

Demand for Grants 2022-23 Analysis

Jal Shakti

The Ministry of Jal Shakti is responsible for the development, maintenance, and efficient use of water resources in the country and coordination of drinking water and sanitation programs in rural areas. The Ministry was created in 2019 by integrating the Ministries of: (i) Water Resources, River Development, and Ganga Rejuvenation, and (ii) Drinking Water and Sanitation. The Ministry of Jal Shakti consists of two departments with the same names as those of merged ministries. This note provides an overview of the budget allocation towards the two departments and some broader issues in the sector.

Allocations in Union Budget 2022-23

In 2022-23, the Ministry of Jal Shakti has been allocated Rs 86,189 crore, which is a 24.8% increase over the revised estimates of 2021-22 (at Rs 69,046 crore).¹ This increase is mainly on account of increased allocation towards the Jal Jeevan Mission (Rs 60,000 crore in 2022-23 compared to Rs 45,011 in 2021-22 RE).² The Department of Drinking Water and Sanitation implements the Jal Jeevan Mission scheme. The total allocation towards this Department in 2022-23 is Rs 67,221 crore (78% of the total allocation towards the Ministry). The Department of Water Resources, River Development, and Ganga Rejuvenation has been allocated Rs 18,968 crore (Table 1).³

Table 1: Budgetary allocation to the Ministry of Jal Shakti (in Rs crore)

Department	2020-21 Actuals	2021-22 RE	2022-23 BE	% Change (RE 21-22 to BE 22-23)
Drinking Water and Sanitation	7,232	18,009	18,968	5%
Water Resources	15,967	51,037	67,221	32%
Total	23,199	69,046	86,189	25%

Note: BE is budget estimate. RE is the Revised Estimate.
Sources: Demands for Grants 2022-23, Jal Shakti; PRS.

Policy proposals in Union Budget Speech 2022-23:

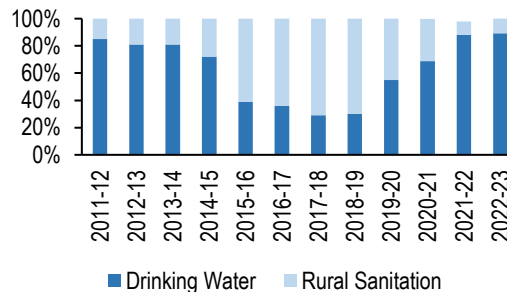
- The coverage of Har Ghar, Nal Se Jal under Jal Jeevan Mission (JJM) will increase by 3.8 crore households in 2022-23. Rs 60,000 crore will be allocated towards this mission for this year.
- Implementation of the Ken-Betwa Link Project, at an estimated cost of Rs 44,605 crore will be taken up. The project will be aimed at providing irrigation benefits to 9.08 lakh hectare of farmers' lands, drinking water supply for 62 lakh people, 103 MW of Hydro, and 27 MW of solar power.

Department of Drinking Water and Sanitation

The Department of Drinking Water and Sanitation administers programs for safe drinking water and sanitation in rural areas. In 2022-23, the Department has been allocated Rs 67,221 crore, accounting for 78% of the Ministry's allocation. This is an increase of 32% over the revised estimates of 2021-22. In 2021-22, the allocation to the Department is estimated to be 15% lower than the budget estimates.

The Department's allocations are towards two major rural welfare programmes: drinking water and sanitation. From 2011-12 to 2014-15, the Department's expenditure was focused on drinking water programmes (see Figure 1). With the introduction of the Swachh Bharat Mission, between 2015-19, the focus of expenditure was on rural sanitation. However, since 2019-20, the expenditure focus has shifted back towards drinking water.

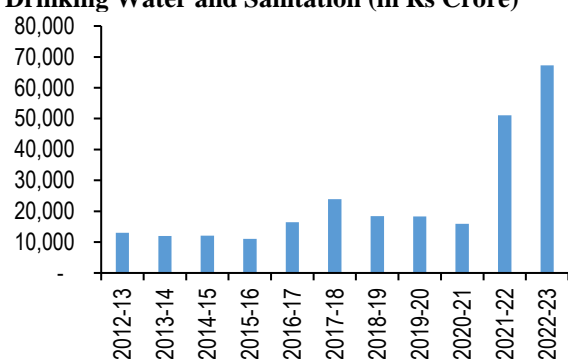
Figure 1: Expenditure on drinking water and sanitation (as a % of Department's expenditure)



Note: Values for 2021-22 are revised estimates and 2022-23 are budget estimates.

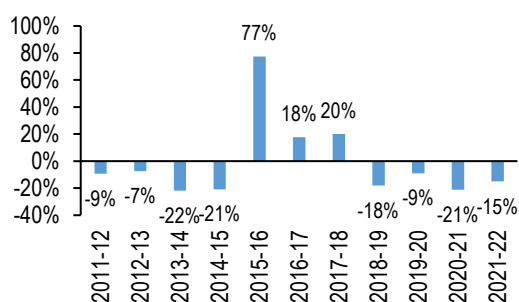
Sources: Union Budgets 2011-12 to 2022-23; PRS.

Between 2012-13 and 2020-21, the expenditure by the Department had a marginal increase at a compounded annual growth rate of 3%. In the last two years, the Department has seen a large increase in expenditure, mainly towards Jal Jeevan Mission. Figure 2 below shows the trends in expenditure by the Department in the last decade. Further, with the focus on a scheme to provide for tapped water connection in rural areas, the expenditure of the Department increased by 220% in 2021-22.

Figure 2: Expenditure by the Department of Drinking Water and Sanitation (in Rs Crore)

Note: Values for 2021-22 are revised estimates and 2022-23 are budget estimates. Allocations before 2019-20 were towards the erstwhile Ministry of Drinking Water and Sanitation.
Sources: Union Budgets 2014-15 to 2022-23; PRS.

Utilisation of Funds: Since 2011-12, the actual expenditure by the Department of Drinking Water and Sanitation has been lower than the budgeted expenditure except during 2015-18 (as shown in Figure 3). Notably, the actual expenditure in 2015-16 was 77% higher than the budgeted expenditure for the year with the launch of Swachh Bharat Mission-Gramin (SBM-G)). This may be due to a lack of adequate budgeting and efficient implementation of the scheme. The Standing Committee on Water Resources (2021) took note of under-utilisation of funds and recommended the Department to ensure strict monitoring of the release of funds.⁵ In response, the Department stated that a Public Financial Management System (PFMS) is being on-boarded to examine central fund expenditure under JJM and phase two of SBM-G.⁴ The Ministry also took note of high variability in fund utilisation among states due to schemes being demand-driven.⁵

Figure 3: Allocation towards the Department Of Drinking Water And Sanitation - % change from budget estimates to actuals

Note: The expenditure figure for 2021-22 is revised estimate.
Sources: Union Budgets 2011-12 to 2022-23; PRS.

Schemes under the Department of Drinking Water and Sanitation

The Department is responsible for implementing two major schemes: (i) the Jal Jeevan Mission (JJM), and (ii) the Swachh Bharat Mission-Gramin

(SBM-G). JJM aims to provide a functional household tap connection to every rural household, (an estimated 18.93 crore households).⁶ In 2022-23, JJM has been allocated Rs 60,000 crore (33% increase over 2021-22). This is 89% of the department's allocation for 2022-23. SBM-G aims to improve rural sanitation. In 2022-23, SBM-G has been allocated Rs 7,192 crore (20% annual increase over 2021-2022 revised estimates). This is 11% of the department's budget allocation for 2022-23.

Table 2: Allocation towards key schemes under Department of Drinking Water and Sanitation (in Rs crore)

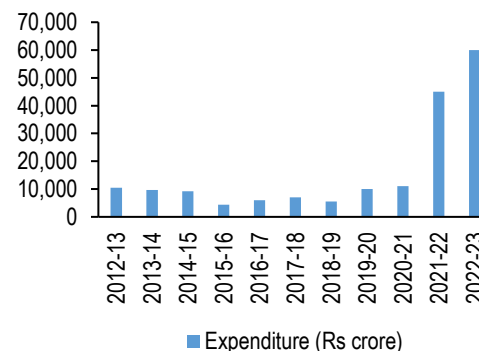
Scheme	2020-21 Actuals	2021-22 Revised	2022-23 Budgeted	% Change (RE 2021-22 to BE 2022-23)
JJM	10,998	45,011	60,000	33%
SBM-G	4,945	6,000	7,192	20%
Others	24	26	29	12%
Total	15,967	51,037	67,221	32%

Note: BE is budget estimate. RE is the revised estimate.
Sources: Demands for Grants 2022-23, Department of Drinking Water and Sanitation; PRS.

Jal Jeevan Mission

The Jal Jeevan Mission was launched in 2019 with the aim to provide Functional Household Tap Connection (FHTC) to every rural household by 2024.² It subsumed the National Rural Drinking Water Programme launched in 2009. The total estimated cost of JJM is Rs 3.6 lakh crore over five years (2019-24).²

In 2022-23, JJM has been allocated Rs 60,000 crore, which is a 33% increase over the revised estimate expenditure in 2021-22. After a reduction in expenditure on schemes related to drinking water coverage from 2015-16 to 2018-19, the expenditure on such schemes increased from 2019-20 onwards. There was a big jump in the last two years due to the launch of Jal Jeevan Mission (Figure 4).

Figure 4: Expenditure on Drinking Water schemes (in Rs crore)

Note: Value for 2021-22 is the revised estimate and 2022-23 is the budget estimate.

Sources: Union Budgets 2012-13 to 2022-23; PRS.

Target versus achievements: Before JJM, the coverage of the National Rural Drinking Water Programme (NRDWP) was monitored in terms of habitations having provision of minimum 40 Litres Per Capita Per Day (LPCD) of potable drinking water sources at a reasonable distance.

JJM (which subsumed NRDWP in 2019) aims to provide functional household tap connections to every rural household at a minimum service level of 55 LPCD.² Table 3 details the timeline of physical targets to be achieved under JJM.

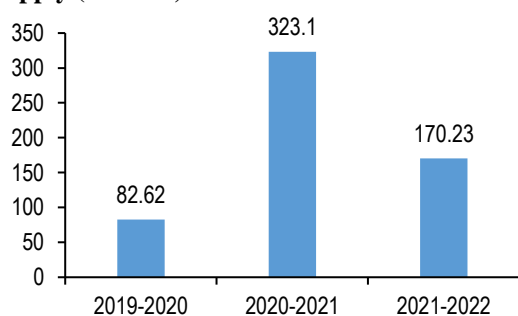
Table 3: Financial and physical targets of JJM

Year	FHTCs planned (in crore)	Estimated funds required (in Rs crore)	Total FHTCs planned (in %)
2019-20	4.03	36,000	21
2020-21	2.49	60,000	34
2021-22	3.83	1,00,000	54
2022-23	3.84	84,000	74
2023-24	3.06	80,000	90
Dec 31, 2024	1.93	-	100
Total	19.18	3,60,000	

Sources: The Standing Committee on Drinking Water and Sanitation (2020-21); PRS.

Jal Jeevan Mission was announced on August 15, 2019. As of that day, 3.23 crore (17% connections out of 18.93 crore rural households) households were reported to have tap water.^{7,8} As of February 2022, 8.99 crore households (47%) households were reported to have tap water connections.⁹ Figure 5 provides details on the yearly progress of the scheme.

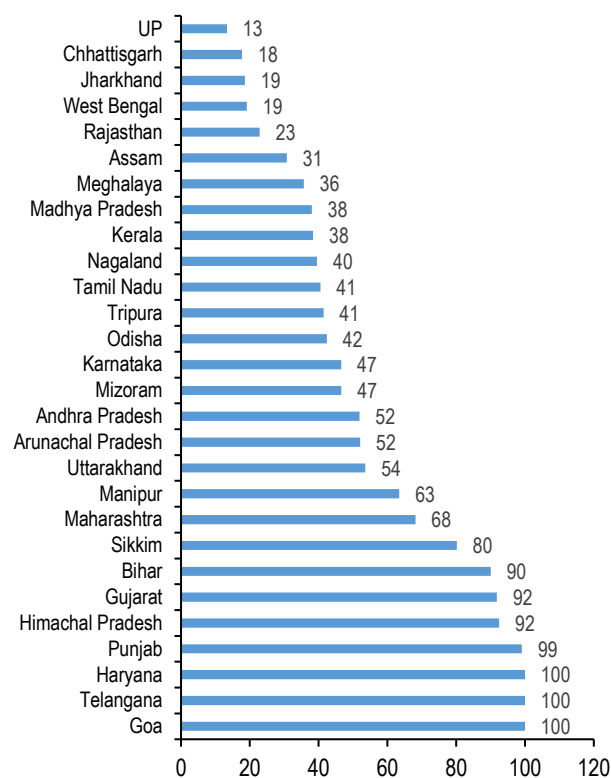
Figure 5: Households provided with tap water supply (in lakhs)



Sources: JJM Dashboard, Ministry of Jal Shakti; PRS

However, there is a wide disparity in tap water coverage across states (Figure 6). As of February 2022, only 7 states have a coverage of 90% and more since the start of the program depicting a wide state wise disparity.

Figure 6: Households with tap water connection since the start of JJM in February 2022 (in %)

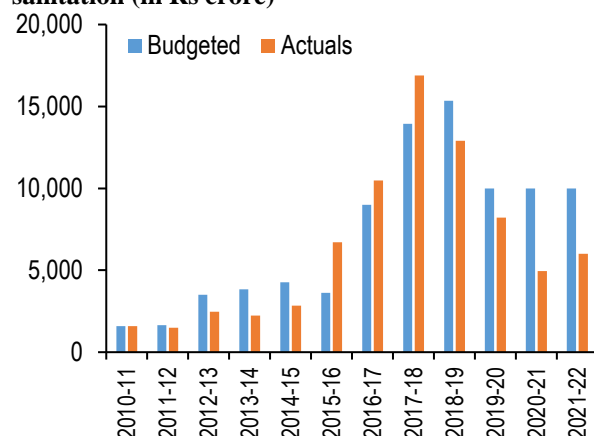


Sources: JJM Dashboard, Ministry of Jal Shakti; PRS

However, the Standing Committee on Drinking Water and Sanitation (2020-21) noted certain weaknesses in the implementation of the scheme including: (i) lack of participatory approach, (ii) inadequate financial resources, (iii) non-availability of technical human resources, and (iv) poor operation and maintenance of completed schemes.¹⁰ It recommended that effective strategies should be developed to monitor accomplished work. In March 2021, the Committee noted that the problem of unspent balances is more prominent under JJM than SBM-(G). The state-wise disparity in unspent balances is also prominent, specifically with states like West Bengal, Uttar Pradesh, and Rajasthan (see Table 5 in the Annexure).¹¹

Swachh Bharat Mission - Gramin

In 2014, the Swachh Bharat Mission (Gramin) was launched by restructuring the Nirmal Bharat Abhiyan.¹² The Mission aimed to achieve universal sanitation coverage, eliminate open defecation, and improve cleanliness in rural India by October 2, 2019.¹³ Figure 7 shows the trends in budget allocation and actual expenditure on rural sanitation in the past 10 years. The allocation for this year is Rs 7,192 crore.

Figure 7: Budgeted versus actual expenditure on sanitation (in Rs crore)

Note: The 'actuals' figure for 2021-22 is the revised estimate.
Sources: Union Budgets 2010-11 to 2022-23; PRS.

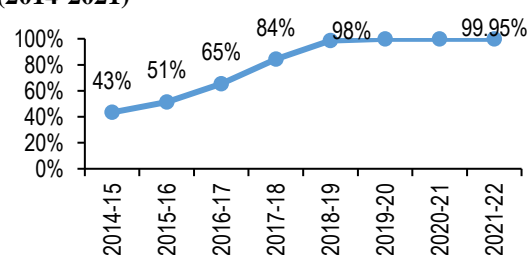
Except during 2015-18, the expenditure of the scheme was lower than the budgeted amount. The increased spending from 2015-16 to 2017-18 accounts for the launch of SBM-G and hence, renewed focus at improving rural sanitation. Note that the allocation towards the scheme has been the same since 2019-20 (Rs 9,994 crore). This year marks a decrease in this allocation (at Rs 7,192 crore). In 2019-20, the unspent balance on SBM-G from all states was cumulatively estimated to be Rs 10,475 crore.³ Table 5 in the Annexure provides a detailed state-wise analysis on unspent balances for SBM-G. In 2021, the Department stated that the under-utilisation has been due to the pattern of fund usage by the States. The Department also observed that funds available with the states at the end of a financial year are utilised by the states during the subsequent financial year, leading to accumulation of unspent balances.³

Key features of SBM-G:

Construction of Individual Household Latrines (IHHLs):

The cost provision for constructing a household toilet was increased from Rs 10,000 to Rs 12,000 in September 2014 when the Nirmal Bharat Abhiyan was restructured into SBM-G.¹⁴ This cost for constructing toilets is shared between the centre and the state in the ratio of 60:40. Table 5 gives the number of household toilets constructed since the inception of the scheme.

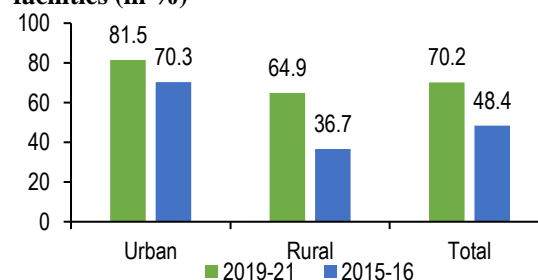
As per the Department, 100% of the rural households had access to IHHL in 2019-20.¹⁵ Figure 8 illustrates the total coverage of household toilets since the inception of the SBM programme.

Figure 8: Percentage of households with toilets (2014-2021)

Note: 2021-22 refers to data as of February 2022.
Sources: Management Information System Reports of SBM, Ministry of Jal Shakti; PRS.

The Economic Survey (2020-21) noted that sanitation access improved for all states between 2012 and 2018.³ However, inter-state differences in access to sanitation are still large, especially in rural areas. For example, access to sanitation is below 75% in states such as Odisha, Jharkhand, Uttar Pradesh, and West Bengal.³ The Standing Committee on Rural Development (2018-19) raised questions over the construction quality of toilets and observed that the government is including non-functional toilets while measuring access to toilets. This was leading to inflated data.¹⁶

From the data collected in 2019-21 for the National Family Health Survey, it was found that only 65% of the population in rural Indian households use improved sanitation facilities. This is an increase from 37% in 2015-16 (see Figure 9).¹⁷ Improved sanitation facilities refers to various types of flush/pit latrines toilets that are not shared with other households.

Figure 9: Population with improved sanitation facilities (in %)

Sources: National Family Health Survey 4 and 5; PRS

Open Defecation Free (ODF) villages: Under SBM-G, a village is declared as ODF when: (i) there are no visible faeces in the village, and (ii) every household as well as public institution uses safe technology options for faecal disposal.¹⁸

After a village declares itself as ODF, state governments are required to verify the ODF status of such a village. Such verification must include indicators such as: (i) access to a toilet facility and its usage, and (ii) safe disposal of faecal matter through septic tanks.

The guidelines for ODF state that since it is not a one-time process, at least two verifications must be carried out.¹⁹ The first verification must be carried out within three months of ODF declaration. The second verification must be carried out around six months after the first verification.

As per the Ministry of Jal Shakti, a total of 6,02,750 villages across 711 districts and 35 states and union territories have been declared as ODF as of February 2022.²⁰ Of these, 6,02,304 villages (99.5%) have been verified by state governments as ODF under the first level of verification.²⁰ Close to five lakh villages (83%) have been verified as ODF under the second level of verification.²¹ State-wise details on the number of villages declared and verified ODF can be found in the Annexure.

However, questions have been raised on the ODF status of villages. The 15th Finance Commission noted that the practice of open defecation is still prevalent, despite access to toilets. It highlighted that there is a need to sustain behavioural change of people for using toilets.²² The 15th Finance Commission recommended that an independent survey be instituted to estimate the prevalence of open defecation in the country. The Standing Committee on Rural Development raised a similar concern in 2018, noting that “even a village with 100% household toilets cannot be declared open defecation-free (ODF) till all the inhabitants start using them”.

In February 2020, the Department of Drinking Water and Sanitation launched Phase II of SBM-Gramin with focus on ODF Plus. It will be implemented from 2020-21 to 2024-25 with an outlay of Rs 1,40,881 crore. ODF Plus includes sustaining the ODF status, and solid and liquid waste management. Provisions for release of funds have been changed under this phase. The funds will be released in four portions - two portions in each of the two instalments. The second portion of each instalment will be released only after utilisation of 80% of the available funds. This has been done to avoid accumulation of unspent balances.³

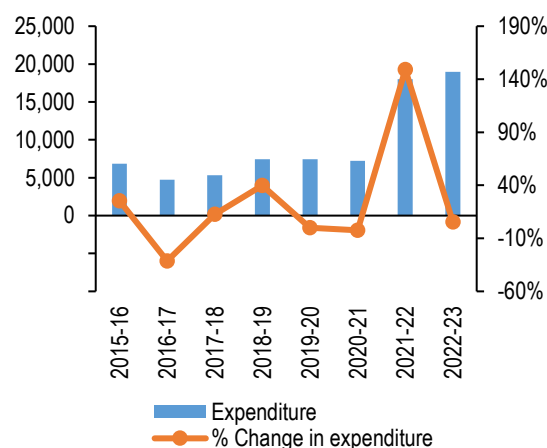
Department of Water Resources, River Development, and Ganga Rejuvenation

The Department of Water Resources, River Development, and Ganga Rejuvenation is responsible for: (i) planning and coordination of water resources in the country, (ii) monitoring of irrigation and flood control projects, (iii) supporting state level activities for ground water development, (iv) specific focus on Ganga rejuvenation related activities, and (iv) reduction of pollution and rejuvenation of rivers.²³

In 2022-23, the Department has been allocated Rs 18,968 crore, accounting for 22% of the Ministry’s

allocation. This is a 5% increase over the revised estimate of 2021-22. Note that, in 2021-22, the revised estimate is 100% higher than the budget estimates (from Rs 9,023 crore to Rs 18,009 crore). The was due to allocations for: (i) Accelerated Irrigation Benefit programme, which was earlier funded through loans from NABARD, and (ii) interlinking Ken-Betwa rivers.

Figure 10: Expenditure by the Department of Water Resources, River Development, and Ganga Rejuvenation over the years (Rs crore)



Note: Values for 2021-22 and 2022-23 are revised estimates and budget estimates respectively.
Sources: Union Budgets 2015-16 to 2022-23; PRS.

Schemes under Department of Water Resources, River Development, And Ganga Rejuvenation

In 2022-23, 58% of the Department’s expenditure is estimated to be on the Pradhan Mantri Krishi Sinchai Yojna. This is followed by the Namami Gange (15%), Water Resources Management (9%), and Interlinking of Rivers (7%). Interlinking of Rivers comprises the allocation towards the Ken-Betwa Link Project, which was approved by Union Cabinet in December 2021.²⁴ The project aims to provide: (i) irrigation benefits to 9.08 lakh hectare of farmers’ lands, (ii) drinking water supply for 62 lakh people, and (iii) 103 MW of Hydro and 27 MW of solar power. Total outlay on the project is estimated to be Rs 44,605 crore. It is estimated to be completed in eight years.²⁵ The project has been allocated Rs 4,300 crore at the revised stage in 2021-22. In 2022-23, the total allocation towards the scheme is Rs 1,400 crore.

Table 4: Allocation to the Department of Water Resources (in Rs crore)

Major Head	Actuals (20-21)	Revised (21-22)	Budgeted (22-23)
PM Krishi Sinchai Yojna	4,376	9,489	10,952
Namami Gange	500	1400	2800
Water Resources Management	345	632	1,790
Interlinking of Rivers	-	4,300	1,400
Namami Gange	500	1400	2800
Central Water Commission	353	376	411
Central Ground Water Board	233	272	282
Others	444	427	528
Total	7,232	18,009	18,968

Note: BE is budget estimate. RE is the revised estimate. Others include central sector projects such as river basin management, and major irrigation projects.

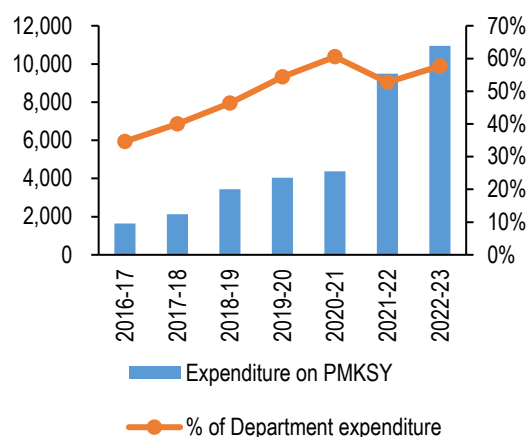
Sources: Demands for Grants 2022-23, Department of Water Resources, River Development, and Ganga Rejuvenation; PRS.

Pradhan Mantri Krishi Sinchai Yojna

The Economic Survey (2016-17) highlighted that 52% of the total net sown area in India is unirrigated and depends on rainfall for cultivation.²⁶ It noted that when rainfall is significantly less than usual, the unirrigated areas face higher adverse effects than the irrigated areas. Therefore, it recommended that irrigation coverage in the country needs to be increased.²⁶

The Pradhan Mantri Krishi Sinchai Yojana (PMKSY) was launched in 2015-16.²⁷ The scheme seeks to: (i) expand coverage of irrigation, (ii) improve water use efficiency on farms, and (iii) introduce sustainable water conservation practices.²⁸ The Ministry of Jal Shakti implements the following components of the scheme: (i) PMKSY – Har Khet Ko Pani, (ii) Flood Management, and (iii) Borders Area Programme.²⁷ The scheme has two other components which are implemented by other ministries: (i) Per Drop More Crop by the Ministry of Agriculture and Farmers' Welfare, and Watershed Management Component under the Ministry of Rural Development.²⁹ Figure 6 shows the expenditure on the scheme from 2016-17 to 2022-23 under the demands of the Department. Its share in the Department's expenditure is estimated to increase from 35% in 2016-17 to 58% in 2022-23.

The Standing Committee on Water Resources (2021-22) pointed out to the Department that almost 40% of the total allocation of the Department in 2021-22 had been kept for repayment of loans and other liabilities under PMKSY.³⁰ It noted that this increased committed liability was leaving decreased amounts for various other schemes under the Department.

Figure 11: Expenditure on PMKSY over the years (in Rs crore)

Note: Estimate for 2021-22 are revised estimates and 2022-23 are budget estimates.

Sources: Union Budgets 2016-17 to 2022-23; PRS.

Har Khet ko Pani: This scheme's objectives include: (i) creation of new water sources, (ii) restoration and repair of traditional water bodies, (iii) command area development, and (iv) strengthening of distribution network from irrigation sources to the farm.^{31,32} Some components of Har Khet ko Pani are:

- **Accelerated Irrigation Benefit Programme (AIBP):** Under this scheme, financial assistance is being provided for faster completion of irrigation projects. As of February 2022, 46 projects (43%) out of the 106 projects selected under the scheme have been completed.³³ In February 2022, the Ministry noted that no new projects have been included under PMKSY- AIBP since 2018.²¹ Further, 23 projects (20%) projects are facing constraints such as land acquisition, legal, and contractual issues.³²
- **Command Area Development and Water Management Programme:** The objective of the program is to enhance utilisation of irrigation potential created. This is achieved through activities such as construction of field channels, land levelling, and reclamation of waterlogged area.³⁴ As of March 2021, there are 88 projects under the programme, of which only 18 (21%) have achieved more than 50% physical progress.³⁵

Issues to consider

Flood Management

The National Water Policy (2012) noted that climate change has deepened incidences of water related disasters such as floods, increased erosion, and increased frequency of droughts.³⁶ The central government supports states by providing financial assistance for undertaking flood management

works in critical areas through the Flood Management and Border Areas Programme. From 2017-18 to 2019-20, central assistance of Rs 2,022 crore has been released under the scheme.³⁷

Under flood management component of PMKSY scheme, as of March 2020, 14 projects of the 83 sanctioned projects had been completed.³⁸ Major issues faced while implementing the scheme include acquisition of land for the project, legal problems, non-release of state share, and inadequate budget allocation.³⁹ The Standing Committee on Water Resources (2020-21) noted the delay in completion of projects and recommended that the Department resolve the underlying factors for such delay.³⁸

Further, in August 2021, the Standing Committee on Water Resources recommended establishing a National Integrated Flood Management Group under the Ministry of Jal Shakti as an overarching body responsible for flood management.⁴⁰ The group may include concerned ministers of state governments and meet at least once a year. It should be responsible for: (i) formulating strategies on prevention and mitigation of flooding, and (ii) supervising management of floods, including aspects controlled by states or local governments and which are under international linkages. The Committee noted that central government's share in funding of flood management programmes has reduced from 75% to 50% for general states and from 90% to 70% for special category states. The Committee recommended increasing central government's funding share in flood management schemes and providing adequate budgetary support for it.⁴⁰

Conservation and Rejuvenation of rivers

The National Water Policy (2012) highlights that water is a scarce natural resource for food security and sustainable development.⁴¹ In the Union Budget of 2019-20, clean rivers had been recognised as one of the ten vision points for the decade. The Expert committee on restructuring the CWC and CGWB (July 2016) notes that rivers and ground water in India have been polluted by untreated effluents and sewage.⁴² Further, over-extraction of groundwater in the immediate vicinity of a river and destruction of catchment areas, have negatively impacted river flows in India.⁴³

The Ministry of Jal Shakti implements the Namami Gange Mission with the objective of rejuvenation of river Ganga and its tributaries through municipal sewage and industrial effluents treatment, river surface cleaning, and rural sanitation.⁴⁴ As of February 2022, 183 (55%) of the 334 projects sanctioned under the Mission have been completed.⁴⁵

The scheme was launched in 2014 with a proposed budget outlay of Rs 20,000 crore for the period 2015-2020.⁴⁶ During the period 2015-16 to 2020-21, only Rs 4,016 crore (20% of the allocation at the budget stage) has been spent under the programme.⁴⁶ In 2022-23, the scheme has been allocated Rs 2,800 crore, which is 50% more than the revised estimate of 2021-22. Table 7 shows the trends in budget allocation and actual expenditure on Namami Gange from 2015-16. Note that the utilisation under the scheme has remained less than 65% since the scheme started except in 2021-22.

Table 7: Budgeted versus actual expenditure on Namami Gange (in Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2015-16	-	100	-
2016-17	-	1,675	-
2017-18	2,300	700	30%
2018-19	2,300	688	30%
2019-20	750	353	47%
2020-21	800	500	62%
2021-22	600	1,400	233%

Note: The 'actuals' figure for 2021-22 is the revised estimate. Sources: Union Budgets 2015-16 to 2022-23; PRS.

As of 2017, National Mission for Clean Ganga had not finalised the long-term action plans even after more than 6.5 years of signing of agreement with the consortium of Indian Institutes of Technology.⁴⁷ As a result, National Mission for Clean Ganga does not have a river basin management plan after more than eight years of National Ganga River Basin Authority notification.

The Standing Committee on Water Resources (2020-21) noted that the implementation of the programme does not meet the targets.³⁸ Some key bottlenecks affecting the implementation of projects include: (i) delay in tendering process, (ii) non-availability of land for sewage treatment plants leading to delay in execution of projects, and (iii) under-utilisation of sewage treatment plants' capacities due to inadequate house sewer connections in cities, among others.⁴⁸ Further, in response to the Committee's observations, the Ministry of Jal Shakti responded (in February 2021) that the COVID-19 pandemic and consequent lockdown had slowed the progress of the projects due to unavailability of labor.⁴⁹

Inter-linking of rivers

Inter-linking of rivers through inter-basin transfer of water was first considered in 1980 by the National Perspective Plan (NPP). Inter-linking of rivers is referred to as the development of water resources through the transfer of water from water surplus basins to water-deficit basins.⁵⁰

Under the NPP, the National Water Development Agency (NWDA) identified 30 links for rivers (16 under the peninsula region and 14 under the

Himalayan projects). The Inter Linking of Rivers (ILR) programme under NPP has been allocated Rs 4,300 crore at the revised stage in 2021-22 despite no allocation to in the initial budget. For 2022-23, Rs 1,400 crore have been allocated to the project on account of the implementation of the Ken-Betwa Link Project.

The Ken-Betwa Link Project (KBLP) was declared as a National Project in the 2009. It entails 60:40 funding divide from the union government and state Governments (Madhya Pradesh and Uttar Pradesh).⁵¹ The project will be implemented this year at an estimated outlay of Rs 44,605 crore.

In the Union Budget speech 2022-23, it was declared that draft detailed project reports (DPRs) of five river links have also been finalized. These river links are: (i) Damanganga-Pinjal, (ii) Par-Tapi-Narmada, (iii) Godavari-Krishna, (iv) Krishna-Pennar, and (v) Pennar-Cauvery.⁵² At the time of preparation of DPR of the individual river link projects, detailed Environmental Impact Assessment (EIA) studies are carried out.⁵³ EIA study includes impacts on land environment, water resources, terrestrial ecology, impact on air quality, and impact on local services (such as water supply, community forests, and impact on business opportunities). Once the beneficiary states of the river-linking reach a consensus on the findings from the DPR, the central government will provide assistance for implementation of the five-river links.

In the environmental assessment for the Ken-Betwa Link Project, it was pointed out that the construction of the dam across the Ken River will submerge 9,000 hectares of land.⁵⁴ Out of this, forest land accounts for 5,258 hectare (58% of the land) and the rest belongs to agricultural lands, settlements, scrubs and water bodies. Ten villages are also likely to be submerged. Note that, the area of Panna National Park (tiger reserve) accounts for about 79% of total forest area under submergence.⁵⁴

As per the EIA, during the implementation of the Ken-Betwa project, the air quality in the surrounding area of the dam will also be significantly impacted due to diesel combustion in various equipment, and release of Sulphur pollutants in the air.⁵⁴ The project also proposes that construction material (such as sand, gravel and stones) will be excavated from the river bed. This may lead to rise in the turbidity levels of the river, and hence, significantly decrease the river quality.⁵⁴ Further, a total of 3,800 workers will be emigrated for the project. The scarcity of water in the houses and the absence of sanitary facilities in labour camps could be responsible for increased prevalence of gastro-enteritis and other water-borne diseases.⁵⁴

Ground water depletion

Currently, ground water resources accounts for over 60 percent of the total area irrigated in the country. About 85% of the rural drinking water supply is also met from ground water sources.⁵⁵

As of 2021, while the national level usage of ground water resources was at 63%, there were eight States/UTs where this value was higher than the target of 70%.⁵⁶ However, of 534 districts in 22 States/UTs, 202 districts had stage of extraction ranging from 71% to 385%.

However, note that ground water development is not uniform across states in India. It has exceeded 100% in some states such as Delhi (120%), Haryana (137%), Rajasthan (140%), and Punjab (166%).⁵⁷ This implies that the annual ground water utilisation in these states is higher than the net annual ground water availability. The status of ground water development ratio across states is provided in the Annexure. The Planning Commission in its 12th Five-Year Plan had noted that India is fast moving towards a ground water crisis and nearly 60% of all districts in the country have issues related to either availability of ground water, or quality of ground water, or both.⁵⁸

The ground water management and regulation scheme was launched in 2008 with the aim to regulate and control the development of ground water resources of the country.⁵⁹ Further, the Atal Bhujal Yojana was launched in April 2020 for sustainable management of ground water resources through a strong ground water database and community participation in the sector.⁶⁰ In April 2021, the Central Ground Water Board (CGWB) under the Ministry also released the Master Plan For Artificial Recharge To Groundwater In India – 2020.⁶¹ The plan identifies state-wise areas for artificial recharge, structures available and their estimated cost. It recommends alternatives to harness the run off from rain.

Over the years, ground water usage has increased in areas where the resource was readily available due to its near universal availability, dependability, and low capital cost. Agriculture sector is the major consumer of ground water resources with about 89% of the total annual ground water extraction being used for irrigation (remaining 11% for domestic and industrial use).⁶² Government incentives such as credit for irrigation and subsidies for electricity supply have further increased the dependency of agriculture on ground water.⁶³

The NITI Aayog (2019) highlighted that in regions with declining water tables, policies that limit MSPs and subsidies for water-intensive crops (such as sugarcane, wheat, and rice), can significantly reduce water demand from the agriculture sector.⁶⁴ Further, providing better price support for crops

such as pulses and oilseeds (which require less water) would incentivise the production of these crops.⁶⁵

The 15th Finance Commission noted that under the Jal Jeevan Mission, 63% of rural habitations are being provided piped water supply from ground water sources.⁶⁶ It highlighted that this will become unsustainable, given the highly depleted water table in the country. The Commission recommended the following to reduce the dependence on ground water: (i) fixing price on water on graded basis, where higher consumption entails higher charges, (ii) greater reliance on surface water for schemes such as Jal Jeevan Mission, (iii) incentivising creation of rainwater harvesting structures (including stricter implementation of laws), and (iv) reuse of greywater (that is, clean waste water from households' appliances).⁶⁶

Ground water contamination

Ground water contamination is the presence of certain pollutants in ground water that are in excess of the limits prescribed for drinking water.⁶⁷ The Central Ground Water Board (CGWB) in 2018 noted that concentration of contaminants such as fluoride, arsenic, nitrate, and iron in ground water beyond the permissible limits can lead to environmental issues and health problems. In December 2021, the Ministry of Jal-Shakti also noted that CGWB is conducting regular studies on the occurrence of arsenic in ground water beyond permissible limits for human consumption in isolated pockets in various states/UTs including West Bengal, Bihar, Uttar Pradesh, and Chhattisgarh.⁶⁸ Table 8 shows the number of states and districts affected by select geogenic contaminants as of 2020.

Table 8: States and districts affected by geogenic contamination in ground water (2020)

Geogenic contaminants	Number of affected states/UTs	Number of affected districts
Arsenic (> 0.01 mg/l)	21	152
Fluoride (> 1.5 mg/l)	23	370
Nitrate (> 45 mg/l)	23	423
Iron (> 1mg/l)	27	341

Source: Unstarred Question 1944, Lok Sabha, Ministry of Jal Shakti, September 22, 2020; PRS.

As of February 2020, 3% (51,952) of the total habitations (17,24,423) in India were affected by contamination of ground water.⁶⁶

The 15th Finance Commission noted that the number of water quality-affected habitations (due to contamination such as Fluoride, Arsenic, Iron, Salinity, and Nitrate) may rise as deeper drilling for drinking water sources may lead to chemical contamination of ground water.⁶⁶

The National Water Quality Sub-Mission was launched in March 2017 to provide safe drinking water to 27,544 arsenic/fluoride affected rural habitations in the country, over a span of four years.³⁹ The Standing Committee on Water Resources (2019-20) observed that out of these habitations, 11,884 habitations (43%) have been covered under the scheme. 4,100 habitations (15%) have seen an improvement in quality on retesting or have been covered under a state plan.³⁹ In December 2021, the Ministry noted that water is a state subject and hence, initiatives on water quality is primarily states' responsibility.⁶⁹ They also listed various steps that have been taken by the central government for providing contamination free water, such as, giving 10% weightage to the population residing in habitations affected by chemical contaminants including arsenic and fluoride while allocating the funds to states/ UTs in a financial year for JJM.⁶⁹ Further, CGWB has constructed arsenic safe exploratory wells in West Bengal, Bihar and Uttar Pradesh by using cement sealing technique. 510 such wells were constructed as of December 2021, including 40 in Bihar, 185 in West Bengal and 285 in Uttar Pradesh and handed over to the states for use.⁶⁹

Annexure

Table 5: State-wise unspent balances on SBM and JJM (in Rs crore)

State/UT	Unspent Balances under SBM-G		Unspent Balances under JJM	
	2018-19	2019-20	2018-19	2019-20
Andhra Pradesh	987	1,035	26	277
Arunachal Pradesh	15	40	6	58
Assam	639	542	359	452
Bihar	1,105	1,202	313	257
Chhattisgarh	406	377	32	58
Goa	2	2	-	-
Gujarat	399	476	-	6
Haryana	127	161	10	91
Himachal Pradesh	87	72	-	8
Jharkhand	506	551	76	268
Karnataka	601	561	27	80
Kerala	53	183	3	41
Madhya Pradesh	508	310	1	246
Maharashtra	906	574	248	285
Manipur	40	19	-	63
Meghalaya	72	36	1	17
Mizoram	21	8	0	31
Nagaland	1	17	-	35
Odisha	505	1,253	1	91
Punjab	164	243	103	257
Rajasthan	841	714	314	995
Sikkim	7	3	1	12
Tamil Nadu	465	231	1	264
Telangana	278	243	4	31
Tripura	62	63	49	136
Uttar Pradesh	1,187	758	58	932
Uttarakhand	100	132	6	67
West Bengal	530	544	761	1,147
Total	10,684	10,475	2,436	6,432

Sources: Standing Committee on Demand for Grants (2020-21), Department of Drinking Water and Sanitation, Ministry of Jal Shakti; PRS

Table 6: State-wise ODF declared and verified villages (as of 2019-2020)

State	Total Villages	Total declared ODF	Total Verified (1 st level)	Total Verified (2 nd level)	% Verified 2 nd level
Andaman and Nicobar Islands	192	192	192	192	100%
Andhra Pradesh	18,841	18,841	18,841	18,819	100%
Arunachal Pradesh	5,389	5,389	5,389	5,389	100%
Assam	25,503	25,503	25,503	15,245	60%
Bihar	38,691	38,691	37,317	-	-
Chandigarh	13	13	13	-	-
Chhattisgarh	18,769	18,769	18,769	18,769	100%
Dadar and Nagar Haveli and Daman and Diu	95	95	95	95	100%
Goa	365	365	18	-	-
Gujarat	18,261	18,261	18,261	18,261	100%
Haryana	6,908	6,908	6,908	6,908	100%
Himachal Pradesh	15,921	15,921	15,921	10,326	65%
Jammu and Kashmir	7,263	7,263	7,195	-	-
Jharkhand	29,564	29,564	29,333	164	1%
Karnataka	27,044	27,044	26,900	-	-
Kerala	2,027	2,027	2,027	2,027	100%
Ladakh	302	302	302	5	2%
Lakshadweep	9	9	9	-	-
Madhya Pradesh	50,228	50,228	50,228	3	0%
Maharashtra	40,533	40,511	40,505	-	-
Manipur	2,556	2,556	2,556	-	-
Meghalaya	6,028	6,028	6,028	2,101	35%
Mizoram	696	696	696	537	77%
Nagaland	1,451	1,451	1,142	-	-
Odisha	46,785	46,785	46,785	-	-
Puducherry	265	265	265	265	100%
Punjab	13,726	13,726	13,700	13,700	100%
Rajasthan	42,860	42,860	42,860	-	-
Sikkim	403	403	403	382	95%
Tamil Nadu	12,525	12,524	12,524	-	-
Telangana	14,200	14,200	14,149	6,822	48%
Tripura	1,178	1,178	646	142	12%
Uttar Pradesh	97,640	97,640	97,623	23,213	24%
Uttarakhand	15,473	15,473	15,473	14,340	93%
West Bengal	41,461	41,461	41,377	22,362	54%
Total	6,03,165	6,03,142	5,99,953	1,79,945	30%

Sources: Management Information System Reports of SBM; PRS.

Table 7: Status of level of ground water development across states (2017)

State	Ground water development resources (%)
Andhra Pradesh	44
Arunachal Pradesh	0
Assam	11
Bihar	46
Chhattisgarh	44
Delhi	120
Goa	34
Gujarat	64
Haryana	137
Himachal Pradesh	86
Jammu & Kashmir	29
Jharkhand	28
Karnataka	70
Kerala	51
Madhya Pradesh	55
Maharashtra	55
Manipur	1
Meghalaya	2
Mizoram	4
Nagaland	1
Odisha	42
Puducherry	74
Punjab	166
Rajasthan	140
Sikkim	0
Tamil Nadu	81
Telangana	65
Tripura	8
Uttar Pradesh	70
Uttarakhand	57
West Bengal	45
Total	63

Note: Total includes union territories; data as of 2017.

Sources: Dynamic Ground Water Resources of India, 2017, Central Ground Water Board; PRS.

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