater table.

In Gujarat, out of total assessed units around 25 percent are water stressed. The stage of groundwater extraction is about 53 per cent. The water stressed and groundwater over exploited areas in the 6 districts, 36 blocks, and 1873 gram panchayats (DoWR,RD&GR. 2023c) in the state are covered under the ABY.

1.2 Haryana

Haryana, situated in northern India, covers an area of 44,212 sq km. It consists of four distinct physiographic regions, the Shivalik Hills in the northeast, the semi-arid Haryana plains, the alluvial plains

of Yamuna-Ghaggar, and the sandy desert areas in the southwestern region. The geological formation of the state underlains 98 per cent of soft rocks with lion's share of alluvial deposit and 2 per cent of hardrock ranging from the pre-cambrian to recent periods. The northern and northeastern parts are underlain by alluvial deposits which provide more favourable conditions for aquifer formation whereas south and south-eastern are dominated by hardrock formation which belongs to Delhi systems of Pre-Cambrian limits the groundwater development.

The average annual rainfall in the state is 615 mm (CGWB 2022). However, the rainfall pattern has witnessed a significant shift in the recent past under the impact of climate change. From 2015-19, average annual rainfall in the state was about 462 mm which is less than normal and moreover, only 29 per cent rainfall received was during monsoon period (CGWB 2022). This declining trend in rainfall pattern coupled with regional disparities is adversely affecting the groundwater recharge patterns where some areas are experiencing excess rainfall, resulting in flooding, while others face water scarcity and drought-like conditions. Moreover, the agricultural ecosystem of the state which led to regional prosperity and economic development during the green revolution has come with very heavy prices, especially on the groundwater regime of the state. Water intensive cropping pattern dominated by paddy, wheat, sugarcane, and cotton combined with power subsidies and modern pumping technologies have led to indiscriminate extraction of groundwater resources to the extent that out of 143 assessed units, more than 61 per cent units are over-exploited and around 75 per cent are water stressed. The overall stage of groundwater extraction in the state is about 134 per cent. The water stressed areas in 14 districts, 36 blocks and 1656 gram panchayats (DoWR,RD&GR. 2023c) in the state have been prioritised for groundwater resource management under ABY.

1.3 Karnataka

Karnataka is situated on the western edge of the Deccan Peninsula covering an area of 191,791 sq km accounting for 5.8 per cent of total country's area. Physiographically it is divided into four distinct regions: the coastal plain, the hill ranges (the Western Ghats), the Karnataka Plateau to the east, and the black-soil tract to the northwest. The hydrogeological province is largely influenced by the physiographic profile of the state which further influences the groundwater development in the region. In the state there are three major hydrogeological provinces: Archean crystalline hard rock province covers 75 per cent of total state area and it is majorly represented by genesis, schists and granites (CGWB 2022). Deccan traps constituting substantial areas of Northern Karnataka formed under continuation of the deccan trap province prevailing in southern Maharashtra. It comprises 15 per cent of the total state area underlain by the basalt rock system. Sedimentary rock province comprises 5 per cent of the area which is restricted in the north-western part of the state.

Thus, the majority of the hydrogeological provinces of the state are dominated by hard rock systems which are characterised by minimum primary porosity and therefore the occurrence and movement of groundwater is through secondary porosity developed through weathering, fracturing and tectonic formation under gone by the rocks and hence it limits the formation of groundwater development.

Rainfall and cropping patterns are also key determinants for groundwater regime in the region. Karnataka receives an average annual rainfall of 1153 mm, spread across different seasons, 74 per cent during the south-west monsoon (CGWB 2022). Rainfall distribution across the state varies significantly, with Udupi District in the extreme west receiving the highest annual rainfall of 4,535 mm, while Chitradurga District in the east receives the lowest at 540 mm (CGWB 2022). The cropping pattern of the state is dominated by paddy cultivation, however coarse cereals such as sorghum (*jowar*), finger millet (*ragi*), and maize are also some of the major crops grown in the state along with oilseeds (DoA&CM&TD 2020). Such diversified cropping patterns plays an important role in groundwater resource management especially, when the hydrogeological conditions of the state are not favourable enough for groundwater

development. Recent dynamic groundwater resources report (Central Ground Water Board 2022) highlighted that, out of 234 assessment units, 20 per cent of the units are under over-exploited category and more than 38 per cent units are experiencing water stress conditions. The overall stage of groundwater extraction in the state is about 69.9 per cent. Under ABY, water stressed areas in 14 districts, 41 blocks, and 1199 gram panchayats (Quality Council of India 2022) in the state have been identified for the implementation.

1.4 Madhya Pradesh

Madhya Pradesh, located in geographic heart of India, covering an area of 308,245 sq km which is about 9.38 per cent of the total area of India, it encompasses various physiographic regions ranging from Malwa Plateau in west to Bundelkhand Plateau in north and north-east region to Narmada-Tapi rift valley in south. The state exhibits diverse hydrogeological characteristics, leading to variations in groundwater potential across the state. The geological makeup of the state ranges from Archean to Recent periods, with hard rock covering over 80 per cent of the land. Archaean crystalline rocks like granite, gneiss, granulites, schist, quartzite, and granitoids, covers 15 per cent of the land area (CGWB 2022). Basaltic rocks from the Deccan lava flows dominate, occupying nearly 45 per cent of the geographical area. Recent unconsolidated alluvial sediments occupy about 14 per cent of total geographical area (CGWB 2022).

Along with geological formation, rainfall is a major source of groundwater recharge and rainfall patterns have a huge impact on groundwater levels. About 90 per cent of the annual rainfall is concentrated during the southwest monsoon, spanning June to September, with August being the wettest month. The region typically receives 1073 mm of annual rainfall and the variation ranges from 754 mm to 1428 mm. Thus, the amount of rainfall received has significant spatial variation, as rainfall decreases as we move from East to West and south to North and consequently it impacts the groundwater recharge across different regions.

The cropping pattern is also a key determinant of the groundwater regime in the state. Madhya Pradesh is predominantly a kharif crop growing state. Kharif crops occupy about 54-56 per cent whereas rabi crops occupy 44-46 per cent area out of the total cropped area in the state (DoA&CM&TD 2020). The major crops grown are paddy, sorghum (*jowar*), maize and soybean. The state is the largest producer of the latter. However, in hard rock areas the major source of irrigation is groundwater and degree of availability is highly dependent on aquifer characteristics and rainfall. Thus, given the changing trends in rainfall pattern and overdraft of groundwater, it often leads to well failure in such regions (Bassi, Vijayshankar, and Kumar 2008). In Madhya Pradesh, out of total assessed units, 6 per cent falls under over-exploited category and 39 per cent of units are under water stress category. The overall stage of groundwater extraction is 59.10 per cent. 6 districts, 9 blocks and 670 gram panchayats in the state are under ABY (DoWR,RD&GR. 2023c).

1.5 Maharashtra

Maharashtra, situated in the western part of India, spans an area of 307,713 sq km, accounting for approximately 9.4 per cent of India's total land area. The state features diverse physiographic regions, the coastal strip (the Konkan), the Sahyadri or the Western Ghat and the plateau. The Konkan consists of undulating lowlands. North Konkan has vast hinterlands and the Western Ghats running almost parallel to the sea coast. Geologically, the state exhibits diverse formations. Among them deccan traps expanses in the majority of area of the state represented by basalt rocks which occurs in about 81 per cent of the total area.

The average annual rainfall of the state is about 1456 mm, however there is huge spatial variation across the quantity of rainfall received across different regions. The ghat and coastal districts receive an average annual rainfall of 2000 mm but a large part of the state lies in the rain shadow belt of the ghat with an average rainfall of 600 to 700 mm (CGWB (Central Region) 2020).

With regards to the cropping pattern of the state, of total cultivable land about 60 per cent land is under food grain crops, and it is a major producer of sorghum (*jowar)* and pigeon pea (*arhar*) contributing 46 and 29 per cent, respectively to the total production of India. It is also the second largest producer of cotton (22 per cent), soybean (28 per cent), and total cereals (about 14 per cent) in the country (DoA&CM&TD 2020). Thus, the state has significant spatial and temporal variation with regards to rainfall and cropping patterns which have considerable impact on the intra-state groundwater regime. It is interesting to note that the central part of Maharashtra, which is a drought prone area, receives very less rainfall i.e. from 400 to 700 mm, but the geology is favourable for the ground water recharge. Hence, in this area the dependency on groundwater is very high. Two-third of irrigation wells are from this area only.

Overall, of total assessed units in the state, 12 per cent are under the over-exploited category and more than 30 per cent are under water stress conditions. The stage of groundwater extraction in the state is about 54.9 per cent. 13 districts, 43 blocks and 1,133 gram panchayats in the state have been taken up on priority under the ABY (DoWR,RD&GR. 2023c).

1.6 Rajasthan

Rajasthan, located in northwestern India, is the largest state in terms of land area. It covers an area of 342,239 sq km, accounting for approximately 10.4 per cent of India's total land area. The topography of the state has evolved over a longer period through denudation and erosion processes. The existing physiography and landforms are primarily shaped by the underlying geological formations, geological structures, as well as historical fluvial erosion cycles and more recent desert erosion cycles. Physiographically, the state can be divided into four distinct regions, which includes, aravalli hill ranges, eastern plains, western sandy plain with sand dunes, vindhyan scarp land, and deccan lava plateau. The geological formation of the state underlains 40 per cent of hard rocks exhibiting wide variation ranging from Archean metamorphic to recent alluvial sediments. In the major portion of the State, particularly in western Rajasthan, the oldest rocks are concealed below a thick cover of alluvium and wind blown sands.

Hydrogeological setup of the region is determined by the process of groundwater recharge and nature of geological formation which determines the water flow in subsurface through aquifer. In Rajasthan, the principal source of recharge is rainfall. In canal irrigated areas, a part of canal water through seepage from conveyance systems and part of water utilised for irrigation and returning to groundwater contribute to storage. Broadly, the state can be divided into three hydrogeological units: unconsolidated formation, semi-consolidated formation, and consolidated (fissured) formations. Unconsolidated formation comprises younger and older alluvium which are the part of quaternary sediments. It is composed of clay, silt, sand, gravel, and mixture of concretions and forms the potential aquifer in northern, eastern, north-eastern, western and south-western parts of the state. Semi-consolidated formation is composed of hardrocks represented by siltstone, claystone, sandstone, shale, conglomerate, and limestone. It forms the potential aquifers in western part of the state. Sandstone of lathi formation are the most potential aquifers in the districts of Jaisalmer, Jodhpur, and Barmer. Fissured formation occupies 32 per cent of the total geographical area of the state. It comprises various consolidated formations such as consolidated sediments, igneous and metamorphic rocks, volcanic rocks, and carbonate rocks. In these geological formations, primary porosity is minimum and therefore the occurrence and movement of groundwater is through secondary porosity developed through weathering, fracturing and tectonic formation.

The net cropped area in the state is about 254 lakh hectares, of which 40 per cent is irrigated. Crops are typically grown in the monsoon (*kharif*) and winter (*rabi*) seasons. Major crops grown during winter season are barley, wheat, gram, pulses, and oil seeds whereas in monsoon season the major crops are pearl millet (*bajra*), pulses, sorghum (*jowar*), maize, and groundnut. The expansion of irrigation practices have brought substantial increments in productivity along with the income generation. However, it has also led to overexploitation of groundwater and cropping patterns have shifted in a way that has adversely impacted the groundwater levels. In Rajasthan, 72 per cent of total assessment units are being categorised as overexploited and around 97 per cent as water stressed. The stage of groundwater extraction in the state is about 151 (CGWB 2022). Under ABY, 17 districts, 38 blocks, and 1132 gram panchayats in the state have been identified for the implementation of the scheme (DoWR,RD&GR. 2023c).

1.7 Uttar Pradesh

Uttar Pradesh, located in the north-central part of the country. It covers an area of 240,928 sq km, accounting for approximately 7.3 per cent of total land area. The state exhibits diverse physiographic regions, including the Gangetic Plains, the Terai region, and the Vindhya and Bundelkhand Plateaus. With regard to the state's geological formation, it is majorly underlain by fluvial sediments deposited in the fore deep between the southern plateau region and the northern himalayas during the quaternary period. However, the southern part of the state is composed of hard rocks of Precambrian era. The Hydrogeologically state is categorised into five distinct provinces which includes: Bhabar, Terai, Central Ganga Plains, Marginal Alluvial Plain, Southern Hardrock area. The Bhabar region located in northern ganga plain serves as a recharge zone with deeper water levels, and groundwater is extracted from the phreatic aquifer. The Terai zone, located between the Bhabar region to the north and the central Ganga Plain to the South, consists of fine-grained sediments with occasional pebbles and boulders. The central ganga plain characterised by a multi-layered aquifer system is the most promising groundwater aquifer. However, the bundelkhand region in the southern part of the state is dominated by hardrocks represented by granite, which provides less avenue for groundwater development.

Rainfall and cropping patterns play a critical role in determining the groundwater regime of the region. In the state, 85 per cent of the rainfall is received during the monsoon season (June-Sep) and it is the sole source of groundwater recharge. Thus, any variation in rainfall pattern has a significant impact on the groundwater recharge of phreatic aquifer. The average annual rainfall of the state is about 955.9 mm. Based on rainfall trend analysis, a declining trend was observed in the rainfall pattern from last decade (UP GWD and CGWB 2020) which would have consequently impacted the groundwater recharge. With respect to cropping patterns, twelve different cropping patterns were observed in the state with paddy as the single most dominant crop occupying 32.9 per cent of the total area during kharif season (DoA&CM&TD 2020). Along with that wheat, sugarcane, maize, and sorghum (*jowar*) are other major crops. Therefore, the cropping pattern of the state is considerably water intensive which urgently requires an efficient irrigation system to optimise water use efficiency in the agriculture sector and improve groundwater management in the state. Of the total assessed groundwater units, 7.5 per cent falls under the overexploited category and 33 per cent are water stressed. The overall stage of groundwater extraction in the state is 70.6 per cent. Under ABY, 10 districts, 26 blocks, and 550 gram panchayats in the state have been prioritised for scheme implementation (Quality Council of India 2022).

Annexure 2: Responsibility of selected experts under ABY

2.1 District Program Management Unit (DPMU) agriculture expert

The major responsibilities include monitoring crop prices, yields, cultivation costs, and net returns in the operational area. The advice and report is provided biannually to cluster teams and gram panchayats (GPs) on income-enhancing measures, considering climatic variations and irrigation practices. One of the responsibilities is also to provide guidance on crop insurance, and efforts are made to connect GPs with insurance agencies. Field testing of alternative energy solutions is conducted, with customisations tailored to local conditions, and technical reports are drafted. Further, market study field visits are regularly performed to compile informative reports (NABCONS 2023).

2.2 DPMU IEC (information, education and communication) expert

The IEC expert has the following key responsibilities: orienting cluster teams in the non-formal education (NFE) approach; devising social mobilization strategies with the social development and gender specialist; creating NFE training materials; experimenting with NFE across the program cycle; designing IEC materials; generating biannual progress reports with field feedback; fostering links between cluster teams/gram panchayats and agricultural institutions; conducting field visits for impact assessment; and contributing to semi-annual progress reports. These duties aim to enhance community engagement and educational outreach effectiveness within the project while ensuring continuous adaptation and collaboration with stakeholders (NABCONS 2023).

2.3 DIP (district implementing partner) hydrogeologist

The hydrogeologist is a team leader whose main responsibilities are: coordination within the team; coordination with various departments; community engagement for groundwater management projects; demographic data collection; and ensuring community participation in water planning. The last one involves finalising and submitting village level water security plans, updating them on a regular basis, and supporting water user associations. Additionally, sharing historical knowledge, clarifying community roles, and handling project administration, including complaint resolution, fund management, audits, and progress reporting, are integral parts of the role (NABCONS 2023).

2.4 DIP agriculture expert

The main responsibilities of the agriculture expert include: team coordination; organising community consultations, demographic data collection, and the submission of water security plans (WSPs) while supporting the operation of water user associations (WUAs). Furthermore, historical water knowledge sharing, role clarification within the community, and facilitating land acquisition are crucial aspects of the role. Further, the role necessitates collaboration with various administrative levels, conducting regular meetings with WUAs, and preparing progress reports. These tasks aim to ensure successful groundwater management, community engagement, and program progress tracking within the project (NABCONS 2023).

2.5 DIP IEC expert

The main role is raising awareness by community engagement and by organising consultations for groundwater management and supporting community participation in water accounting, budgeting, and WSP preparation. It includes facilitating the establishment and operation of WUAs, sharing historical water and cropping insights, and explaining community roles in achieving goals of the ABY. The role also entails providing implementation support to DPMUs, coordinating with various administrative levels for

IEC assistance and community communication, conducting regular meetings with WUAs, and generating progress reports to track program implementation (NABCONS 2023).

2.6 DIP social expert

The social expert's main role is to include the women in the mainstream of the society and raise awareness amongst them. Other responsibilities include organising community consultations for groundwater management and collecting demographic data for a beneficiary census. The role involves supporting community participation in discussions on water accounting, budgets, and WSPs. It encompasses finalising and submitting WSPs, as well as updating annual WSPs. The facilitation of WUAs and clarification of community roles in achieving *Atal Bhujal Yojana's* objectives are crucial (NABCONS Rajasthan 2023).

2.7 Community working officer (CWO)

Every CWO is responsible for a minimum of two gram panchayats and is the main link between the community and the implementing agency. The role involves organising community consultations for groundwater management and ensuring clarity regarding community roles in achieving project goals. If required, it includes assisting in land acquisition for monitoring wells and infrastructure. Additionally, this role requires holding regular meetings with WUAs and submitting Gram Sabha-approved WSPs to the DPMU.

Annexure 3: Institutional strengthening and capacity building component

In order to change the behaviour of the stakeholders towards sustainable management of groundwater, training and capacity building activities (including exposure visits) are made an integral part of the ABY. These are to happen at gram and block panchayat, district, state, and national levels.

At Gram panchayat (GP) level, the trainings are provided to build the community's capacity (technical and non-technical) for mobilisation, data collection, water budgeting, and preparation of water security plan (WSP). The key trainee at this level can include (but not restricted to) members of village water and sanitation committee (VWSC), other elected members at block/panchayat level, and locally trained volunteers called '*bhujal mitras*'. *Bhujal mitras* are responsible for collecting relevant data (groundwater level, rainfall, and water quality data for a village), interpret its implications for the groundwater resource and subsequent activities like farming in the village, and disseminate this information in their village(s). The data collected by them is important for water budgeting and development of WSPs. It is fed into an application developed for the scheme which displays the data onto the management information system (MIS). Specific skill development programs are organised for the bhujal mitras.

At district level, staff of DPMU, the DIPs, and in line departments such as agriculture extension officers, junior engineers, etc. are capacitated for effective implementation of the scheme. Capacities required at this level include skills in data compilation (both technical and non-technical); review of GP water budgets; review of GP level WSPs; preparation of district level plans for implementation WSPs; preparation of district annual work plan (AWP) and budget. Knowledge of schemes within line departments is important since one of the aims of ABY is convergence with schemes implemented by various departments in the state. This is to be covered in the orientation programme when the scheme begins and can be updated regularly. Functionaries at district level are trained as Master Trainers and are expected to conduct training(s) on both technical and social aspects for the experts of DPMU and DIP.

At the state level, staff of State Program Management Unit (SPMU) and officials from line departments are trained and capacitated. For SPMU, capacity and skills for data compilation and management (both technical and non-technical); handling MIS and grievance redressal system; review of district water budgets, WSPs, AWPs and budgets; compilation of state water budget, WSP, AWP and budget; development of mass communication strategy; conducting training programs for GP/block and district level functionaries; and program monitoring and reporting have been identified as necessary for brushing up and strengthening. State level functionaries are trained as master trainers and are expected to conduct training at district level on both technical and social subjects. Orientations, training, exposure visits, cross learning via workshops are conducted for various stakeholders including the line departments.

At national level, staff of National Program Management Unit (NPMU) and officials from line departments are trained and capacitated. For NPMU, capacity and skills for data management (both technical and non-technical); operating and maintaining MIS and grievance redressal system; review of state water budgets, WSPs, AWPs and budgets; developing mass communication strategy; developing training modules or content for different forms of capacity building interventions; conducting training programs for state level functionaries; and program monitoring and reporting have been identified as necessary for brushing up and strengthening. The guideline lays for NPMU to adopt a 'capsule training strategy of low dose high frequency and/or high dose low frequency on various technical and social topics based on the need' (DoWR,RD&GR 2023b).

Capacity building activities are thus of three kinds - training of master trainers, training of trainers, and training of VWSC members. At the national level, the Rajiv Gandhi National Groundwater Training and Research Institute (RGNGWTRI), the training arm of Central Ground Water Board (CGWB) of GoI has

been onboarded by NPMU for capacity building and training activities. Similarly, SPMU offices have the freedom of deciding public or private institutes that they would like to onboard.

Alongside training and workshops for capacity building, awareness programmes and repeated messaging at various levels is imperative to facilitate the community's behaviour change from the 'prevailing attitude of consumption to conservation and smart water management'. Use of various kinds of IEC tools is stressed upon, with the caveat that they all include 'gender equality' terminology (DoWR,RD&GR 2023b). Recognising the importance of women leaders and greater participation of women in decision making, IEC materials are also designed to facilitate this societal change. Electronic and print media have been identified as instruments of choice for behaviour change communication (BCC) at national level; cable TV, audio visual clips, etc. at district/ state level; and communication tools like street play, slogan writing, drawing competitions, rallies, pamphlet distribution, hoardings etc. at the gram panchayat level.

Annexure 4: Disbursement linked indicators (DLIs)

4.1 Disbursement linked indicator 1

The disbursement of funds under this DLI is linked to groundwater monitoring and disclosure of groundwater data by the stakeholders. Hydrologic data are collected and disseminated at the Gram panchayat (GP) level. Data from all participating GPs in a block is collected, compiled, collated and brought out as a report at the block level. This DLI consists of two sub-indicators measuring: the number of GPs for which periodic water-level data is available; and, the number of block-level reports on groundwater quantity and quality data made available online in the public domain (DoWR,RD&GR. 2023b).

4.2 Disbursement linked indicator 2

This indicator incentivises bottom-up planning of groundwater interventions through preparation and up-dation of gram panchayat level water budget and water security plan (WSP) that have been formulated by the community following the standard templates created under the MIS of Ataljal Portal. The participation of women in the planning process is a prerequisite under this DLI. Various supply and demand side interventions are to be detailed in the WSP which will be implemented through convergence of funds available under central and state schemes. Necessary hand-holding and guidance is provided to the community through activities undertaken in the Institutional Strengthening & Capacity Building component (Quality Council of India 2021).

4.3 Disbursement linked indicator 3

This DLI provides an incentive to shift public financing on groundwater to priority measures identified through the bottom-up groundwater planning process, i.e., the water security plans. This helps align the implementation of various government programs (across line departments identified by each state) and improve the effectiveness of public financing on groundwater by moving to more coordinated investment in sustainable groundwater management. The DLI is defined as the aggregate amount of funds (excluding ABY) spent in a selected state in a given year for implementation of approved WSP activities (Quality Council of India 2021).

4.4 Disbursement linked indicator 4

This indicator incentivizes the implementation of demand-side groundwater management measures included in the WSPs. This DLI incentivises measures that reduce water consumption, including the introduction of efficient micro-irrigation systems and a shift in cropping patterns away from water-intensive crops including promotion of rain-fed horticulture and electricity feeder separation. Disbursements are based on the area (in hectares) or the number of blocks (in case of feeder separation) benefiting from these measures (Quality Council of India 2021).

4.5 Disbursement linked indicator 5

A block is verified to have achieved this DLI if there is an improvement in the declining trend of groundwater levels (in at least 50 per cent of the observation wells in a given block as compared to the baseline trend). The disbursements for DLI 5 are scalable based on the level of achievement of the DLI. The disbursement of funds under this DLI will be linked with achievement of the program's ultimate aim, that is, to stabilise or reverse the declining trend in groundwater levels. The states will be rewarded for stabilising or improving groundwater conditions through interventions supported under the scheme and

other related programs. The DLI will be based on a measure of groundwater levels in the selected blocks (Quality Council of India 2021).

Annexure 5: Questionnaires used for the field research

For village water and sanitation committee (VWSC)

Section 1 - General introduction and awareness about the scheme

1. What is your name?
2. What is your village and GP?
3. Have you heard about ABY?
4. What are the objectives/ intended outcomes of the scheme?

Section 2 - Familiarity with VWSC

5. When was this VWSC formed?
    1) 0-3 years
    2) 3-5 years
    3) More than 5 years
6. Under what scheme has the VWSC been formed?
    1) Atal Bhujal Yojana
    2) Jal Jeevan mission
    3) Others
7. What are the responsibilities/ tasks done by VWSC?
8. How many total members are there in VWSC?
9. How many times does VWSC meet in a year?
    1) Every month
    2) Every quarter
    3) Bi Annual
    4) Annual
    5) Others
10. Do you know there are district implementing partner (DIP) experts in your village? Can you name them or identify them? What functions have you seen them perform? When have you interacted with them?
11. Do you know there is a community working officer (CWO) in your village? Can you name them or identify them? What functions have you seen them perform? When have you interacted with them?
12. Has this GP prepared its annual working plan (AWP)? If yes, can you explain the process? Please show the AWP's copy if available. Ask for a picture of it.
13. Is citizen feedback recorded? What is the process for it? How is it disseminated? How is negative feedback addressed?
14. Is there a separate ABY cashbook?
15. How is fund utilisation done under ABY tracked?
16. Does VWSC do annual audits of ABY? What is the process? When did it start? When was the last time it was done? Please show records of the same.

Section 3- Familiarity with groundwater, climatic and agricultural practices

17. Has the groundwater situation in your area changed in the last 20-30 years?
18. How has it changed?
19. Has the rainfall in your area changed in the last 20-30 years?
20. How has it changed?
21. What is good rainfall and what is bad rainfall?
22. How do you assess good rainfall?
23. What is the current cropping pattern in your village?
24. Has the cropping pattern changed in your village? In how many years has it changed?

25. What was the cropping pattern before it changed?
26. What is the source of drinking water in this GP?

Section 4 - Familiarity with the Water security plan (WSP)

27. Do you know about the WSP?
28. What is the purpose of WSP?
29. When was the latest WSP made?
    1) Being made this year
    2) Already made for this year
    3) Last year
    4) Before 2022
30. How many times in a year does the WSP get updated in your GP in a year? Please tell us the months/ occasions of its update.
    1) Never updated in a year
    2) Twice a year
    3) More than twice
31. Were you involved in making the last WSP?

Section 5 - Familiarity with rain gauge

32. Do you know what is a rain gauge? (Try explaining if the answer is no)
33. Can you explain what is a rain gauge used for? (If the above answer is yes)
34. Are you aware of rain gauge(s) existing in your village?
35. How many rain gauges are there in your village?
36. How many from these are installed under ABY?
37. Where are these rain gauges installed? (Mention location of each of these rain gauges)
38. What role does VWSC play in deciding where to install a rain gauge?
39. Who reads from the rain gauge installed under ABY?
40. Do you know how to use a rain gauge? If yes, ask how?
41. Where did you learn how to use it?
42. What happens to the reading taken from the rain gauge installed under ABY?
43. How often and at what time (of the day) is the rain gauge installed under ABY read?
44. Is the reading from the rain gauge shared with villagers?
45. How is the reading shared with villagers? Note down details for each of the answer

Section 6 - Familiarity with the piezometer

46. Do you know what is a piezometer? (Try explaining if the answer is no)
47. Can you explain what is the piezometer used for? (If the above answer is yes)
48. Are you aware of piezometer(s) existing in your village?
49. How many piezometers are there in your village and when were they installed?
50. How many from these are installed under ABY?
51. Where are these piezometers installed? (Mention location of each of these rain gauges)
52. can you provide the groundwater data?
53. Who reads from the piezometers installed under ABY?
54. What happens to the reading taken from the piezometers installed under ABY?
55. How often is the piezometers installed under ABY read?
56. Is the reading from piezometers shared with villagers?
57. How is the reading shared with villagers? Note down details for each of the answer

Section 7 - Familiarity with water quality testing kit (WQTK)

58. Do you know what is a WQTK? (Try explaining if the answer is no)
59. Can you explain what is a WQTK used for? (If the above answer is yes)

60. Are you aware of WQTK(s) existing in your village?
61. How many WQTK are there in your village?
62. How many from these are given under ABY?
63. Where are these kits kept?
64. What role does VWSC play in deciding the usage of WQTK?
65. Who uses these kits?
66. Has it ever been demonstrated to you how to use the WQTK?
67. When has all the use of the kit been demonstrated to you?
68. What happens to the reading taken from these kits?
69. How often is the WQ tested in your village using the WQTK?
70. Is the reading from WQTK shared with villagers?
71. How is the reading shared with villagers? Note down details for each of the answer.

For frontline workers
(ASHA (accredited social health activist)/Aanganwadi/ANM (auxiliary nurse and midwife))

Section 1 - General introduction and awareness about the scheme

1. What is your name?
2. What is your village and GP?
3. Have you heard about ABY?
4. What are the objectives/ intended outcomes of the scheme?

Section 2 - Familiarity with VWSC

5. When was this VWSC formed?
    1) 0-3 years
    2) 3-5 years
    3) More than 5 years
6. Under what scheme has the VWSC been formed?
    1) Atal Bhujal Yojana
    2) Jal Jeevan mission
    3) Others
7. What are the responsibilities/ tasks done by VWSC?
8. How many total members are there in VWSC
9. How many times does VWSC meet in a year?
    1) Every month
    2) Every quarter
    3) Bi Annual
    4) Annual
    5) Others
10. When was the last meeting held? What was discussed in the last meeting?
11. Do you know there are DIP experts in your village? Can you name them or identify them? What functions have you seen them perform? When have you interacted with them?
12. Do you know there is a community working officer (CWO) in your village? Can you name them or identify them? What functions have you seen them perform? When have you interacted with them?
13. Has this GP prepared its AWP? If yes, can you explain the process? Please show the AWP's copy if available. Ask for a picture of it.

Section 3 - Familiarity with groundwater, climatic and agricultural practices

14. Has the groundwater situation in your area changed in the last 20-30 years?
15. How has it changed?
16. Has the rainfall in your area changed in the last 20-30 years?
17. How has it changed?
18. What is good rainfall and what is bad rainfall?
19. How do you assess good rainfall?
20. What is the current cropping pattern in your village?
21. Has the cropping pattern changed in your village? In how many years has it changed?
22. What was the cropping pattern before it changed?
23. What is the source of drinking water in this GP?

Section 4 - Familiarity with the WSP

24. Do you know about the Water Security Plan?
25. What is the purpose of WSP?
26. When was the latest WSP made?

1) Being made this year
2) Already made for this year
3) Last year
4) Before 2022

27. How many times in a year does the WSP get updated in your GP in a year? Please tell us the months/ occasions of its update.
    1) Never updated in a year
    2) Twice a year
    3) More than twice
28. Were you involved in making the last WSP?

Section 5 - Familiarity with rain gauge

29. Do you know what is a rain gauge? (Try explaining if the answer is no)
30. Can you explain what is a rain gauge used for? (If the above answer is yes)
31. Are you aware of rain gauge(s) existing in your village?
32. How many rain gauges are there in your village?
33. How many from these are installed under ABY?
34. Where are these rain gauges installed? (Mention location of each of these rain gauges)
35. What role does VWSC play in deciding where to install a rain gauge?
36. Who reads from the rain gauge installed under ABY?
37. Do you know how to use a rain gauge? If yes, ask how?
38. Where did you learn how to use it?
39. What happens to the reading taken from the rain gauge installed under ABY?
40. How often and at what time (of the day) is the rain gauge installed under ABY read?
41. Is the reading from the rain gauge shared with villagers?
42. How is the reading shared with villagers? Note down details for each of the answer

Section 6 - Familiarity with the piezometer

43. Do you know what is a piezometers? (Try explaining if the answer is no)
44. Can you explain what is the piezometers used for? (If the above answer is yes)
45. Are you aware of piezometers(s) existing in your village?
46. How many piezometers are there in your village and when were they installed?
47. How many from these are installed under ABY?
48. Where are these piezometers installed? (Mention location of each of these rain gauges)
49. can you provide the groundwater data?
50. Who reads from the piezometers installed under ABY?
51. What happens to the reading taken from the piezometers installed under ABY?
52. How often is the piezometers installed under ABY read?
53. Is the reading from piezometers shared with villagers?
54. How is the reading shared with villagers? Note down details for each of the answer

Section 7 - Familiarity with the WQTK

55. Do you know what is a WQTK? (Try explaining if the answer is no)
56. Can you explain what is a WQTK used for? (If the above answer is yes)
57. Are you aware of WQTK(s) existing in your village?
58. How many WQTK are there in your village?
59. How many from these are given under ABY?
60. Where are these kits kept?
61. What role does VWSC play in deciding the usage of WQTK?
62. Who uses these kits?
63. Has it ever been demonstrated to you how to use the WQTK?

64. When has all the use of the kit been demonstrated to you?
65. What happens to the reading taken from these kits?
66. How often is the WQ tested in your village using the WQTK?
67. Is the reading from WQTK shared with villagers?
68. How is the reading shared with villagers? Note down details for each of the answer.

For beneficiary

Section 1 - General introduction and awareness about the scheme

1. What is your name?
2. Name of your village and GP and district?
3. What benefits have you received under the scheme? (Names of all schemes from which benefits came; type and dimension of the intervention; total cost; subsidy amount; impact on livelihood (profit/ time/ others)?
4. How did you receive these benefits (application process and awareness)?
5. What challenges did you face in getting these benefits?
6. Are you aware of ABY?
7. What are the objectives/ intended outcomes of the scheme?
8. Do you know there are DIP experts in your village? Can you name them or identify them? What functions have you seen them perform? When have you interacted with them?
9. Do you know there is a community working officer (CWO) in your village? Can you name them or identify them? What functions have you seen them perform? When have you interacted with them?

Section 2 - Familiarity with the VWSC

10. Do you know if there is any VWSC in your village (if yes)?
11. When was this VWSC formed?
    1) 0-3 years
    2) 3-5 years
    3) More than 5 years
12. Under what scheme has the VWSC been formed?
    1) Atal Bhujal Yojana
    2) Jal Jeevan mission
    3) Others
13. What are the roles of VWSC?
14. How many members are there in the VWSC?
15. How many times does VWSC meet in a year?
16. When was the last meeting of VWSC?

Section 3 - Familiarity with groundwater, climatic and agricultural practices

17. Has the groundwater situation in your area changed in the last 20-30 years?
18. How has it changed?
19. Has the rainfall in your area changed in the last 20-30 years?
20. How has it changed?
21. What is good rainfall and what is bad rainfall?
22. How do you assess good rainfall?
23. What crops do you sow in different seasons? (Kharif/ Rabi/ Summer)
24. How has your cropping pattern changed in the last few years? When did it start changing? Why did you change it?
25. What was the cropping pattern before it changed?

Section 4 - Familiarity with the WSP

26. Do you know about the Water Security Plan?
27. What is the purpose of WSP?
28. When was the latest WSP made?
    1) Being made this year
    2) Already made for this year

3) Last year
4) Before 2022

29. How many times in a year does the WSP get updated in your GP in a year? Please tell us the months/ occasions of its update.
    4) Never updated in a year
    5) Twice a year
    6) More than twice
30. Were you involved in making the last WSP?

Section 5 - Familiarity with the rain gauge

31. Do you know what is a rain gauge? (Try explaining if the answer is no)
32. Can you explain what is a rain gauge used for? (If the above answer is yes)
33. Are you aware of rain gauge(s) existing in your village?
34. How many rain gauges are there in your village?
35. How many from these are installed under ABY?
36. Where are these rain gauges installed? (Mention location of each of these rain gauges)
37. What role does VWSC play in deciding where to install a rain gauge?
38. Who reads from the rain gauge installed under ABY?
39. Do you know how to use a rain gauge? If yes, ask how?
40. Where did you learn how to use it?
41. What happens to the reading taken from the rain gauge installed under ABY?
42. How often and at what time (of the day) is the rain gauge installed under ABY read?
43. Is the reading from the rain gauge shared with villagers?
44. How is the reading shared with villagers? Note down details for each of the answer

Section 6 - Familiarity with the piezometer

45. Do you know what is a piezometers? (Try explaining if the answer is no)
46. Can you explain what is the piezometers used for? (If the above answer is yes)
47. Are you aware of piezometers(s) existing in your village?
48. How many piezometers are there in your village and when were they installed?
49. How many from these are installed under ABY?
50. Where are these piezometers installed? (Mention location of each of these rain gauges)
51. Can you provide the groundwater data?
52. Who reads from the piezometers installed under ABY?
53. What happens to the reading taken from the piezometers installed under ABY?
54. How often is the piezometers installed under ABY read?
55. Is the reading from piezometers shared with villagers?
56. How is the reading shared with villagers? Note down details for each of the answer

Section 7 - Familiarity with the WQTK

57. Do you know what is a WQTK? (Try explaining if the answer is no)
58. Can you explain what is a WQTK used for? (If the above answer is yes)
59. Are you aware of WQTK(s) existing in your village?
60. How many WQTK are there in your village?
61. How many from these are given under ABY?
62. Where are these kits kept?
63. What role does VWSC play in deciding the usage of WQTK?
64. Who uses these kits?
65. Has it ever been demonstrated to you how to use the WQTK?
66. When has all the use of the kit been demonstrated to you?
67. What happens to the reading taken from these kits?

68. How often is the WQ tested in your village using the WQTK?
69. Is the reading from WQTK shared with villagers?
70. How is the reading shared with villagers? Note down details for each of the answer.

For Community working officer (CWO)

Section 1 - General introduction and job description

1. What is your name?
2. What is your village and GP?
3. Since when you are working as a CWO?
4. What is your educational qualification?
5. Do you have prior experience working in this domain?
6. If yes, what was your prior experience?
7. Are you aware of TOR for your job role?
8. What are your roles and responsibilities in ABY?
9. If Yes, jobs performed by you here, do you think align with your TOR?
10. What is your average working hours per day?

Section 2 - Meeting, progress reporting and trainings

11. Is there a provision for review meetings, progress reporting and grievance redressal meetings with the DIP head? Detail out the process if the answer is yes.
12. If yes, when or how often it is conducted?
13. How often do you interact with district nodal officers to report the progress of the activities?
14. Did you have any orientation programme after joining ABY?
15. Do you know when ABY has been started?
16. Are you aware of the objective of ABY? If yes, what are the objectives of ABY?
17. What all modules have you been trained on under ABY? Are these a part of IEC materials?
18. Are you aware of Disbursement Linked Indicators (DLIs) under ABY. If yes, please list out the DLIs.
    DLI#1 - Public disclosure of ground water data/information and reports
    DLI#2 - Preparation of community-led water security plans
    DLI#3 - Public financing of approved Water Security Plans
    DLI#4 - Adoption of practices for efficient water use
    DLI#5 - Improvement in the rate of decline of groundwater levels
19. Are you aware of the role of Quality Council of India (QCI) in the architecture of ABY? If yes, please explain.
20. How many verification rounds have happened for the DLIs in your block?
21. How your block(s) are fairing with respect to the performance in each DLI i.e. DLI 1, DLI 2, DLI 3 and DLI 4.
22. What strategies have been adopted to overcome the problems persisting in DLIs which are not fairing well?
23. How do you all strategise the activities among yourselves to achieve the targets?
24. Do you conduct the capacity building exercise to train the community members?

Section 3 - Familiarity with VWSC

25. Has this GP prepared its AWP? If yes, can you explain the process? Please show the AWP's copy if available. Ask for a picture of it
26. Are you aware of VWSC in your panchayat(s)?
27. What are the objectives/ intended outcomes of the scheme?
28. Under what scheme has the VWSC been formed?
    1) Atal Bhujal Yojana
    2) Jal Jeevan mission
    3) Others
29. What are the responsibilities/ tasks done by VWSC?
30. How many total members are there in VWSC?
31. How many times does VWSC meet in a year?

1) Every month
2) Every quarter
3) Bi Annual
4) Annual
5) Others

32. When was the last time VWSC met?

Section 4 - Familiarity with groundwater, climatic and agricultural practices

33. Has the groundwater situation in your area changed in the last 20-30 years?
34. How has it changed?
35. Has the rainfall in your area changed in the last 20-30 years?
36. How has it changed?
37. What is good rainfall and what is bad rainfall?
38. How do you assess good rainfall?
39. What is the current cropping pattern in your village?
40. Has the cropping pattern changed in your village? In how many years has it changed?
41. What was the cropping pattern before it changed?
42. What is the source of drinking water in this GP?

Section 5 - Familiarity with the WSP

43. Do you know about the Water Security Plan?
44. What is the purpose of WSP?
45. When was the latest WSP made?
    1) Being made this year
    2) Already made for this year
    3) Last year
    4) Before 2022
46. How many times in a year does the WSP get updated in your GP in a year? Please tell us the months/ occasions of its update.
    4) Never updated in a year
    5) Twice a year
    6) More than twice
47. Were you involved in making the last WSP?

Section 6 - Familiarity with the rain gauge

48. Do you know what is a rain gauge? (Try explaining if the answer is no)
49. Can you explain what is a rain gauge used for? (If the above answer is yes)
50. Are you aware of rain gauge(s) existing in your village?
51. How many rain gauges are there in your village?
52. How many from these are installed under ABY?
53. Where are these rain gauges installed? (Mention location of each of these rain gauges)
54. What role does VWSC play in deciding where to install a rain gauge?
55. Who reads from the rain gauge installed under ABY?
56. Do you know how to use a rain gauge? If yes, ask how?
57. Where did you learn how to use it?
58. What happens to the reading taken from the rain gauge installed under ABY?
59. How often and at what time (of the day) is the rain gauge installed under ABY read?
60. Is the reading from the rain gauge shared with villagers?
61. How is the reading shared with villagers? Note down details for each of the answer

Section 7 - Familiarity with the piezometer

62. Do you know what is a piezometers? (Try explaining if the answer is no)
63. Can you explain what is the piezometers used for? (If the above answer is yes)
64. Are you aware of piezometers(s) existing in your village?
65. How many piezometers are there in your village and when were they installed?
66. How many from these are installed under ABY?
67. Where are these piezometers installed? (Mention location of each of these rain gauges)
68. can you provide the groundwater data?
69. Who reads from the piezometers installed under ABY?
70. What happens to the reading taken from the piezometers installed under ABY?
71. How often is the piezometers installed under ABY read?
72. Is the reading from piezometers shared with villagers?
73. How is the reading shared with villagers? Note down details for each of the answer

Section 8 - Familiarity with the WQTK

74. Do you know what is a WQTK? (Try explaining if the answer is no)
75. Can you explain what is a WQTK used for? (If the above answer is yes)
76. Are you aware of WQTK(s) existing in your village?
77. How many WQTK are there in your village?
78. How many from these are given under ABY?
79. Where are these kits kept?
80. What role does VWSC play in deciding the usage of WQTK?
81. Who uses these kits?
82. Has it ever been demonstrated to you how to use the WQTK?
83. When has all the use of the kit been demonstrated to you?
84. What happens to the reading taken from these kits?
85. How often is the WQ tested in your village using the WQTK?
86. Is the reading from WQTK shared with villagers?
87. How is the reading shared with villagers? Note down details for each of the answers.
88. What are the challenges faced by you?

For DIP expert hydrogeologist

Section 1 - General introduction and job description

1. Name of the expert?
2. What is the block and the district where you are working?
3. How many GPs come under your jurisdiction?
4. Since when you are working as a DIP expert?
5. What is your educational qualification?
6. Do you have prior experience working in this domain?
7. If yes, what was your prior experience?
8. Are you aware of TOR for your job role?
9. What are your roles and responsibilities in ABY?
10. If Yes, jobs performed by you here, do you think align with your TOR?
11. What is your average working hours per day?

Section 2 - Meeting, progress reporting and trainings

12. Is there a provision for review meetings, progress reporting and grievance redressal meetings with the DIP head? Detail out the process if the answer is yes.
13. If yes, when or how often it is conducted?
14. How often do you interact with district nodal officers to report the progress of the activities?
15. Did you have any orientation programme after joining ABY?
16. Do you know when ABY has been started?
17. Are you aware of the objective of ABY? If yes, what are the objectives of ABY?
18. What all modules have you been trained on under ABY? Are these a part of IEC materials?
19. Are you aware of Disbursement Linked Indicators (DLIs) under ABY. If yes, please list out the DLIs.
    DLI#1 - Public disclosure of ground water data/information and reports
    DLI#2 - Preparation of community-led water security plans
    DLI#3 - Public financing of approved Water Security Plans
    DLI#4 - Adoption of practices for efficient water use
    DLI#5 - Improvement in the rate of decline of groundwater levels
20. Are you aware of the role of Quality Council of India (QCI) in the architecture of ABY? If yes, please explain.
21. How many verification rounds have happened for the DLIs in your block?
22. How your block(s) are fairing with respect to the performance in each DLI i.e. DLI 1, DLI 2, DLI 3 and DLI 4.
23. What strategies have been adopted to overcome the problems persisting in DLIs which are not fairing well?
24. How do you all strategise the activities among yourselves to achieve the targets?
25. Do you conduct the capacity building exercise to train the community member?
26. If yes, what is the composition of your cohort of trainees? (Explain the process)
27. Are you aware how many assets created in a block are under ABY, If yes then which one and under which schemes (Make a table and record this GP wise).
28. Are the assets created under ABY geo-tagged?
29. If yes, who is responsible for geo-tagging?

Section 3 - Familiarity with the VWSC

30. Are you aware of VWSCs?
    1) Yes
    2) No
31. In which year were VWSCs formed in villages under your block?
    1) 0-3 years

2) 3-5 years
3) More than 5 years

32. How many members are there in VWSC?
33. Under what scheme has the VWSC been formed?
    1) Atal Bhujal Yojana
    2) Jal Jeevan mission
    3) Others
34. How many members are there in a VWSC, on an average?
35. How many times does VWSC meet in a year?
    1) Every month
    2) Every quarter
    3) Bi Annual
    4) Annual
    5) Others
36. What is the documentation process in VWSC meetings?
37. What is the extent of the understanding among the community about the rising groundwater challenges and its impact on their productivity and livelihoods?
    1) Too aware
    2) Too unaware
    3) Somewhat aware
    4) Others

Section 4 - Familiarity with the WSP

38. What is the content of WSPs?
39. When was the latest WSP made?
    1) Being made this year
    2) Already made for this year
    3) Last year
    4) Before 2022
40. On an average, how often are WSPs updated in a year for your block? What months/ occasions are they updated on? (Record response for each block)
41. What is your role in the formation of WSP? (Engagement with community/ VWSC members/ line departments/other DIP experts/ DPMU Heads/CWO/ SPMU - experts and heads/ NPMU/ any other)
42. Are you aware about the types of monitoring instruments to be installed in the scheme?
43. Name the instruments.

Section 5 - Familiarity with the rain gauge

44. How many rain gauges are there in your village?
45. How many from these are installed under ABY?
46. Where are these rain gauges installed? and what are the criterias to decide its installation? (Mention location of each of these rain gauges)
47. Who reads from the rain gauge installed under ABY?
48. How often and at what time (of the day) is the rain gauge installed under ABY read?
49. Do you conduct a demonstration or training session for villagers regarding how to use rain gauge
50. If yes, in what forms or which level do you conduct training? (VWSC level, GP level, ward panchayat level or group-wise) and how often?
51. Is the reading from the rain gauge shared with villagers?
52. How is the reading shared with villagers? Note down details for each of the answer
53. What is the data flow of the information recorded for rain gauges? Is the government making use of this information at any level? (this may not be in the gambit of agri expert)

Section 6 - Familiarity with the piezometer

54. How many piezometers are there in each of your block?
55. How many of the piezometers are functional in each of your block?
56. In which year were these piezometers installed? (Record details for all block) and what are the criteria to decide its installation?
57. How many from these are installed under ABY?

Section 7 - Familiarity with the WQTK

58. How many WQTK are there in each of your block?
59. How many from these are given under ABY?
60. Who uses these kits?
61. What are the challenges faced by you?
62. Do you conduct a demonstration session in GPs for using WQKT?
63. If Yes, in what forms or which level do you conduct training? (VWSC level, GP level, ward panchayat level or group-wise) and how often
64. What are the samples measured through WQFTK?
65. How often is the WQ tested in the block using the WQTK (before, during or after the construction of any structures under ABY)
66. On average, how many samples are collected from each WQTK to test the parameters under ABY?
67. Is the reading from WQTK shared with villagers?
68. How is the reading shared with villagers? Note down details for each of the answer
69. What is the data flow of the information recorded through WQTK? Is the government making use of this information at any level? (this may not be in the gambit of agri expert)

For DIP agriculture expert

Section 1 - General introduction and job description

1. Name of the expert
2. What is the block and the district where you are working?
3. How many GPs come under your jurisdiction?
4. Since when you are working as a DIP expert?
5. What is your educational qualification?
6. Do you have prior experience working in this domain?
7. If yes, what was your prior experience?
8. Are you aware of TOR for your job role?
9. What are your roles and responsibilities in ABY?
10. If Yes, jobs performed by you here, do you think align with your TOR?
11. What is your average working hours per day?

Section 2 - Meeting, progress reporting and trainings

12. Is there a provision for review meetings, progress reporting and grievance redressal meetings with the DIP head? Detail out the process if the answer is yes.
13. If yes, when or how often it is conducted?
14. How often do you interact with district nodal officers to report the progress of the activities?
15. Did you have any orientation programme after joining ABY?
16. Do you know when ABY has been started?
17. Are you aware of the objective of ABY? If yes, what are the objectives of ABY?
18. What all modules have you been trained on under ABY? Are these a part of IEC materials?
19. Are you aware of Disbursement Linked Indicators (DLIs) under ABY. If yes, please list out the DLIs.
    DLI#1 - Public disclosure of ground water data/information and reports
    DLI#2 - Preparation of community-led water security plans
    DLI#3 - Public financing of approved Water Security Plans
    DLI#4 - Adoption of practices for efficient water use
    DLI#5 - Improvement in the rate of decline of groundwater levels
20. Are you aware of the role of Quality Council of India (QCI) in the architecture of ABY? If yes, please explain.
21. How many verification rounds have happened for the DLIs in your block?
22. How your block(s) are fairing with respect to the performance in each DLI i.e. DLI 1, DLI 2, DLI 3 and DLI 4.
23. What strategies have been adopted to overcome the problems persisting in DLIs which are not fairing well?
24. How do you all strategise the activities among yourselves to achieve the targets?
25. Do you conduct the capacity building exercise to train the community member?
26. If yes, what is the composition of your cohort of trainees? (Explain the process)
27. Are you aware how many assets created in a block are under ABY, If yes then which one and under which schemes (Make a table and record this GP wise).
28. Are the assets created under ABY geo-tagged?
29. If yes, who is responsible for geo-tagging?

Section 3 - Familiarity with the VWSC

30. Are you aware of VWSCs?
31. In which year were VWSCs formed in villages under your block?
32. Under what scheme have the VWSCs been formed?
33. How many members are there in VWSC?
34. How often is the VWSC meeting convened in a year?

35. What is the documentation process in VWSC meetings?
36. What is the extent of the understanding among the community about the rising groundwater challenges and its impact on their productivity and livelihoods?

Section 4 - Familiarity with the WSP

37. What is the content of WSPs?
38. When was the latest WSP made in your block?
39. On an average, how often are WSPs updated in a year for your block? What months/ occasions are they updated on? (Record response for each block)
40. Were you involved in making of the last WSP?
41. What is your role in the formation of WSP? (Engagement with community/ VWSC members/ line departments/other DIP experts/ DPMU Heads/CWO/ SPMU - experts and heads/ NPMU/ any other)

Section 5 - Familarity with the rain gauge

42. How many rain gauges are there in your village?
43. How many from these are installed under ABY?
44. Where are these rain gauges installed? and what are the criterias to decide its installation? (Mention location of each of these rain gauges)
45. Who reads from the rain gauge installed under ABY?
46. How often and at what time (of the day) is the rain gauge installed under ABY read?
47. Do you conduct a demonstration or training session for villagers regarding how to use rain gauge
48. If yes, in what forms or which level do you conduct training? (VWSC level, GP level, ward panchayat level or group-wise) and how often?
49. Is the reading from the rain gauge shared with villagers?
50. How is the reading shared with villagers? Note down details for each of the answer
51. What is the data flow of the information recorded for rain gauges? Is the government making use of this information at any level?

Section 6 - Familiarity with the piezometer

52. How many piezometers are there in each of your block?
53. How many of the piezometers are functional in each of your block?
54. In which year were these piezometers installed? (Record details for all block) and what are the criteria to decide its installation?
55. How many from these are installed under ABY?

Section 7 - Familiarity with the WQTK

56. How many WQTK are there in each of your block?
57. How many from these are given under ABY?
58. Who uses these kits?
59. Do you conduct a demonstration session in GPs for using WQKT?
60. If Yes, in what forms or which level do you conduct training? (VWSC level, GP level, ward panchayat level or group-wise) and how often
61. What are the samples measured through WQFTK?
62. How often is the WQ tested in the block using the WQTK (before, during or after the construction of any structures under ABY)
63. On average, how many samples are collected from each WQTK to test the parameters under ABY?
64. Is the reading from WQTK shared with villagers?
65. How is the reading shared with villagers? Note down details for each of the answer

66. What is the data flow of the information recorded through WQTK? Is the government making use of this information at any level?
67. What are the challenges faced by you?

For DIP social expert

Section 1 - General introduction and job description

1. Name of the expert
2. What is the block and the district where you are working?
3. How many GPs come under your jurisdiction?
4. Since when you are working as a DIP expert?
5. What is your educational qualification
6. Do you have prior experience working in this domain?
7. If yes, what was your prior experience?
8. Are you aware of TOR for your job role?
9. What are your roles and responsibilities in ABY?
10. If Yes, jobs performed by you here, do you think align with your TOR?
11. What are your average working hours per day?

Section 2 - Meeting, progress reporting and trainings

12. Is there a provision for review meetings, progress reporting and grievance redressal meetings with the DIP head? Detail out the process if the answer is yes.
13. If yes, when or how often it is conducted?
14. How often do you interact with district nodal officers to report the progress of the activities?
15. Did you have any orientation programme after joining ABY?
16. Do you know when ABY has been started?
17. Are you aware of the objective of ABY? If yes, what are the objectives of ABY?
18. What all modules have you been trained on under ABY? Are these a part of IEC materials?
19. Are you aware of Disbursement Linked Indicators (DLIs) under ABY. If yes, please list out the DLIs.
    DLI#1 - Public disclosure of ground water data/information and reports
    DLI#2 - Preparation of community-led water security plans
    DLI#3 - Public financing of approved Water Security Plans
    DLI#4 - Adoption of practices for efficient water use
    DLI#5 - Improvement in the rate of decline of groundwater levels
20. Are you aware of the role of Quality Council of India (QCI) in the architecture of ABY? If yes, please explain.
21. How many verification rounds have happened for the DLIs in your block?
22. How your block(s) are fairing with respect to the performance in each DLI i.e. DLI 1, DLI 2, DLI 3 and DLI 4.
23. What strategies have been adopted to overcome the problems persisting in DLIs which are not faring well?
24. How do you all strategise the activities among yourselves to achieve the targets?
25. Do you conduct the capacity building exercise to train the community members?
26. If yes, what is the composition of your cohort of trainees? (Explain the process)
27. Are you aware how many assets created in a block are under ABY, If yes then which one and under which schemes (Make a table and record this GP wise).
28. Are the assets created under ABY geo-tagged?
29. If yes, who is responsible for geo-tagging?

Section 3 - Familiarity with the VWSC

30. Are you aware of VWSCs?
31. In which year were VWSCs formed in villages under your block?
32. How often is the VWSC meeting convened in a year?
33. How many members are there in a VWSC, on an average?
34. What is the documentation process in VWSC meetings?

35. What is the extent of the understanding among the community about the rising groundwater challenges and its impact on their productivity and livelihoods?

Section 4 - Familiarity with the WSP

36. What is the content of WSPs?
37. When was the latest WSP made in your block? (Record response for each GP.
38. On an average, how often are WSPs updated in a year for your block? What months/ occasions are they updated on? (Record response for each block)
39. What is your role in the formation of WSP? (Engagement with community/ VWSC members/ line departments/other DIP experts/ DPMU Heads/CWO/ SPMU - experts and heads/ NPMU/ any other)
40. Are you aware about the types of monitoring instruments to be installed in the scheme?
41. Name the instruments.

Section 5 - Familiarity with the rain gauge

42. How many rain gauges are there in your village?
43. How many from these are installed under ABY?
44. Where are these rain gauges installed? and what are the criterias to decide its installation? (Mention location of each of these rain gauges)
45. Who reads from the rain gauge installed under ABY?
46. How often and at what time (of the day) is the rain gauge installed under ABY read?
47. Do you conduct a demonstration or training session for villagers regarding how to use rain gauge?
48. If yes, in what forms or which level do you conduct training? (VWSC level, GP level, ward panchayat level or group-wise) and how often?
49. Is the reading from rain gauge shared with villagers?
50. How is the reading shared with villagers? Note down details for each of the answer
51. What is the data flow of the information recorded for rain gauges? Is the government making use of this information at any level?

Section 6 - Familiarity with the piezometer

52. How many piezometers are there in each of your block?
53. How many of the piezometers are functional in each of your block?
54. In which year were these piezometers installed? (Record details for all block) and what are the criteria to decide its installation?
55. How many from these are installed under ABY?

Section 7 - Familiarity with the WQTK

56. How many WQTK are there in each of your block?
57. How many from these are given under ABY?
58. Who uses these kits?
59. Do you conduct a demonstration session in GPs for using WQKT?
60. If Yes, in what forms or which level do you conduct training? (VWSC level, GP level, ward panchayat level or group-wise) and how often
61. What are the samples measured through WQFTK?
62. How often is the WQ tested in the block using the WQTK (before, during or after the construction of any structures under ABY)
63. On average, how many samples collected from each WQTK to test the parameters under ABY?
64. Is the reading from WQTK shared with villagers?
65. How is the reading shared with villagers? Note down details for each of the answer

66. What is the data flow of the information recorded through WQTK? Is the government making use of this information at any level?

Section 8 - Expert area related questions

67. What sort of groups are you trying to target as a role of social scientists?
68. What are the key activities carried out by you to mainstream the gender perspective
69. in the preparation of VWSPs? (To assess whether they leverage ASHA/*Aanganwadi*/SHGs
70. to mainstream community participation)?
71. Do you assist the landless farmers to harness the scheme benefits and if yes, then in what forms and how?
72. How often do you engage in discussion VWSC and gram sabha in general to sensitise them on the aspects of gender mainstreaming?
73. Is there any sort of collaboration between you (social scientist) and IEC experts to ensure wider reach of the awareness generation? If yes, then how
74. What are the challenges faced by you?

For DIP IEC expert

Section 1 - General introduction and job description

1. Name of the expert
2. What is the block and the district where you are working?
3. How many GPs come under your jurisdiction?
4. Since when you are working as a DIP expert?
5. What is your educational qualification
6. Do you have prior experience working in this domain?
7. If yes, what was your prior experience?
8. Are you aware of TOR for your job role?
9. What are your roles and responsibilities in ABY?
10. If Yes, jobs performed by you here, do you think align with your TOR?
11. What is your average working hours per day?

Section 2 - Meeting, progress reporting and trainings

12. Is there a provision for review meetings, progress reporting and grievance redressal meetings with the DIP head? Detail out the process if the answer is yes.
13. If yes, when or how often it is conducted?
14. How often do you interact with district nodal officers to report the progress of the activities?
15. Did you have any orientation programme after joining ABY?
16. Do you know when ABY has been started?
17. Are you aware of the objective of ABY? If yes, what are the objectives of ABY?
18. What all modules have you been trained on under ABY? Are these a part of IEC materials?
19. Are you aware of Disbursement Linked Indicators (DLIs) under ABY. If yes, please list out the DLIs.
    DLI#1 - Public disclosure of ground water data/information and reports
    DLI#2 - Preparation of community-led water security plans
    DLI#3 - Public financing of approved Water Security Plans
    DLI#4 - Adoption of practices for efficient water use
    DLI#5 - Improvement in the rate of decline of groundwater levels
20. Are you aware of the role of Quality Council of India (QCI) in the architecture of ABY? If yes, please explain.
21. How many verification rounds have happened for the DLIs in your block?
22. How your block(s) are fairing with respect to the performance in each DLI i.e. DLI 1, DLI 2, DLI 3 and DLI 4.
23. What strategies have been adopted to overcome the problems persisting in DLIs which are not fairing well?
24. How do you all strategise the activities among yourselves to achieve the targets?
25. Do you conduct the capacity building exercise to train the community member?
26. If yes, what is the composition of your cohort of trainees? (Explain the process)
27. Are you aware how many assets created in block are under ABY, If yes then which one and under which schemes (Make a table and record this GP wise).
28. Are the assets created under ABY geo-tagged?
29. If yes, who is responsible for geo-tagging?

Section 3 - Familiarity with VWSC

30. Are you aware of VWSCs?
31. In which year were VWSCs formed in villages under your block?
32. Under what scheme were these formed?
33. How often is the VWSC meeting convened in a year?
34. What is the documentation process in VWSC meetings?

35. "What is the extent of the understanding among the community about the rising groundwater challenges and its impact on their productivity and livelihoods?

Section 4 - Familiarity with WSP

36. What is the content of WSPs?
37. When was the latest WSP made in your block? (Record response for each GP.
38. On an average, how often are WSPs updated in a year for your block? What months/ occasions are they updated on? (Record response for each block)
39. What is your role in the formation of WSP? (Engagement with community/ VWSC members/ line departments/other DIP experts/ DPMU Heads/CWO/ SPMU - experts and heads/ NPMU/ any other)
40. Are you aware about the types of monitoring instruments to be installed in the scheme?
41. Name the instruments.
42. How many piezometers are there in each of your block?
43. How many of the piezometers are functional in each of your block?
44. In which year were these piezometers installed? (Record details for all block) and what are the criteria to decide its installation?
45. How many from these are installed under ABY?
46. How many WQTK are there in each of your block?
47. How many from these are given under ABY?
48. Who uses these kits?
49. Do you conduct a demonstration session in GPs for using WQKT?
50. If Yes, in what forms or which level do you conduct training? (VWSC level, GP level, ward panchayat level or group-wise) and how often
51. What are the samples measured through WQFTK?
52. How often is the WQ tested in the block using the WQTK (before, during or after the construction of any structures under ABY)
53. On average, how many samples are collected from each WQTK to test the parameters under ABY?
54. Is the reading from WQTK shared with villagers?
55. How is the reading shared with villagers? Note down details for each of the answer
56. What is the data flow of the information recorded through WQTK? Is the government making use of this information at any level?
57. How many rain gauges are there in your village?
58. How many from these are installed under ABY?
59. Where are these rain gauges installed? and what are the criteria to decide its installation? (Mention location of each of these rain gauges)
60. Who reads from the rain gauge installed under ABY?
61. How often and at what time (of the day) is the rain gauge installed under ABY read?
62. Do you conduct a demonstration or training session for villagers regarding how to use rain gauge
63. If yes, in what forms or which level do you conduct training? (VWSC level, GP level, ward panchayat level or group-wise) and how often?
64. Is the reading from the rain gauge shared with villagers?
65. How is the reading shared with villagers? Note down details for each of the answer
66. What is the data flow of the information recorded for rain gauges? Is the government making use of this information at any level?

For line departments

1. Name of department and district?
2. What is your name?
3. What is your designation?
4. What interventions are undertaken by your dept are part of ABY? (yearwise)
5. Have you received any financial benefit under ABY? If yes, please explain the process of getting these benefits. (yearwise)
6. Did you attend any trainings or orientation under ABY?
7. How often does your department and ground water department meet to review and course-correct works related to ABY?
8. What is your role in the preparation and updation of water security plan?
9. Does your department make use of water security plan in making of its annual plan? If yes, explain how.
10. Does your department make use of water quantity; quality; or rainfall data collected under ABY? If yes, for what all purposes? If not, can a regular supply of such data help your department in anyway?
11. What were the challenges faced by your dept with respect to Atal Bhujal Yojana?
12. What would be the suggestions you would like to propose for the betterment of implementation of ABY?

For DPMU nodal officer

Section 1 - General introduction and job description

1. What is your name, designation?
2. Name of the district
3. What are the key issues with respect to groundwater scenario in the district because of which it has been chosen under ABY?
4. How many blocks and gram panchayats are under ABY in the district? (compared to total blocks and GPs)
5. What is the implementation architecture of the scheme in the district?
6. What are your key roles and responsibilities within the scheme as DPMU head?

Section 2 - Meeting, progress reporting and trainings

7. Is there any dedicated training provision for you in the scheme? If yes, who conducts the training, what are the focus areas, how often it took place and when was the last time it was done?
8. How often do you have a meeting with the SPMU officials for progress monitoring, review mechanisms and grievance redressal?

Section 3 - Coordination with the line departments

9. What are the key line departments essential for the implementation of the scheme?
10. What are the key challenges you often face with respect to coordination with line departments?
11. In your opinion, what can be done to streamline the coordination with the line departments?

Section 4 - Familiarity with the implementation of the scheme

12. Explain the WSP and your contribution to it? Mention your responsibilities
13. When was the VWSP prepared last time?
14. How often is it updated to incorporate the dynamics of water supply and demand?
15. What is the process being followed in the run-up to the formulation of VWSP, its approval and its implementation?
16. In general, how many meetings are conducted at gram sabha level prior to the finalisation of VWSP?
17. How often do you visit the gram panchayats under your jurisdiction to oversee the progress of the implementation of the scheme?
18. Since the VWSP has to be finalized on the same day across all the GPs, how do you manage the due process being undertaken and at the same time ensure the presence of line departments?
19. What are the key challenges you find with respect to the formulation of VWSP and in your opinion what should be done to overcome these?
20. What are the key focus areas within the scheme where public disclosure of groundwater data and information is made available? (What are the information that are disclosed publicly)
21. What are the key technological interventions being adopted to ensure public disclosure of the information?
22. At GP level, in what forms (pamphlets, data books, hoardings) are disclosed for public reference?
23. What is the data flow of the information recorded? Is the government making use of this information at any level?
24. Since ABY is an incentive based scheme, how difficult is it to ensure convergence with other schemes at grassroots level?
25. Can you please name the schemes and departments under which they are implemented for convergence?
26. How often do you conduct meetings with the district line departments to ensure convergence with different schemes?

27. How actively different departments responds to the convergence proposal within the scheme?
28. How you prioritise the implementation work across different gram panchayat? (Is their any selection criteria for implementation of different schemes)
29. Do you plan to develop model village within the district or model farms within GP where convergence of different schemes has been implemented in an exemplary manner?
30. What are the key challenges the farmer faces with respect to the implementation of supply side and demand side interventions mandate of the scheme?
31. What are the selection criteria for shortlisting the beneficiaries of the scheme? (for demand side and supply side interventions)
32. How much subsidies are provided for different interventions and what is its process for disbursement across different beneficiaries?
33. How effective is IEC activities to bring in the behavioural shift in the farming practices?
34. What are the challenges faced by you?
35. What are the challenges and suggestions which can improve this scheme?

For DPMU IEC (information, education and communication) expert

Section 1 - General introduction and job description

1. What is your name?
2. Since when you are working as a DPMU expert?
3. What is your educational qualification?
4. Do you have prior experience working in this domain?
5. If yes, what was your prior experience?
6. Are you aware of TOR for your job role?
7. What are your roles and responsibilities in ABY?
8. If Yes, jobs performed by you here, do you think align with your TOR?
9. What is your average working hours per day?
10. What is the implementation architecture of the scheme in the district? Meeting, progress reporting and trainings
11. Is there any dedicated training provision for you in the scheme? If yes, who conducts the training, what are the focus areas, how often it took place and when was the last time it was done?
12. How often do you have a meeting with the SPMU officials for progress monitoring, review mechanisms and grievance redressal?
13. What are the key line departments essential for the implementation of the scheme?
14. Explain the WSP and your contribution to it? Mention your responsibilities

Section 2 - Familiarity with the scheme and monitoring instruments

15. When was the VWSP prepared last time?
16. How often is it updated to incorporate the dynamics of water supply and demand?
17. What is the process being followed in the run-up to the formulation of VWSP, its approval and its implementation?
18. In general, how many meetings are conducted at gram-sabha level prior to the finalisation of VWSP?
19. How often do you visit the gram panchayats under your jurisdiction to oversee the progress of the implementation of the scheme?
20. Since the VWSP has to be finalized on the same day across all the GPs, how do you manage the due process being undertaken and at the same time ensure the presence of line departments?
21. What are the key challenges you find with respect to the formulation of VWSP and in your opinion what should be done to overcome these?
22. What are the key focus areas within the scheme where public disclosure of groundwater data and information is made available? (What are the information that are disclosed publicly)
23. What are the key technological interventions being adopted to ensure public disclosure of the information?
24. At GP level, in what forms (pamphlets, data books, hoardings) are disclosed for public reference?
25. What is the data flow of the information recorded? Is the government making use of this information at any level?
26. Mention about the number of trainings conducted in your district in detail?
27. Mention the monitoring instruments installed under ABY?
28. Elaborate about the training related to the instruments in your district and your role?
29. What are the challenges and suggestions which can improve this scheme?

For DPMU agriculture expert

Section 1 - General introduction and job description

1. What is your name?
2. Since when you are working as a DPMU expert?
3. What is your educational qualification?
4. Do you have prior experience working in this domain?
5. If yes, what was your prior experience?
6. Are you aware of TOR for your job role?
7. What are your roles and responsibilities in ABY?
8. If Yes, jobs performed by you here, do you think align with your TOR?
9. What is your average working hours per day?
10. What is the implementation architecture of the scheme in the district?

Section 2 - Meeting, progress reporting and trainings

11. Is there any dedicated training provision for you in the scheme? If yes, who conducts the training, what are the focus areas, how often it took place and when was the last time it was done?
12. How often do you have a meeting with the SPMU officials for progress monitoring, review mechanisms and grievance redressal?
13. What are the key line departments you interact for the implementation of the scheme?
14. What are the key challenges you often face with respect to coordination with line departments?
15. Explain the WSP and your contribution to it? Mention your responsibilities
16. Mention about the number of trainings conducted in your district in detail?
17. Mention the monitoring instruments installed under ABY?
18. Elaborate about the training related to the instruments in your district and your role?

Section 3 - Familiarity with the scheme and monitoring instruments

19. When was the VWSP prepared last time?
20. How often is it updated to incorporate the dynamics of water supply and demand?
21. What is the process being followed in the run-up to the formulation of VWSP, its approval and its implementation?
22. In general, how many meetings are conducted at gram sabha level prior to the finalisation of VWSP?
23. How often do you visit the gram panchayats under your jurisdiction to oversee the progress of the implementation of the scheme?
24. Since the VWSP has to be finalized on the same day across all the GPs, how do you manage the due process being undertaken and at the same time ensure the presence of line departments?
25. What are the key challenges you find with respect to the formulation of VWSP and in your opinion what should be done to overcome these?
26. What are the key focus areas within the scheme where public disclosure of groundwater data and information is made available? (What are the information that are disclosed publicly)
27. What are the key technological interventions being adopted to ensure public disclosure of the information?
28. At GP level, in what forms (pamphlets, data books, hoardings) are disclosed for public reference?
29. What is the data flow of the information recorded? Is the government making use of this information at any level?
30. What are the challenges and suggestions which can improve this scheme