JustJobs NETWORK

Arghyam
Safe, sustainable water for all

Landscape of Rural Water Management

JAL KAUSHAL: WATER, LIVES, AND LIVELIHOODS

Apoorva Dhingra and Nidhi Batra

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Contents

Abbreviations

ABhY	Atal Bhujal Yojana
DWSM	District Water and Sanitation Mission
FHTCs	Functional Household Tap Connections
FMBAP	Flood Management and Border Areas Programme
INR	Indian Rupees
ISAM	Integrated Scheme on Agriculture Marketing
JJM	Jal Jeevan Mission
JJN	JustJobs Network
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MKSP-NRLM	Mahila Kisan Sashaktikaran Pariyojana- National Rural Livelihooods Mission
MOSPI	Ministry of Statistics & Programme Implementation
MPLADS	Member of Parliament Local Area Development Scheme
NFSM	National Food Security Mission
NHM	National Horticulture Mission
NHP	National Hydrology Project
NMAET-SMAE	National Mission on Agricultural Extension and Technology- Sub-Mission on Agriculture Extension
NMAET-SMAM	National Mission on Agricultural Extension and Technology-Sub-Mission on Agriculture Mechanization
NMAET-SMPS	National Mission on Agricultural Extension and Technology-Sub-Mission on Plant Protection
NMSA-PKVY	National Mission on Sustainable Agriculture- Paramparagat Krishi Vikas Yojana

NMSA-RADP	National Mission on Sustainable Agriculture-Rainfed Area Development Programme
NPSHF	National Project on Soil Health Fertility
NRCP	National River Conservation Plan
NSS	National Sample Survey
NWP	National Water Policy
PMAGY	Pradhan Mantri Adarsh Gram Yojana
PMFBY	Pradhan Mantri Fasal Bima Yojana
PMKSaY	Pradhan Mantri Sampada Yojana
PMKSY-AIBP	Pradhan Mantri Krishi Sinchayee Yojana-Accelerated Irrigation Benefit Programme
PMKSY-HKKP	Pradhan Mantri Krishi Sinchayee Yojana- Har Khet Ko Pani
PMKSY-PDMC	Pradhan Mantri Krishi Sinchayee Yojana- Per Drop More Crop
PMKSY-WDC	Pradhan Mantri Krishi Sinchayee Yojana- Watershed Development COmponent
PMKVY	Pradhan Mantri Krishi Vikas Yojana
RBM	River Basin Management
RGSA	Rashtriya Gram Swaraj Abhiyan
RKVY-RAFTAAR	Rashtriya Krishi Vikas Yojana- Remunerative Approaches for Agriculture and Allied Sector Rejuvenation
SBA-G	Swachh Bharat Abhiyan- Gramin
SWSM	State Water and Sanitation Mission
UN	United Nations
VWSC	Village Water and Sanitation Committee
WSP	Water Security Plans
WUA	Water User Association

Executive Summary

In India, the world's largest user of groundwater, several government and civil society interventions promote water management with the goal of making India's villages water-secure.[1] Most interventions, whether initiated by state and central governments or by civil society, are decentralised and emphasise the role of community members in managing and implementing them.[2] They build on the understanding that water is central to the health and livelihood of rural economies and is needed to create and maintain jobs across sectors.[3] Integrated water management, which includes managing source, infrastructure, and services, is both a job creator as well as a job enabler.

Despite the understanding that water and water management are job creators and enablers, there is little record of community members or frontline workers' tasks, responsibilities, training, skills, remuneration, and working conditions. This is made challenging by the fact that water management work at local level is often part-time, voluntary, or unpaid. So, while there is consensus that community members perform critical water management tasks, a knowledge gap persists about their work and working conditions.

To address this, JustJobs Network (JJN) and Arghyam launched Jal Kaushal, a project that examines the jobs-tasks-skills nexus of rural water management. The study hypothesises that by investigating and understanding livelihoods engendered by the sector, water management can become a more sustainable and successful practice.

This report offers an introduction to water commons and water management in rural India. By focusing on existing water management initiatives of central and state governments, civil society, and non-government organisations, this report attempts to highlight the critical role played by frontline workers in rural water management.

Through secondary research on existing schemes and interventions for water management, JJN found that the indispensable role of frontline workers is widely acknowledged, but the work nonetheless remains largely voluntary and non-remunerative. This, in turn, poses a significant challenge to sustainability of water management initiatives.

Chapter 1: Introduction

A geologically vast and demographically complex country, India faces many challenges in providing adequate, safe, and reliable drinking water to its citizens, especially in rural areas. The country is home to 16 percent of the world's population but only four percent of its renewable water resources.[4] The Sustainable Water Index, launched by NITI Aayog in 2019, warned that India was "suffering from the worst water crisis in its history, threatening millions of lives and livelihoods".[5] By the end of this decade, demand for water is expected to be twice the available supply, implying severe water scarcity and up to six percent loss in Gross Domestic Product.[6]

Many Indian states, however, especially those that have faced dire drought in the recent past, have taken to water management to improve water security, foretelling a challenging but hopeful future. According to the World Bank, water resources management is the process of planning, developing, and managing water resources, in terms of both water quantity and quality, across all water uses. It includes the institutions, infrastructure, incentives, information systems, and individuals that support and guide water management.[7] Implemented with the goal of achieving water security and supporting livelihoods, water management presents a critical path forward.

Across the country, water supports livelihoods in two ways – as a job creator and a job enabler.[8] Direct jobs in the water sector, which include plumbing, construction of water infrastructures, and behavioural change roles, amongst others, account for a minor share of employment in India and are created because of water. On the other hand, agriculture, livestock farming, and fisheries, amongst others, are jobs enabled by water, which comprise the largest chunk of rural employment in India. Both forms of livelihoods are equally important but this report, in its discussion of water management, focuses exclusively on jobs directly created by water.

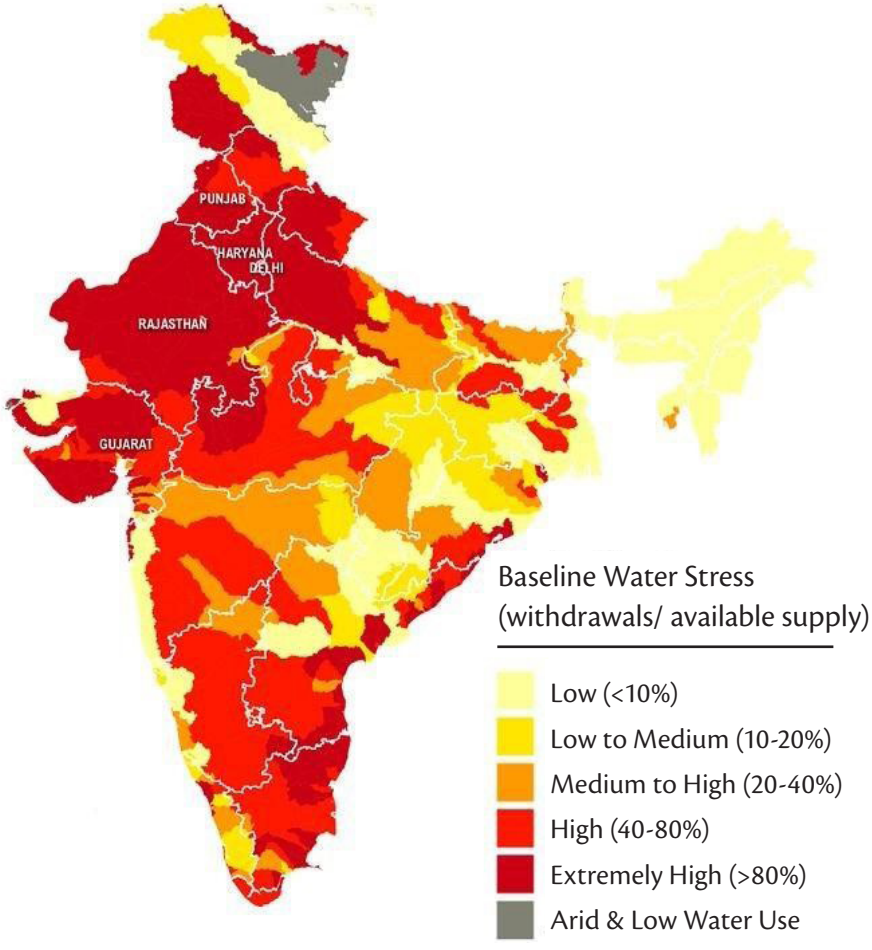
This report offers an introduction to water commons and water management in rural India. By focusing on existing water management initiatives of central and state governments, civil society, and non-government organisations, this report attempts to highlight the critical role played by frontline workers in rural water management. It is the authors' hope that a focus on frontline workers within water management can engender conversations about their skills, tasks, and training as well as the sustainability of their livelihoods. All interventions unequivocally acknowledge the indispensable role frontline workers play in water management, but their work remains largely voluntary and non-remunerative which, in turn, poses a significant challenge to sustainability of water management initiatives.

Chapter 2: Water Security

Water security is key for India's continued socio-economic growth and well-being. But with the demand for water increasing far beyond its availability in the country, continued water-related crises are inevitable. At present, 600 million people experience high-to-extreme water stress while 75 percent of the total population does not have drinking water on premise.[9]

Figure 1

Baseline water stress in India[10]



UN-Water defines water security as:

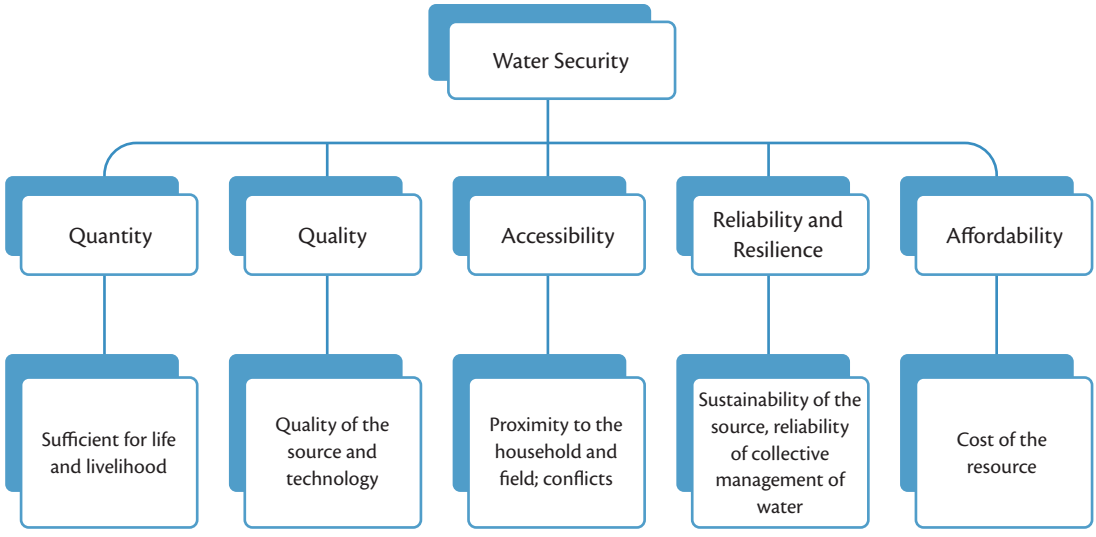
> The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.[11]

Water insecurity is especially prevalent in rural India with about 52 percent of rural households without piped water access.[12] In addition to the low availability of water, improving water quality in the rural areas of India's largest states, such as Uttar Pradesh, Madhya Pradesh, Punjab, and Bihar, remains a major challenge.

It was to address these challenges that the Government of India launched the Jal Jeevan Mission (JJM) in 2019 to provide drinking water in rural India and address other long-term aspects resonant with the UN's understanding of water security. Per this approach, then, water security does not just mean creating water supply infrastructure, but also focussing on water service delivery, including the functionality, maintenance, and upkeep of tap connections; strengthening of drinking water sources with a view to long-term sustainability; and reducing reliance on emergency arrangements such as tankers, trains, or hand pump installations.[13]

Figure 2

Components of water security



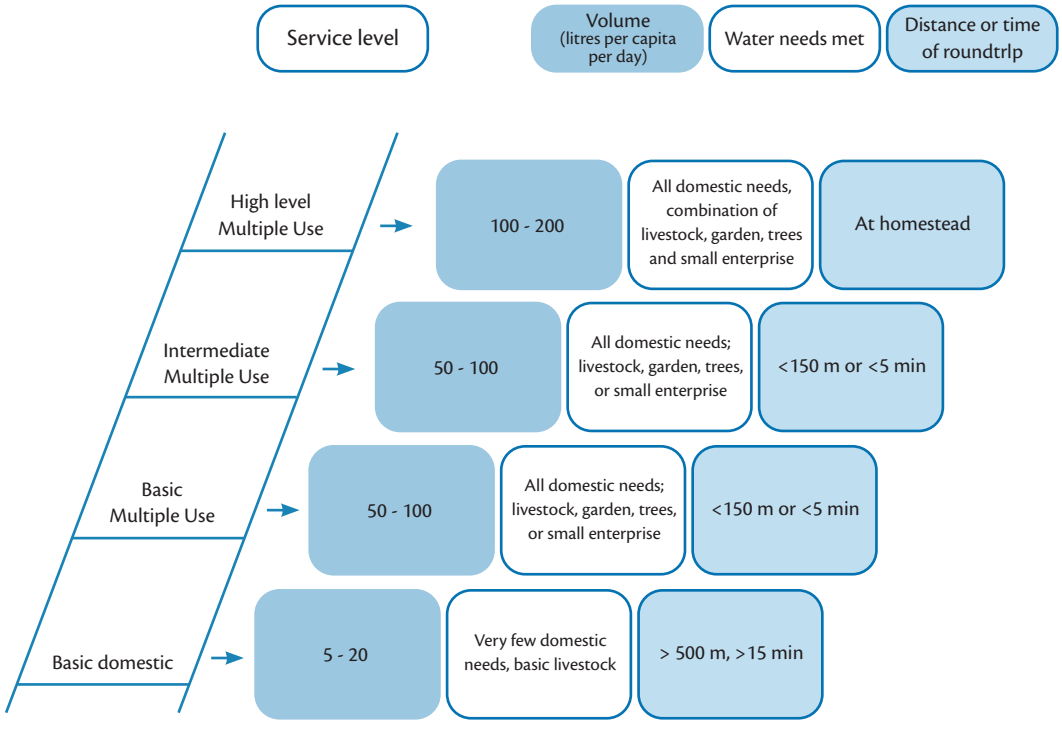
Water Security in Rural India

Ensuring water security in India's villages is a complex task. While it is a challenge throughout the country, including urban areas, water supply is closely linked to domestic as well as livelihood use in Indian villages, making adequate and sustainable provision of water especially important.

In rural areas, the government standard for water supply is 55 litres per capita per day. While this is only a minimum standard – meaning that states are permitted to offer more than 55 litres – this does not take into account that a large number of rural households own livestock and need water for their drinking and washing needs as well. With rural water supply schemes, including JJM, designed only for domestic use, it is critical to understand that multiple water needs of rural households can run into conflict with productive water use.[14]

Figure 3

Multiple-use ladder for lifeline and livelihood purposes[15]



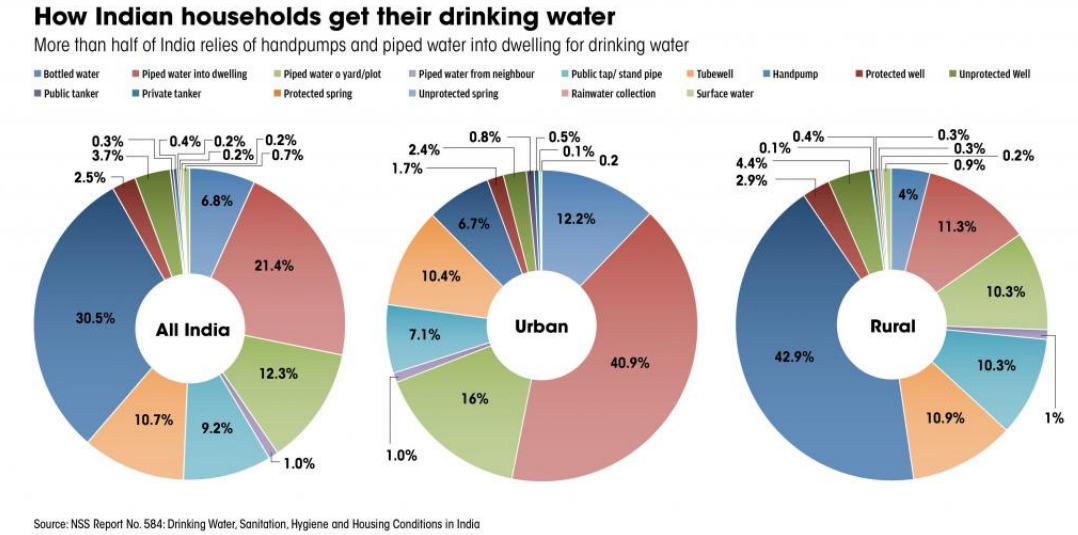
In the absence of adequate supply, common pool resources, or simply the commons, play an important role in fulfilling the livelihood needs of rural residents. Around 180 million hectares of India's land mass, or 26 percent, can be classified as commons.[16] The 54th round of the National Sample Survey (NSS) conducted in 1999 found that the commons played a critical role in offering a safety net to village residents, especially to the rural poor.[17] According to an analysis of the report, the average value of collections from common pool resources was the highest for poor households in the village, signifying the importance in delivering resources to the most marginalised.[18]

While this survey is dated, it offers an important insight into the critical role played by commons and the urgent need to manage and preserve them. According to the 76th round of the NSS, rural households that do not have access to private water supply rely on community sources such as open wells, tube wells, bore wells, community piped supply, and hand pumps.[19]

To ensure water security in rural areas, then, it is important to understand, manage, and preserve common pool resources that provide drinking and livelihood water to a majority of India's rural residents.

Figure 4

Percentage of households with different principal sources of drinking water[20]



Source: NSS Report No. 584: Drinking Water, Sanitation, Hygiene and Housing Conditions in India

Chapter 3: Reconceptualising Water Governance

The universality of water problems requires that we conceptualise water as a common pool resource and develop necessary systems to manage its supply as well as use. In the Indian context, common pool resources can be understood as non-exclusive resources with usage rights distributed across many owners, typically identifiable by the membership of a group such as a village, tribe, or community.[21] Despite supporting livelihoods and serving vital ecological functions, the commons are neglected and have faced degradation due to a variety of reasons, including poor usage rights regimes and weak institutional arrangements.[22]

In 2012, the 12th and final Five-Year Plan acknowledged, for the first time, groundwater as a common pool resource. The plan underscored the need to understand aquifers by mapping them through a national aquifer mapping exercise and creating groundwater management plans based on this understanding.[23] This acknowledgement, and subsequent mapping exercises, brought on a necessary shift in water management, which is reflected in the guidelines of national water schemes such as JJM and Atal Bhujal Yojana (ABhY). The Draft National Water Framework Bill 2016 also reflected this understanding of water as a common heritage and resource held in public trust.

Community management of water, however, predates the government's acknowledgement of groundwater as a common pool resource. For example, South India, in particular, has a well-documented history of irrigation tanks and the community's role in the upkeep of these resources. Individuals or groups experiencing poverty were more likely to depend heavily on these communal tanks and, thus, participated heavily in their upkeep.[24] According to experts, management and governance of water that is in sync with local needs and tied to local water issues is effective in preventing water insecurity. To this end, the community, in the form of frontline workers, plays an important role.[25]

Current Systems of Governance

According to the Constitution of India, the responsibility for water resource development and management rests with the states, meaning that water management and governance in India is decentralised at the state level. Some of the largest water management missions, schemes, and projects, however, are conceived at a central level which allows the central government to provide financial resources to states for implementation. Examples include the aforementioned Jal Jeevan Mission (JJM) and Atal Bhujal Yojana (ABhY) which are significantly funded by the Government of India but implemented by states within their administrative and physical boundaries. The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), aimed at guaranteeing the right to work in rural India, also plays a significant role in water management through the construction of water conservation and harvesting infrastructure.

In addition to JJM, ABhY, and MGNREGS, there are many schemes, implemented by more than 12

ministries, that have a role in water resource planning, development, and monitoring with different, sometimes overlapping jurisdictions and mandates. Their functions cover some parts of the water sector but at the same time restrict their jurisdiction in other related fields. This overlap across missions, schemes, and projects is brought out in figures 5.

Figure 5

A list of water-related schemes introduced by the central government.[26]

Schemes	Water resource assessment	Water supply augmentation	Water demand management	Water quality management	Flood management	Drought management	Value enhancing activities	Capacity building/ Training
CENTRAL SCHEMES								
ABhY	✓	✓	✓	✓		✓		✓
FMBAP	✓				✓			
ISAM							✓	
JJM		✓		✓				✓
MGNREGA		✓	✓		✓	✓	✓	✓
MPLADS		✓			✓			✓
MKSP - NRLM								✓
Namami Gange				✓				
NFSM		✓	✓		✓	✓	✓	✓
NHM		✓	✓				✓	✓
NHP	✓						✓	✓
NMAET-SMAE							✓	
NMAET-SMAM							✓	

Schemes	Water resource assessment	Water supply augmentation	Water demand management	Water quality management	Flood management	Drought management	Value enhancing activities	Capacity building/ Training
CENTRAL SCHEMES								
NMAET-SMSP							✓	
NMSA-PKVY							✓	
NMSA-RADP							✓	
NPSHF							✓	
NRCP				✓				
PMAGY				✓				
PMFBY					✓	✓		
PMKSaY							✓	
PMKSY-AIBP		✓						✓
PMSKY-HKKP		✓	✓					
PMKSY-PDMC			✓				✓	✓
PMKVY								✓
RBM	✓				✓			
RGSA								✓
RKVY-RAFTAAR		✓			✓	✓	✓	✓
SBA-G				✓				
PMKSY-WDC		✓					✓	✓

Box 1

Jal Jeevan Mission (JJM)

Launched in 2019, the Jal Jeevan Mission aims to provide all rural households in India with a functional household tap connection by 2024. In addition to providing water, JJM also has a specific focus on water quality through water quality management, testing, and monitoring.

Since the launch of the mission, 60 million additional households across the country have received piped water and states like Haryana, Goa, and Telangana have achieved 100 percent household connections (JJM dashboard, 2022). However, despite three years since the mission, provisions remain laggard as only 48 percent rural households across India have received functional household tap connections (FHTCs), which is far from the mission's 100 percent goal (JJM dashboard, 2022). States such as Uttar Pradesh, Jharkhand, West Bengal, and Chhattisgarh are yet to see notable success under the mission.

According to the guidelines, the mission comprised of a four-tier institutional mechanism. At the national level, there is the National Jal Jeevan Mission (JJM), headed by a director-level senior office. At the state level, there is a State Water and Sanitation Mission (SWSM), headed by chief secretary and at the district level, the District Water and Sanitation Mission (DWSM) headed by the deputy commissioner or the district collector. Finally, on the village level, there is a Village Water and Sanitation Committee (VWSC), established as a sub-committee of the Gram Panchayat.

Box 2

Atal Bhujal Yojana (ABhY)

The World Bank-supported programme, which is also known as the National Groundwater Management Improvement Programme, was launched in 2020 with the aim to improve groundwater management in select Indian states.

The programme achieves this through a focus on bottom-up planning of groundwater management via the Water Security Plans (WSPs), improving government spending, and implementing participatory groundwater measures on both demand and supply side.

Atal Jal is targeted at sustainable ground water management, mainly through convergence among various on-going schemes with the active involvement of local communities and stakeholders. Its focus is on 78 water-stressed districts across Uttar Pradesh, Haryana, Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, and Karnataka (MoWR, 2020).

As per the guidelines, ABY comprises a four-tier institutional structure. At the national level, there is the National Programme Management Unit housed under the Ministry of Jal Shakti. At the state level, there is a State Programme Management Unit. At the district level, there is a District Programme Management Unit. Finally, at the village level, there are Water User Association, which builds on the existing VWSC sub-committees of the Gram Panchayat (MoWR, 2020)

Box 3

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

MGNREGS was passed in 2005 as an Indian labour law and social security measure that guarantees hundred days of paid work to those who need it in rural India. Across states, MGNREGS has played a critical role in facilitating water management. In Andhra Pradesh, for instance, ground water levels improved because 210 dugout ponds and farm ponds were built and 54 check dams were desilted by MGNREGS workers (MoRD, 2021).

But while water works account for 40 percent of all MGNREGS construction, an analysis of MGNREGS works found that "significant work related to water conservation and irrigation was left incomplete or suspended, making them useless for farmers" (Mahapatra et al., 2019). This amounts to INR 16,615 crores spent on more than 1.8 million water-related projects that were abandoned or left incomplete (Mahapatra et al., 2019).

On the state level, regulatory authorities, water departments, irrigation departments, public health and engineering departments, public works departments, and Panchayat Raj departments develop and manage water resources.

In rural areas, water is managed through the Panchayat Raj system. The Panchayat Raj system consists of three administrative levels: Zilla (district) Panchayat at the top level, followed by Taluk (block) Panchayat at the middle level, and Gram (village) Panchayat at the bottom. Normally, a Gram Panchayat consists of about one to 10 villages, depending on the total population, but this can vary from state to state. The Panchayat Raj system is responsible for the implementation, operations and maintenance, funding, and administration of water programmes and projects. Functions involving funding and local policymaking are performed by Zilla and Taluk Panchayats, while functions such as implementation, monitoring, maintenance, and operations are performed by Taluk and Gram Panchayats.[27]

At the lowest level, notable tasks such as plan-making, budgeting, maintenance, and resource mapping are handled by the Village Water and Sanitation Committee (VWSC) or Water User Association (WUA), a sub-committee of the Gram Panchayat. VWSCs, which comprise 6-12 members and associated frontline workers, are at the forefront of water management in rural India. National-level missions, such as JJM, ABY, and state-level schemes, such as Jaladhara in West Bengal, Sujal in Odisha, and Greater Sohra West Supply Scheme in Meghalaya, stand on the shoulders of last-mile and community-oriented work done by the VWSCs/WUAs and frontline workers. Due to the indispensability of their work, sustainable water management must be synonymous with sustainable livelihood provisions for frontline workers.

Civil society organisations such as non-governmental organisations, academic bodies, community support organisations, and the general citizenry also contribute to water governance through consultation, research, funding, project design, and advocacy.

Water Management Laws and Policies

In 1987, the Government of India launched the first National Water Policy (NWP) to guide water planning from a central level. Some notable aspects of this policy were: resource planning on the level of a hydrological unit, integrated and coordinated development of surface water and groundwater for conjunctive use, prioritising drinking water over all other uses, and development of a national-level information system to facilitate water planning.[28]

After the adoption of NWP 1987, new challenges to water planning and management emerged that the government aimed to address through NWP 2002. Some key components of this policy were: incorporating a participatory approach to the management of water resources, reclaiming water-logged and saline-affected land, optimising the productivity of water used for irrigation, and ensuring minimum flow for ecological and social considerations.[29]

The NWP was further modified in 2012 as part of the National Action Plan on Climate Change. Some noteworthy principles of NWP 2012 are: water to

be managed as a community pool resource held by states in public trusts, factoring climate change in water management decisions, safe water for drinking and sanitation to be considered a high priority need, and managing demand as well as water use efficiency (Central Water Commission, n.d.). The NWP 2012 also acknowledged that despite changes in groundwater regulation, it is still perceived as individual property and extracted inequitably and unsustainably.

Regulating groundwater is a historically difficult task as it is linked to land ownership. According to the Indian Easement Act of 1882, landowners are entitled to extract unlimited volumes of groundwater that percolates in the ground underneath, positing groundwater as mere appendage to land.[30] Viewing groundwater as an easement of land allows landowners to extract an unlimited amount of water while disallowing landless individuals all rights to groundwater.

To respond to the concerns of unchecked groundwater extraction, the Government of India launched a Model Bill to Regulate and Control the Development and Management of Groundwater in 1970. While the centre could not regulate groundwater since it remains a state subject, this Model Bill – which was circulated to all states and Union Territories – was expected to empower state governments in regulating groundwater use and extraction.

This Bill was revised several times – in 1992, 1996, and 2005– but the objectives of the 1970 Model Bill remained unchanged. These objectives were: (i) regulate iniquitous groundwater use and distribution to ensure safe and secure drinking water is available to every person as well as irrigation needs of small and marginal farmers are met; (ii) regulate over-extraction of groundwater to ensure sustainability, equity of use and distribution, and fulfilment of ecosystem needs.[31] However, this Bill failed in critical ways as it did not address the link between land ownership and groundwater, relied on the registration of new groundwater sources as a tool to address overuse, and did not create a single institution with the mandate to look after groundwater in all dimensions.[32] In order to address some of these concerns, the then Ministry of Environment and Forests established the Central Ground Water Authority in 1997, which was expected to regulate, conserve, protect, and raise awareness about groundwater.[33]

The Groundwater Model Bill of 2011, launched to address the legal gaps created by the previous Model Bill, transformed the groundwater landscape in critical ways. One, it changed the legal status of groundwater to include it under public trust; two, it responded to the 73rd and 74th amendments and strengthened local control over groundwater; three, it codified the uses of groundwater and prioritised using groundwater to meet the basic water needs of urban and rural residents; and four, it established quantity and quality standards for water use.[34] The most notable change brought on by the Model Bill of 2011, especially for the purposes of this report, was establishing subsidiarity as the basis of institutional framework for groundwater governance. Specifically, it allowed for setting up of gram panchayat groundwater committees in rural areas and ward groundwater committees in urban areas, permitting maximum democratic governance on the local level.

Chapter 4: Water Guardians

'Collecting water used to be a huge problem,' recalled Ambika Vijaykumar, 58, mother of two in Palakkad district. 27 families depended on just one public tap for water. 'And in summer, this was available only at night.' Ambika's constant travails in collecting water spurred her to play a pivotal role in mobilising 62 households to build their own water supply system, raising money, buying land for an open well and a pump house, and building an overhead tank to store water in.[35]

As underscored by most governmental and non-governmental initiatives in water management in the last decade, community participation is critical to ensuring water security. Popularised by the National Rural Livelihoods Mission in 2011, frontline workers have since become a necessary bridge between implementing agencies and rural recipients.

Frontline workers are typically hired from the local villages, trained, and made responsible for technical or non-technical tasks depending on the programme and their role. In the case of water management, national-level schemes have created positions such as Bhujal Jankars, Barefoot Technicians, and Pump Operators, while state-level schemes have nurtured frontline workers such as Dhara Sevaks and Jal Sevaks. The ongoing ABY plans to train Bhujal Jankars across 9000 Gram Panchayats on the science of groundwater and ways to ensure local water security. Parallelly, JJM is nurturing its own frontline workers to assist them in preparing village action plans, which require scientific knowledge of sanitation and groundwater. JJM has also been training masons, electricians, and plumbers to install and maintain pipeline infrastructure and some states plan to solicit their participation in other programmes by maintaining their details in a database.[36]

Across schemes of all levels, these frontline workers are embedded within the communities, connected to the Gram Panchayats or its subcommittees and are sometimes remunerated. These positions, however, are rarely full-time jobs. In conversation with PRASARI, a West Bengal-based organisation, JustJobs Network (JJN) researchers found that Dhara Sevaks work twice a year for about a month each time. In the first month, they undertake planning responsibilities such as resource mapping and data collection which culminate in an Annual Action Plan, as necessitated by the Usharmukti Scheme. In the second month, they focus on execution.

Since frontline workers are members of the communities affected by water insecurity, it is expected of them to care about water management and take on necessary responsibilities. However, they do this not only because they want to, but because they need to. For instance, in Bundelkhand, Jal Sahelis – a group of women volunteers – emerged in 2005, committed to addressing water insecurity in the drought-prone regions in Uttar Pradesh and Madhya Pradesh. Plagued by scanty rainfall, water scarcity, declining agricultural output, and out-migration, the women of Bundelkhand, led by Parmarth Samaj Sevi Sansthan, revived defunct water structures, maintained existing water infrastructures, and organised themselves into a Pani Panchayat. Nearly two decades on, water tables

have risen, livelihoods have improved, and distress migration has decreased, demonstrating that community participation can effectively bring about water security.[37]

But while appropriately valorised, it is important to note that Jal Sahelis, much like other frontline workers, take on water management responsibilities largely on a voluntary basis with sporadic training or skilling opportunities. Even in flagship government programmes such as JJM and ABY, there are no clear guidelines on remunerations and skilling, which prohibits frontline workers from achieving sustainable livelihoods.

In addition to acknowledging that communities are indispensable, it is important to start linking their livelihoods to water management to achieve sustainable water management practices. By adequately remunerating frontline workers' roles and jobs, allowing for regular skilling, and offering benefits and room for fulfilment and growth, water management can become more achievable in a country that is in desperate need of it. The urgency of both the water crisis as well as the jobs crisis demands this if we are committed to building a more equitable and joyous world.

Chapter 5: Conclusion

India's development is strongly dependent on water, specifically groundwater, necessitating both demand and supply level interventions. Over the years, water management and governance systems have arrived at the understanding that local control and management of water resources is most helpful in achieving water security. As stated in the chapters above, this hinges on the capacities and abilities of institutions and individuals at the local levels, such as frontline workers and VWSCs, to acquire and apply knowledge as well as adjust to changing landscapes and needs.

A preliminary review of available secondary research finds that multiple factors – such as lack of convergence across schemes and missions, and governance issues – challenge the sustainability of institutions and individuals at the local level. Relying largely on volunteerism results in a tendency to overlook the livelihood needs of community resource persons. These persons, such as pump operators and Bhujal Jankars, perform necessary water management tasks on the local levels but also need to sustain themselves and their families. The Jal Kaushal project hypothesises that by acknowledging and addressing the livelihood needs of frontline workers through adequate remuneration, skilling opportunities, and job security and benefits, water management can become an attractive profession and a sustainable practice.

The next iteration of this report will present a typology of water management related jobs, tasks, and skills gathered through secondary as well as primary research. This typology, complete with characteristics, will enable a comprehensive understanding of work created in the field of water management and the interventions required to make it more fulfilling.

Notes

[1] World Bank, "India Groundwater: a Valuable but Diminishing Resource," March 6, 2012. https://www.worldbank.org/en/news/feature/2012/03/06/india-groundwater-critical-diminishing

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Please note that according to this figure, around 79 percent rural households do not have access to private piped water supply but the most recent source, which is the Jal Jeevan Mission's live dashboard as of March 30, 2022, puts this number at 52 percent. The authors use

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