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Report No: ICR00004899

**IMPLEMENTATION COMPLETION AND RESULTS REPORT**

Credit No. 5027-IN

ON A

CREDIT

IN THE AMOUNT OF SDR 98 MILLION

(US\$ 136.2 MILLION EQUIVALENT)

TO THE

REPUBLIC OF INDIA

FOR THE

SECOND KERALA RURAL WATER SUPPLY AND SANITATION PROJECT (JALANIDHI II)

December 20, 2019

Water Global Practice  
Sustainable Development  
South Asia Region

## CURRENCY EQUIVALENTS

(Exchange Rate Effective June 28, 2019)

Currency Unit = Indian Rupees

INR 68.9403 = US\$1

US\$ 1.390210 = SDR 1

## FISCAL YEAR

April 1 – March 31

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## ABBREVIATIONS AND ACRONYMS

BG	Beneficiary Group	LSGD	Local Self Government Department
CAPEX	Capital Expenditure	M&E	Monitoring and Evaluation
CPF	Country Partnership Framework	MIS	Management Information System
CSES	Centre for Socio-economic and Environmental Studies	MTR	Midterm Review
EDS	Environmental Data Sheets	NARSS	National Annual Rural Sanitation Survey
EIRR	Economic Internal Rate of Return	NGO	Nongovernmental Organization
ESMF	Environmental and Social Management Framework	NPV	Net Present Value
FM	Financial Management	NRDWP	National Rural Drinking Water Program
FMIS	Financial Management Information System	O&M	Operations and Maintenance
GIS	Geographic Information System	OCR	Optical Character Recognition
Gol	Government of India	ODF	Open Defecation Free
GoK	Government of Kerala	PAD	Project Appraisal Document
GP	<i>Gram Panchayat</i> (Village level local government)	PDO	Project Development Objective
GPAT	<i>Gram Panchayat</i> Action Team	PMU	Project Management Unit
GPST	<i>Gram Panchayat</i> Support Team	RKI	Rebuild Kerala Initiative
GST	Goods and Service Tax	RPMU	Regional Project Management Unit
ICR	Implementation Completion and Results Report	RWS	Rural Water Supply
IFR	Interim Financial Report	RWSS	Rural Water Supply and Sanitation
INR	Indian Rupee	SBM	Swachh Bharat Mission
ISR	Implementation Status and Results Report	SCADA	Supervisory Control and Data Acquisition
IVA	Independent Verification Agency	SDM	Service Delivery Monitoring
JIMS	<i>Jalanidhi</i> Information Management System	SEE	Sustainability Evaluation Exercise
KINFRA	Kerala Industrial Infrastructure Development Corporation	SLWM	Solid and Liquid Waste Management
KL	Kilo Liters	SO	Support Organization
KRWSA	Kerala Rural Water Supply and Sanitation Agency	TA	Technical Assistance
KTHSM	Kerala Total Sanitation and Health Mission	WRD	Water Resources Department
KWA	Kerala Water Authority	WRI	Wage Rates for Rural India

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**DATA SHEET**

**BASIC INFORMATION**

**Product Information**

Project ID	Project Name
P121774	Second Kerala Rural Water Supply and Sanitation Project (Jalanidhi II)
Country	Financing Instrument
India	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	Partial Assessment (B)

**Organizations**

Borrower	Implementing Agency
Republic of India	KRWSA

**Project Development Objective (PDO)**

Original PDO
The development objective of the proposed project is to increase the access of rural communities to improved and sustainable water supply and sanitation services in Kerala, using a decentralized, demand-responsive approach.
PDO as stated in the legal agreement
The objective of the project is to increase the access of rural communities in Kerala to improved and sustainable water supply and sanitation services, using a decentralized, demand-responsive approach.



**FINANCING**

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
<b>World Bank Financing</b>			
IDA-50270	155,300,000	155,300,000	134,994,372
<b>Total</b>	<b>155,300,000</b>	<b>155,300,000</b>	<b>134,994,372</b>
<b>Non-World Bank Financing</b>			
Borrower/Recipient	46,200,000	46,200,000	37,860,000
Local Govts. (Prov., District, City) of Borrowing Country	39,700,000	39,700,000	31,280,000
<b>Total</b>	<b>85,900,000</b>	<b>85,900,000</b>	<b>69,140,000</b>
<b>Total Project Cost</b>	<b>241,200,000</b>	<b>241,200,000</b>	<b>204,134,372</b>

**KEY DATES**

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
15-Dec-2011	17-Apr-2012	20-Mar-2015	30-Jun-2017	28-Jun-2019

**RESTRUCTURING AND/OR ADDITIONAL FINANCING**

Date(s)	Amount Disbursed (US\$M)	Key Revisions
28-Jun-2016	62.85	Change in Results Framework Change in Components and Cost Change in Loan Closing Date(s) Reallocation between Disbursement Categories
26-Nov-2018	119.24	Change in Loan Closing Date(s)

**KEY RATINGS**

Outcome	Bank Performance	M&E Quality
Moderately Satisfactory	Moderately Satisfactory	Substantial

**RATINGS OF PROJECT PERFORMANCE IN ISRs**

<b>No.</b>	<b>Date ISR Archived</b>	<b>DO Rating</b>	<b>IP Rating</b>	<b>Actual Disbursements (US\$M)</b>
01	24-Jun-2012	Moderately Satisfactory	Moderately Satisfactory	0
02	01-Jan-2013	Satisfactory	Moderately Satisfactory	0
03	22-Jun-2013	Satisfactory	Moderately Satisfactory	1.11
04	30-Nov-2013	Moderately Satisfactory	Moderately Unsatisfactory	2.63
05	16-Jun-2014	Moderately Unsatisfactory	Moderately Unsatisfactory	4.94
06	18-Oct-2014	Moderately Unsatisfactory	Moderately Unsatisfactory	15.87
07	15-May-2015	Moderately Satisfactory	Moderately Unsatisfactory	26.43
08	25-Jun-2015	Moderately Satisfactory	Moderately Satisfactory	33.71
09	15-Dec-2015	Moderately Satisfactory	Moderately Satisfactory	45.28
10	17-May-2016	Moderately Satisfactory	Moderately Satisfactory	58.71
11	12-Oct-2016	Moderately Satisfactory	Satisfactory	68.63
12	10-Apr-2017	Moderately Satisfactory	Satisfactory	80.23
13	10-Nov-2017	Moderately Satisfactory	Moderately Satisfactory	96.65
14	07-May-2018	Moderately Satisfactory	Moderately Satisfactory	109.47
15	22-Oct-2018	Moderately Satisfactory	Moderately Satisfactory	118.08
16	30-Jan-2019	Moderately Satisfactory	Moderately Satisfactory	119.24
17	19-May-2019	Moderately Satisfactory	Moderately Satisfactory	124.92



**SECTORS AND THEMES**

**Sectors**

Major Sector/Sector (%)

**Water, Sanitation and Waste Management 100**

Sanitation 30

Water Supply 59

Public Administration - Water, Sanitation and Waste Management 11

**Themes**

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)

**Urban and Rural Development 89**

Rural Development 89

Rural Infrastructure and service delivery 89

**Environment and Natural Resource Management 11**

Water Resource Management 11

Water Institutions, Policies and Reform 11

**ADM STAFF**

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## I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

### A. CONTEXT AT APPRAISAL

#### Context

- In 2010, the Government of India (GoI) was promoting demand-responsive sector reforms in Rural Water Supply and Sanitation (RWSS).** Despite India spending US\$2 billion annually to improve access to RWSS,<sup>1</sup> there was a considerable gap between infrastructure and service availability at the household level. The GoI had piloted two demand-responsive reform programs to improve the functionality and sustainability of water supply schemes by decentralizing service delivery and community participation: Sector Reform Project and *Swajaldhara* Program. The progress of these programs varied across States, owing to challenges in establishing institutional arrangements, building capacity, financing gaps, and tracking service delivery performance. The GoI's National Rural Drinking Water Program (NRDWP), launched in 2009, envisaged that *Panchayati Raj* institutions<sup>2</sup> and communities would be at the center of the RWSS decision-making process.
- Kerala's RWSS institutional arrangements went through considerable changes from the late 1990s.** The Kerala Water Authority (KWA), an autonomous authority with the head of the Water Resources Department (WRD) as the chairperson, was the main State sector institution for the design, implementation, and operation of water supply schemes. It focused on building large supply-driven piped water schemes, which had placed a huge burden on operations and maintenance (O&M) costs with poor cost recovery. Many gram panchayats (GPs) were left uncovered or partially covered and scheme operations with intermittent and unpredictable water supply rarely satisfied end users. With its decentralization initiative, the Government of Kerala (GoK) took a major policy decision in 1997 to entrust GPs with responsibility for rural water supply and transfer all single-GP water schemes to GPs with concomitant powers to levy and collect user charges for services. The Kerala Rural Water Supply and Sanitation Agency (KRWSA) was created under the WRD to implement the World Bank-supported program, *Jalanidhi*. In 2006, the *Suchithwa Mission* (Sanitation Mission) was created under the Local Self Government Department (LGSD) to support the local governments to improve sanitation coverage.
- While Kerala had successfully demonstrated decentralization of functions, powers and resources to improve infrastructure and services, no considerable change in the water sector resulted.** Despite the policy decision to devolve water supply responsibilities, most of the local governments continued to depend on KWA for water supply services, mainly due to capacity and financial constraints. On the other hand, KWA continued to develop more infrastructure with funding from the GoI and the GoK.
- Decades of top down supply driven investments failed to yield outcomes that were commensurate with the level of investment.** The State improved habitations with RWS coverage from 58.6 percent in 2003 to around 67.7 percent by 2010.<sup>3</sup> Nevertheless, Census 2011 revealed that only about 24 percent of the households had access to piped water supply while most of the households relied on other sources such as dug wells or borewells. Only part of the population in the covered area was connected to piped water supply because schemes were implemented without considering demand, inefficient systems and or poor service standards.
- By 2010, Kerala had achieved impressive coverage of household sanitation, but environmental sanitation challenges remained.** About 95 percent of rural households had access to a toilet facility and 87 percent of GPs had achieved 'open defecation free' (ODF) status. Residual sanitation challenges included a growing problem of solid and liquid waste management (SLWM) in urbanizing rural areas, covering last-mile household sanitation gap, safe management of fecal sludge from septic tanks, and improving drainage.

<sup>1</sup> Project Appraisal Document (PAD).

<sup>2</sup> *Panchayati Raj* is a system of decentralized governance. A GP (village-level local government) is the basic unit.

<sup>3</sup> This represents habitations having access of 40 lpcd water including piped water supply and wells, as reported by the KWA.

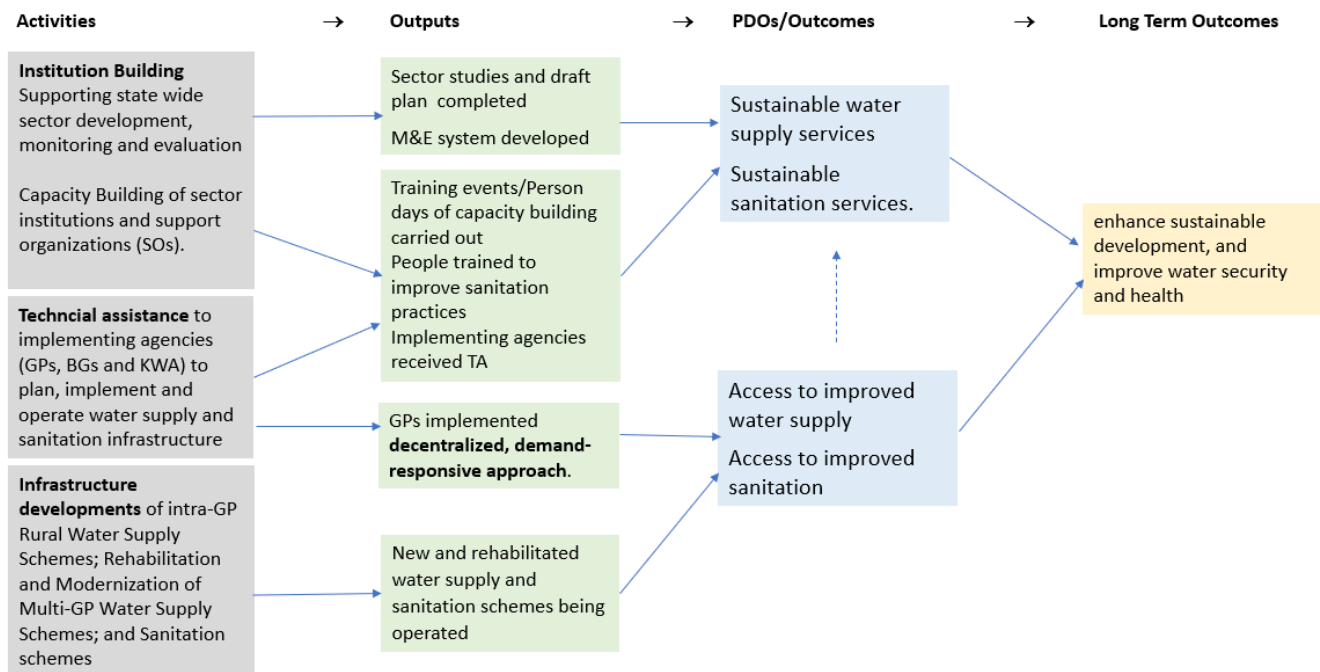


6. The GoK had pioneered RWSS reforms through the World Bank-financed *Jalanidhi I* project (Credit 3431-IN), which demonstrated a decentralized demand-responsive approach, but some key sector issues remain unaddressed. The approach is characterized by demand driven planning, beneficiary participation, capital cost contributions from communities and the GPs, household connection provision and full O&M cost recovery from user fees. The project, implemented in 112 (or 11 percent) of the State’s GPs during 2001 to 2008, represented a shift from the traditional top-down approach to decentralized, bottom-up investment achieving satisfactory service delivery<sup>4</sup>. However, the sector still faced many challenges which included (a) emergence of water-stressed areas, (b) increasing numbers of ‘slipped back’ habitations, (c) continued dependence on private open wells that dry up in summer, and (d) water quality issues. The lack of reliable data and inconsistent implementation responsibilities worsened the situation. There were about 1,000 rural schemes operated by the KWA that required ownership and management transfer to GPs, according to the decentralization initiative of the GoK. Also, the KWA managed multi-GP schemes needed service improvement in terms of efficiency, non-revenue water, and overall performance. With the support of the World Bank, the State designed<sup>5</sup> *Jalanidhi II* to scale up a demand-responsive approach and explore strategies to address the main sector issues.

**Theory of Change (Results Chain)**

7. The Theory of Change is illustrated in Figure 1.

Figure 1. Theory of Change



Note: BG = Beneficiary Group; SO = Support Organization; M&E = Monitoring and Evaluation; TA= Technical Assistance

8. **Key assumptions:** (a) sufficient demand and ownership of GPs and communities to implement decentralized water supply schemes; this assumption was proven valid under *Jalanidhi I*; (b) BGs and GPs would be able to operate the schemes by generating adequate revenue through tariffs; (c) sufficient Support Organizations (SO) would show interest and attract experienced professionals; (d) beneficiaries would use the water and sanitation services.

<sup>4</sup> The Implementation Completion and Results Report (ICR) of *Jalanidhi I* reported that 90 percent of the users were satisfied.

<sup>5</sup> Key changes and improvements of *Jalanidhi-II* from *Jalanidhi-I* are detailed in paragraph 49



### Project Development Objectives (PDO)

9. The PDO was to increase the access of rural communities in Kerala to improved and sustainable water supply and sanitation services, using a decentralized, demand-responsive approach.

### Key Expected Outcomes and Outcome Indicators

10. The PDO will be unpacked into four key outcomes: (a) access to improved water supply, (b) access to improved sanitation, (c) sustainable water supply services, and (d) sustainable sanitation services. The decentralized demand-responsive approach was considered as a key means of achieving these outcomes.

11. Achievement of the PDO was expected to be measured through the following indicators:

- Direct project beneficiaries (number), of which female (percentage)
- Number of people provided with access to improved water sources under the project
- Number of people with access to improved facilities for safe disposal of solid and liquid waste
- Number of GPs in the State implementing decentralized, demand-responsive projects in RWSS
- Number of operational water schemes for which KRWSA's sustainability index is >80 percent.

### Components

12. The project was organized into three components: Institution Building, Technical Assistance (TA) to Implementing Agencies, and Infrastructure Development, as described below.

#### Component A: Institution Building (appraisal, US\$ 26.8 m; actual, US\$ 14.9 m)

- **Subcomponent A1: Project Management.** This subcomponent involved strengthening of the Project Management Unit (PMU) and setting up of Regional Project Management Units (RPMUs) and the Gram Panchayat Support Teams (GPSTs).
- **Subcomponent A2: Capacity Building of Sector Institutions and of Support Organizations (SOs).**<sup>6</sup> This subcomponent involved carrying out of training programs and capacity-building initiatives to staff of sector institutions and SOs.
- **Subcomponent A3: Statewide Sector Development Program.** This subcomponent involved providing TA for policy analysis, organizational studies, and sector assessments; integrated water resources management; establishment of a State-level sector development unit and a project appraisal unit; development of a State-wide RWSS management information systems (MIS); mapping based on geographic information system (GIS); O&M management pilots; and independent M&E including consumer surveys.

#### Component B: TA to Implementing Agencies (appraisal, US\$ 27.2 m; actual, US\$ 11.9 m)

- **Subcomponent B1: Intra-GP Rural Water Supply Schemes.** This subcomponent provided support services through SOs and TA for the implementation of the schemes, to be carried out under Subcomponent C1, including community development, engineering, and management support.
- **Subcomponent B2: Multi-GP Water Supply Schemes.** This subcomponent provided support services through SOs and TA for the multi-GP schemes to be carried out under Subcomponent C2.
- **Subcomponent B3: Sanitation.** This subcomponent provided support services through SOs and TA to participating GPs and BGs for the sanitation investments carried out under Subcomponent C3.

<sup>6</sup> The SOs were nongovernmental organizations (NGOs), consultant firms, or a group of professionals (called 'GP Action Teams' or GPATs) recruited by the GPs.



**Component C: Infrastructure Development** (appraisal, US\$ 187.2 m; actual, US\$ 170.5 m)

- **Subcomponent C1: Intra-GP Rural Water Supply Schemes.** This subcomponent constructed new RWS schemes and upgrading, rehabilitation, extension, and expansion of existing RWS facilities including small and large water supply schemes, within the geographical boundaries of a GP.
- **Subcomponent C2: Multi-GP Water Supply Schemes.** This subcomponent covered the schemes supplying water to more than one GP known as multi-GP schemes. The work involved transferring of the intra-GP distribution network from the KWA to the respective GPs and rehabilitation, upgrading, expansion, and modernization of the common infrastructure retained by the KWA.
- **Subcomponent C3: Sanitation Schemes.** This subcomponent involved carrying out civil works and provision of goods, equipment, and technical advisory services to address safe disposal of human excreta, solid waste, and liquid waste.

**B. SIGNIFICANT CHANGES DURING IMPLEMENTATION**

**Revised PDOs and Outcome Targets**

13. The PDO remained unchanged throughout the operation. However, the project underwent two restructuring. The first restructuring (June 2016), modified some subcomponents, amended the Results Framework including targets of PDO indicators, and extended the closing date by 18 months. The second restructuring (November 2018) extended the closing date by another six months to repair the works damaged by devastating floods in August 2018.

**Revised PDO Indicators**

14. The 2016 restructuring made the following changes in the Results Framework based on the midterm review (MTR) and evolving project circumstances:

- (a) The number of beneficiaries to be covered under water supply was increased (1.15 to 1.37 million) but the number of sanitation beneficiaries was decreased (0.69 to 0.37 million) due to modification in the project scope. As a result, the total number of project beneficiaries declined from the original target of 1.84 to 1.74 million.
- (b) The PDO indicator 'Number of people with access to improved facilities for safe disposal of solid and liquid waste' was dropped as the project shifted its focus to achieving ODF status (see paragraph 15).
- (c) The PDO indicator 'Number of GPs in the State that are implementing decentralized, demand responsive projects in RWSS' was rephrased as 'project supported water supply schemes managed by beneficiary groups' for more focus on scheme-level status.
- (d) The PDO indicator 'Number of operational water schemes for which KRWSA's sustainability index is >80 percent' was simplified to 'Number of water supply schemes improved under the project that are delivering satisfactory services to all intended households by recovering full operational costs', due to the complex definition of sustainability index and difficulty in collecting data regularly.
- (e) Minor modifications were made in the intermediate indicators by splitting existing indicators for better clarity and reflecting changes in the sanitation subcomponent mentioned above.

**Revised Components**

15. The 2016 restructuring modified the sanitation subcomponent to leverage the project to support Swachh Bharat Mission (SBM, the national 'Clean India' campaign), by shifting its focus from smaller initiatives on SLWM to achieve village-level outcomes such as ODF status by ensuring 100 percent access and usage of



toilets. Therefore, the target of number GPs to be covered with safe disposal of solid and liquid waste was reduced from 75 to 10 while the number of toilets to be constructed increased from 115 to 10,000.

### Other Changes

16. Savings of about US\$ 20.7 million from Components A and B, which included currency exchange gains, were allocated to Component C to undertake activities that were on hold for funding reasons.

### Rationale for Changes and Implication for the Original Theory of Change

17. The changes as described had no impact on the Theory of Change. The extensions of the closing date were to address early implementation delays and additional time needed to repair flood damage in August 2018. The focus of sanitation interventions was changed from community level SLWM to household sanitation as per the request of the GoK, because the State decided to focus more on achieving the ODF status in order to align with the priorities of the SBM. This change also caused reduction in the number of beneficiaries.

## II. OUTCOME

### A. RELEVANCE OF PDO

#### Assessment of Relevance of PDO and Rating: High

18. **The PDO remains highly relevant to the GoI strategy and plans.** In 2018, the GoI issued a guideline for the community-led *Swajal* Project for providing sustainable drinking water to the rural population, which promoted a community-led and demand-responsive approach. The GoI has launched a program named '*Jal Jeevan Mission*' to provide sustainable piped drinking water supply to every household, through decentralized community-led approaches. This program will be led by the Ministry of *Jal Shakti* formed in May 2019 by merging the Ministry of Drinking Water and Sanitation with the Ministry of Water Resources. Also, the GoI has been prioritizing achieving and sustaining universal sanitation services through the SBM.

19. **The PDO remains highly relevant to the current World Bank Country Partnership Framework (CPF).** The project was designed to contribute to both sustainable development and service delivery by aligning with the second and third pillars of the Country Assistance Strategy (CAS) for FY09–FY12 (Report No. 46509-IN). It remained relevant to the second engagement area named "Transformation" in the subsequent CAS for FY13–FY17 (Report No. 76176-IN). The current CPF (Report No. 126667-IN) for 2018–22 has a specific focus area of investing in human capital which aims to 'increase access to improved rural water supply and sanitation' (CPF objective 3.3). The CPF articulates that improving water and sanitation service is one of the critical strategic links for enhancing human capital. The CPF further envisages to 'strengthen the capacity of state and local institutions for efficient and sustainable water and sanitation service delivery' whereas the project focused on strengthening local institutions for decentralized service delivery.

20. **Improved water supply and sanitation services is a result area of the World Bank's state partnership with Kerala.** Following the worst flood disaster in 100 years caused by the heavy monsoon in August 2018, GoK launched the Rebuild Kerala Initiative (RKI) to bring about a perceptible change in the lives and livelihoods of its citizens. The World Bank supports the RKI through the Resilient Kerala Program Development Policy Operation (Credit 6463 -IN and 6464-IN), which formally initiated the first 'state partnership' of the World Bank under the current CPF. This operation aims to turn the challenges caused by the floods into opportunities for green and resilient growth for the State. Such state partnerships are strategic building blocks of the current CPF 'to improve implementation capability and address state-specific development priorities.' Under this, the GoK has already established a cross-sectoral committee to prepare the policy and institutional program for strengthening water supply and sanitation services and their resilience to disasters and impacts of climate change. The lessons learned from implementation of *Jalanidhi* and the sector assessment study supported by the project provided key inputs in developing this program.





## B. ACHIEVEMENT OF PDO (EFFICACY)

21. Achievement of the PDO is assessed using the data from the project's M&E system, mission documents, studies undertaken by independent agencies and other third-party reports (see Annex 6 and 7). The assessment primarily focuses on the four PDO-level outcomes (see paragraph 10). It is supported with an analysis of the activities and outputs linked to the outcomes, as highlighted in the Theory of Change. A split analysis was employed, given that indicators and targets were changed with the restructuring in 2016.

22. **'Decentralized, demand-responsive approach', as stated in the PDO, was critical to achieving the PDO.** The KRWSA developed well-defined operational procedures, building on the experience of *Jalanidhi I* and adapted it based on field learning. Notable elements of the policies and procedures that ensured a decentralized and demand-responsive approach include the following:

- (a) **The bottom-up selection of the GPs through GP ranking criteria.** Out of 227 GPs that expressed demand, the KRWSA selected 115 GPs,<sup>7</sup> based on a scoring matrix consisting of water supply coverage, water quality, poverty, presence of marginalized communities, and efficiency of GP administration.
- (b) **The project ensured key decision-making roles for BGs and GPs in planning, design, implementation, and O&M.** The project mobilized 3,672 BGs—one per habitation or ward, and 203 scheme-level executive committees for large and multi-GP schemes that cover more than one BG. These organizations along with GPs played a key role in design, implementation and operation of the water supply schemes. Moreover, GPs and BGs played a major role in the management of the funds as detailed in Annex 9. The project also facilitated creation of GP federations for better coordination and economies of scale for maintenance. Social audits and society oversight were integral to the standard operating procedures.
- (c) **Financial contribution to capital expenditure (CAPEX).** The GoK, GPs, and BGs shared the cost of the water supply schemes in the ratio 79 percent:14 percent:7 percent, which demonstrates a strong demand-driven approach. However, this slightly varies from the originally planned ratio (paragraph 43). Contributions from households mobilized through the BGs supported by the SOs and the extensive communication campaign by KRWSA.
- (d) **O&M and Cost Recovery:** After commissioning, the schemes are fully operated by the beneficiary committees by raising financial resources themselves, mostly through a monthly tariff. In the case of bulk water schemes and multi GP schemes, beneficiary committees pay the cost of bulk water to KWA through GPs and maintain only the distribution system (see paragraph 42).
- (e) **Community-based procurement processes adopted for smaller schemes** (the majority under the project) resulted in efficient contracting and lowered capital costs, because the works were awarded after deducting about seven percent contractor's profit on average. For Multi-GP schemes, procurements of common components such as treatment plants were led by KWA and KRWSA.

### Assessment of Achievement of Each Objective/Outcome

23. **Outcome 1: Access to improved water supply** shows substantial achievements against both original and revised targets, as tabulated in Table 1. The project extended TA to 115 GPs to implement water supply schemes and financed construction of 2,167 schemes. By the very nature of the project to provide only piped water connections, all water investments led to "improved" water supply<sup>8</sup>. This includes 2,164 intra-GP schemes covering 211,236 household connections and three multi-GP schemes covering 47,181 household connections.

<sup>7</sup> Batch 1: 20 GPs, batch 2: 60 GPs, batch 3: 23 GPs, and multi-GP schemes: 12 GPs.

<sup>8</sup> By definition, "improved" water source includes piped household connections, public standpipe, boreholes, protected dug well, protected spring and rainwater collection. It does not include, inter alia, water provided through tanker truck, or vendor, unprotected well, unprotected spring, surface water. (NRDWP guidelines; PAD page 16)



The project thus provided 258,417 household connections. However, the 2018 floods damaged 60,637 connections of which 60,138 have been restored by the KRWSA (499 connections are yet to be restored). Thus, the project resulted in a total of 257,918 functional household connections used by the beneficiaries. The project also provided piped water supply to an additional 1,535 households through installation of 307 public stand posts. Thus, the project achieved the outcome of 1.15 million people accessing improved water supply services.

**Table 1. Indicators on Access to Improved Water Sources**

Indicators	Achievement	Original Target	% Against Original Target	Revised Target	% Against Revised Target
People provided with access to improved water sources (PDO indicator)	1,154,750	1,150,848	100	1,376,000	84
Number of GPs in the State implementing decentralized, demand-responsive projects in RWSS (PDO indicator - original)	115	200	58	—	—
Number of water supply schemes that are managed by beneficiary groups following demand responsive approach (PDO indicator - revised)	2,167	—	—	2,175	100
Household water connections (new + rehabilitation)	257,918	225,891	114	264,700	97
Achievement rating		Substantial		Substantial	

24. The project achieved the targets of household connections from only 115 GPs because of higher than anticipated household demand, even though the original plan was to cover 200 GPs (see paragraph 52). The relative underperformance in terms of the number of beneficiaries compared to the number of connections is attributed to a greater demand for house connections that benefit about five people per connection than public standpipes that benefit about 20 people per connection on average. The revised target of number of beneficiaries could not be fully achieved as two large multi-GP schemes were dropped due to the fall in the dollar against SDR and increased costs (see paragraph 61).

25. **Outcome 2: Access to improved sanitation services** shows moderate results against the original targets but high results against revised targets (Table 2). The project supported the *Suchithwa Mission* by providing TA at the State level and 84 resource persons in project districts covering 598 GPs to conduct a behavioral change campaign. The campaign motivated households to construct latrines by leveraging their own funds or using other sources, which resulted in 174,720 improved latrines benefitting more than 763,000 people. Out of these, the project financed construction of 36,376 household latrines benefitting 163,692 people, which considerably exceeds both the original and revised targets. The notable achievement in latrine construction, however, was made possible by transferring part of the funds provided for piloting SLWM. While the project could not develop any GP-wide SLWM models, the project supported 9,652 small SLWM units covering 93 GPs benefitting 225,939 people, which showcased workable solutions for SLWM. These include waste collection systems, plastic recycling units, biogas units, composting units, community toilets, and school sanitation units. With these outputs, the project achieved the outcome of 389,631 people accessing improved sanitation facilities, which includes the beneficiaries of improved latrines and SLWM facilities financed by the project.

26. The National Annual Rural Sanitation Survey (NARSS),<sup>9</sup> undertaken by an Independent Verification Agency (IVA) engaged under the World Bank-supported program to the SBM (Loan 8559-IN), also substantiates the progress in Kerala. NARSS data published in 2019 shows that 99.5 percent of the rural population in Kerala has access to toilets and stopped open defecation, against the national average of 82.7 percent, which is a seven percent increase from Census 2011.

<sup>9</sup> <https://jalshakti-ddws.gov.in/publications-and-presentations-sbm>.



**Table 2. Indicators on Access to Improved Sanitation**

Indicators	Achievement	Original Target	% Against Original Target	Revised Target	% Against Revised Target
People provided with access to improved sanitation facilities ( <i>PDO indicator</i> )	389,631	691,848	56	370,000	105
Improved latrines constructed under the project	36,376	115	31,631	10,000	363
Number of people with access to improved SLWM	225,939	691,000	33	Indicator dropped	
Achievement rating		Modest		High	

27. **Outcome 3: Sustainable water supply services.** Several initiatives and outputs of the project contributed to the sustainability of the outcomes. First, the project adopted a demand responsive approach to maximize sustainability of water supply services; *Jalanidhi-I* had demonstrated that the access achieved through demand responsive approach is more sustainable. Second, the project facilitated 8,546 capacity development events on effective scheme implementation and sustainable operation, covering 627,394 person-days. Third, the project engaged 1,576 staff through SOs including 102 organizations and 10 GPATS and extended technical support to GPs and beneficiary committees. Fourth, the project financed an M&E system (see section IV A) and ten studies, which not only helped to monitor sustainable operations of the schemes but also to enhance sustainability of services (see Annex 7). Fifth, the project supported preparation of water security plans for 115 project GPs for source sustainability. The project financed 1,766 interventions for groundwater recharging, including check dams, roof water harvesting and well recharges, contour bunds, sub surface dykes, and pond conservation. Sixth, the project ensured that water meters were installed for all connections which helped many schemes to adopt volumetric tariffs and improve efficiency, though small schemes often charge a fixed rate to consumers. Finally, the project prioritized technical quality of construction to ensure physical sustainability. The project hired technical consultants for design of large schemes and directly engaged around 25 engineers at State or regional level and about 80 engineers at GP level for supervision of the schemes. The project also trained beneficiary committees and hired quality control firms for quality control of construction.

28. The original PDO indicator for sustainability of water supply was ‘number of operational water schemes for which KRWSA’s sustainability index<sup>10</sup> is >80 percent’, which was later revised as ‘number of schemes that are delivering satisfactory services to all intended households by recovering full operational cost.’ Both indicators are analyzed to assess this outcome.

29. The project’s M&E system reported that 2,030 of 2,167 schemes (93.6 percent) provide satisfactory services meeting all operational costs by the beneficiary committees without subsidies. This is a ‘substantial’ achievement against the revised indicator, as all the project schemes were either new or rehabilitation of the schemes which could not recover operational cost beforehand. The KWA currently has an average cost of INR 24 per KL of water supply, while it generates a revenue of only INR 9.5 per KL (40 percent) from tariffs, causing a burden of INR 14.5 per KL to the State exchequer.<sup>11</sup> The *Jalanidhi* schemes manage the O&M completely without subsidies, thus avoiding a burden of about INR 35 million per month for GoK, given that the project schemes supply 2.4 million KL of water.<sup>12</sup>

30. The project commissioned three independent Sustainability Evaluation Exercises (SEEs). These studies were conducted during 2015, 2017, and 2019 by sampling the schemes that had completed at least one year of

<sup>10</sup> The KRWSA sustainability index is a weighted index of source assessment, technical assessment, financial assessment, and institutional assessment of the water supply schemes (details of indicators are provided in Annex 8)

<sup>11</sup> Sourced from KWA presentation in December 2018. About 40 percent tariff collection for the KWA include both urban and rural areas. Given that urban schemes are comparatively better, cost recovery in rural areas would be even less.

<sup>12</sup> Assuming that 1.15 million beneficiaries receive supply of 70 lpcd water as designed, which is a conservative estimate.





operation after commissioning. The latest study (SEE-3), which surveyed 191 schemes randomly sampled from the schemes commissioned since the beginning of the project, reported that the likelihood of sustainability is substantial: (a) 83 percent of schemes are potentially sustainable based on a composite SEE score covering performance indicators on technical, institutional, and financial aspects (details are provided in Annex 8); and (b) 82 percent of users are satisfied or highly satisfied based on questions related to water quality, water pressure, and adequacy of supply. The study also found that about 62 percent of schemes provide daily supply of water, 16 percent of schemes supply four to six days in a week, and 22 percent of schemes supply water one to three days in a week. About 12 percent of schemes provide 24x7 water supply. About 87 percent of the households reported that the user charges are low or fair. While 70 percent of the schemes cover their O&M expenses from monthly user charges alone, other schemes face a shortfall or delayed revenue from tariffs. However, those schemes have developed coping mechanisms such as availing short-term loans from the main functionaries or reducing the salary of the pump operator. “Many of the pump operators are members of the beneficiary committees and therefore are ready to forego a part of the salary to keep the system running.”<sup>13</sup>

31. Based on the data of three rounds of SEE studies, the KRWSA sustainability index—the original PDO indicator on sustainability—was calculated as shown in Table 3. The index was developed by the KRWSA based on indicators of source and technical, institutional, and financial sustainability. A ‘substantial’ percentage of the schemes have an index rating above 80 and only a few schemes have an index rating below 60. However, the average score is decreasing over time, which indicates that sustainability index tends to decrease with time.

**Table 3. KRWSA Sustainability Index**

	SEE-1 (2015)	SEE-2 (2017)	SEE-3 (2019)
Percentage of schemes having index 80 or above	85.5	81.6	72.3
Percentage of schemes having index 60–80	14.1	18.3	25.1
Percentage of schemes having index below 60	0.4	0.1	2.6

Note: Source: SEE-3 study report. Details of KRWSA index are provided in Annex 8

32. The decreasing sustainability index demonstrates a need to focus more on institutional sustainability particularly to provide back-up support to the schemes handed over to the community. The project envisaged that GPs would provide necessary support to the schemes to cope up with various challenges including major repairs, water quality issues, expansion of services and natural disasters. While the project could enhance ownership of GPs with the improvements from *Jalanidhi-I* (see paragraph 49), the GPs faced shortages of funds earmarked for community schemes and weak technical capacity to monitor and support the schemes. While GoK has started addressing the issue by allocating budget to the KRWSA to support *Jalanidhi* schemes (see paragraph 54), it is important to develop clarity on institutional roles and ensure allocation of enough budget to monitor and support all community-managed schemes in the State.

33. **Outcome 4: Sustainable sanitation services.** The project supported the *Suchithwa Mission* for mobilizing communities for sustainable use of sanitation facilities (see paragraph 41). The results framework did not include any indicator on sustainability of sanitation; it was assumed that people would maintain and use sanitation facilities. The ICR, nevertheless, assessed sustainability of sanitation outcomes using third party survey data. The State shows high sustainability of sanitation services according to NARSS-2, the national survey conducted during December 2018 to March 2019. While Kerala was declared ODF in November 2016, the survey shows that about 99 percent of the rural population in Kerala continue to live in ODF villages against the national average of 45 percent. While this is strong evidence of a ‘High’ achievement with respect to the revised targets, this outcome before restructuring is assessed as ‘Modest’ because most of the initially planned activities were dropped.

<sup>13</sup> SEE-3 study report.



34. **Direct project beneficiaries.** Covering all the outcomes, the project benefitted 1.54 million people, or 84 percent of the original target of 1.84 million and 89 percent of the revised target of 1.74 million.

**Justification of Overall Efficacy Rating**

35. Table 4 summarizes the project’s achievements before and after the 2016 restructuring. The overall efficacy is rated “Modest” against original targets as Outcomes 2 and 4 showed modest achievements, despite substantial achievements of Outcomes 1 and 3. Also, the project achieved only 84 percent of the original target of total beneficiaries. The overall efficacy is rated “Substantial” against the revised targets, as all outcomes shows either substantial or high results. Also, the project achieved 89 percent of the revised target of total beneficiaries.

**Table 4. Efficacy Rating Before and After the Restructuring in 2016**

	Against Original targets/indicators	Against revised targets/indicators
Outcome 1	Substantial	Substantial
Outcome 2	Modest	High
Outcome 3	Substantial	Substantial
Outcome 4	Modest	High
Direct project beneficiaries	84%	89%
<b>Overall efficacy rating</b>	<b>Modest</b>	<b>Substantial</b>

**C. EFFICIENCY**

**Assessment of Efficiency and Rating: Substantial**

36. The ICR economic analysis, following the approach used at appraisal, found a net present value (NPV) of INR 640 million (US\$ 9.3 million), an economic internal rate of return (EIRR) of 13.4 percent, and a benefit-cost ratio of 1.08. These economic outcomes are positive, if also sensitive to assumptions and lower than expected at appraisal (Table 5). The EIRR is within a range typical for water projects funded by the World Bank<sup>14</sup>.

**Table 5. NPV, EIRR, and Benefit-Cost Ratio as Estimated at Project Appraisal and at Closure**

	NPV <sup>a</sup>	EIRR (%)	Benefit-Cost Ratio
Estimate at Appraisal	INR 4.09 billion (US\$90 million)	19.4	1.64
At closure	INR 0.640 billion (US\$ 9.3 million)	13.4	1.08

Note: a. The rupee depreciated from INR 45.4 to the dollar at appraisal to INR 68.9 at closure.

37. From the perspective of cost-effectiveness, expenditures per beneficiary were somewhat higher than anticipated at appraisal but remained within a normal range for the sector. Costs per person provided with an improved water connection were approximately US\$136, compared to a typical range in developing countries of US\$92 to US\$144 according to the Joint Monitoring Program.<sup>15</sup> Project costs per improved sanitation beneficiary of approximately US\$27 are also similar to those in a recent review of U.K. Department for International Development water and sanitation investments in Bangladesh, which found a ‘total cost per person who gained access to a sanitation facility and uses it’ of US\$23.6, including counterpart funding.<sup>16</sup>

<sup>14</sup> IEG World Bank. 2010. “Cost-Benefit Analysis in World Bank Projects”.

<sup>15</sup> WHO-UNICEF. “Global Water Supply and Sanitation Assessment 2000 Report”. The data stems from 1990–2000. Adjusting for inflation suggests an even higher range of US\$250 to US\$390.

<sup>16</sup> S. Trémolet, M. Prat, L. Tincani, I. Ross, A. Mujica, P. Burr, B. Evans. 2015. “Value for Money analysis of DFID-funded WASH programmes in six countries”. London.



38. Design and implementation of the project were adequate and facilitated the observed positive economic outcomes and overall cost-effectiveness. The project management expense remained less than seven percent of the total project cost. Nevertheless, delays due to extensions of closing date by two years in total and inefficiencies in implementation did occur (see Key Factors in Implementation), which contributed to the lower-than-expected number of beneficiaries. Details of the economic analysis, underlying assumptions, and sensitivity analysis are presented in Annex 4.

#### D. JUSTIFICATION OF OVERALL OUTCOME RATING

39. The overall outcome of the project is rated “Moderately Satisfactory”, based on the split analysis as shown in Table 6.

**Table 6. Application of Split Rating**

	Before Restructuring	After Restructuring
Relevance of Objective	High	
Efficacy (PDO)	Modest	Substantial
Efficiency	Substantial	
1. Outcome ratings	Moderately Unsatisfactory	Satisfactory
2. Numerical value of the outcome ratings <sup>17</sup>	3	5
3. Disbursement (US\$ million)	62.85	69.50
4. Share of disbursement	47.5%	52.5%
5. Weighted value of the outcome rating (Row 2 X Row 4)	1.43	2.63
6. Final outcome rating	<b>Moderately Satisfactory</b> (1.43 + 2.63 = 4.06, rounding it to 4.0)	

#### E. OTHER OUTCOMES AND IMPACTS

##### Gender

40. The project design integrated measures to enhance voice and choice of women including (a) mandatory representation for women in key positions in the beneficiary committees, (b) participation of women institutionalized in the planning process, and (c) collaboration and networking with existing women’s networks such as self-help groups. Various missions noted that women actively participated in the meetings both at beneficiary committees and GP level. Data collected by the M&E Unit in March 2019 showed that women are either the presidents or secretaries of 32 percent of the beneficiary committees and treasurers of 80 percent of the committees. Presidents of 42 percent of GP-level federations were women. Also, 47 percent of the KRWSA staff and 75 percent project assistants engaged in GPs were women. Community consultations during the ICR mission revealed that the schemes have really helped the neediest households and women. The women participants narrated heart-rending accounts of hardships they had to undergo earlier. They confirmed the benefits from the scheme and were grateful for the project interventions.

##### Institutional Strengthening

41. **The project enhanced the capacity of key implementing agencies.** The project provided capacity-building support to the KWA, *Suchithwa Mission*, and 598 of 941 GPs. The project supported capacity-building of key technical staff of the KWA for rehabilitation of multi-GP schemes. The project enhanced technical capacity of the *Suchithwa Mission* by engaging a consultant firm at the State level and 84 resource persons at the district level, to implement the SBM effectively. Extensive training programs (see paragraph 27) built the capacity of GPs to act as resource centers on water and sanitation, which helped elected representatives and staff of GPs to orient users. Also, the project supported 115 GPs to improve office infrastructure, with INR 500,000 per GP.

<sup>17</sup> Highly Unsatisfactory (1); Unsatisfactory (2); Moderately Unsatisfactory (3); Moderately Satisfactory (4); Satisfactory (5); Highly Satisfactory (6).



42. **The project established a KWA-local government partnership model for bulk water supply schemes.** A tripartite agreement signed by the KRWSA, KWA (or other bulk water provider), and GP forms the foundation of bulk water supply schemes. While the KRWSA capacitates beneficiary committees to take the responsibility of distributing water to households and collecting the monthly tariff, the GP takes the responsibility of regular payments to the bulk water provider, based on the quantity of water supplied. The project supported 24 GPs with such agreements including 12 single GP schemes and three multi-GP schemes. Bulk water is provided by the KWA in most cases except for one scheme in Chelambra GP. It offers a win-win model for the KWA and GPs, as the KWA has a guaranteed income without engaging in loss-making retail services in rural areas, while GPs have more control to ensure standards and the quality of service delivery. However, the current agreement has some weaknesses. For example, while the KWA can charge a penalty to GPs for delayed payments, there is no penalty clause for not providing the agreed quantity of water by the KWA. Also, the regular loss of revenue due to leakage is borne entirely by the GP, even when the GP takes over the KWA’s existing distribution network.

**Mobilizing Local Financing**

43. The project demonstrated a successful model in mobilizing local financing from beneficiaries and local governments in implementing RWS schemes. The project stipulated a contribution of 15 percent from GPs and 10 percent from beneficiaries of the estimated cost of the water supply scheme. However beneficiary contribution was capped at INR 4,000 (USD 58, approx.) per household and reduced by half for marginalized and poor communities for affordability and inclusion. Also, in the case of multi-GP schemes, GP contribution is calculated only against the distribution system within the GP. Because of these reductions, actual contributions of GPs and beneficiaries were 14 percent and 7 percent respectively. In addition to this, O&M of all schemes is undertaken by beneficiary communities registered as societies, with no contribution from the Government.

**Table 7. Shares of Contributions Made by Stakeholders for Water Supply Schemes (USD million)**

GoK	Users	GPs	Total
123.3 (79%)	10.4 (7%)	20.9 (14%)	154.6

**Poverty Reduction and Shared Prosperity**

44. Presence of vulnerable population was a criterion for selection of GPs and the scheme areas, which resulted in increased proportion of poor and marginalized population in the beneficiaries. Out of 1.5 million beneficiaries, 44 percent are below the poverty line and 17 percent belong to marginalized communities (scheduled caste [SC]/scheduled tribe [ST]). This is about 1.5 times more than the State average,<sup>18</sup> which shows that the project-supported villages and households are comparatively more marginalized and poorer. Provision of WSS services to vulnerable population at greatest risk of death and disease due to inadequate water supply and sanitation, helps to improve human capital and economic development.

**Other Unintended Outcomes and Impacts**

45. **The project showcased a model of rehabilitating non-functional or less-efficient water supply schemes.** With well-established processes, the project rehabilitated 56 single village KWA schemes and three multi-GP schemes, which increased connections to 69,697 households from the existing 14,366 households covered by those schemes. The project also rehabilitated several local government schemes which provided 30,131 household connections. It is important to note that the average cost of rehabilitation (INR 23,000 per connection) was considerably less than the cost of providing new connections (INR 43,000 per connection) while rehabilitation and modernization of existing schemes helps to increase coverage by four to five times. This approach is useful to maximize returns as the country has several schemes requiring rehabilitation.

<sup>18</sup> State average of BPL is 29.5 percent and SC/ST is 10.6 percent according to Economic Review 2018 by State Planning Board, GoK.



46. **A trend of scaling up of community-managed piped water supply schemes is emerging.** Data collected by the WRD during August 2019 shows that out of 6 million rural households, about 2.06 million households (34 percent) have access to piped water connections, an increase by 10 percentage points from 2011. While in earlier decades, the KWA almost exclusively provided piped water connections, current coverage data shows that 66 percent connections are from KWA schemes, 20 percent connections are from *Jalanidhi* schemes, and 14 percent are from other community-managed schemes. These other schemes are mostly from those GPs that have proactive local leadership. Arguably, this is an unintended outcome of the demonstration effect and capacity building of stakeholders over the two phases of *Jalanidhi* projects. While it is remarkable that GPs and communities together could mobilize capital and operational cost, the State lacks an institutional mechanism to monitor service-level standards and extend any required support for effective operation.

47. **The project fostered increased professionalization of community-managed schemes and the emergence of new business models.** Several schemes adopted automated pump operations and software-based billing systems. Large *Jalanidhi* schemes such as Nenmeni, Irikkur, and Nadathara are providing a daily supply of treated surface water with less than 15 percent non-revenue water and maintaining a positive balance sheet. Such schemes have also provided many more new household connections after commissioning, which generated additional income and helped to enhance service delivery standards. Such successful operation was possible with professionalization of services with a software-based grievance redressal system and monitoring as well as immediate repair of leakages. It is notable that the managing committee of the Nenmeni scheme has started providing consultancy services for better operation of other schemes and has taken over O&M responsibility of other schemes including the large water supply scheme in Adimali. These emerging business models can be leveraged to fill the gaps in post-construction support of community-based schemes.

### III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

#### A. KEY FACTORS DURING PREPARATION

48. **The project design was sound and simple,** with a clear PDO and well-designed components following the operational sequence of institutional capacity building, TA and infrastructure development. The project indicators captured the project benefits and achievement of the PDOs, except sustainability of sanitation, although some of the indicators were further refined during implementation. The project also benefited from a well-designed M&E system as detailed later (see M&E section).

49. **Experience of *Jalanidhi I* helped to improve the design, based on the lessons learned and evolving understanding of the capacity of the borrower and local governments.** Particularly, the following design changes benefitted the implementation and outcomes:

- (a) Engaging field staff at the GP level helped to provide on-the-spot support to GPs and BGs and to conduct continuous monitoring. However, experience of such staff was found inadequate in some cases.
- (b) Greater GP ownership is achieved with more fiduciary roles and joint ownership of assets, which was not pursued in *Jalanidhi I*. Also, GP's financial contribution of CAPEX was increased from 10 percent during *Jalanidhi I* to 15 percent in *Jalanidhi II*.
- (c) GP selection criteria were modified to better target poor and socially disadvantaged populations, which helped to have a higher proportion of poor beneficiaries than the State average (see paragraph 44).
- (d) Strengthening collaboration with the KWA resulted in more bulk water supply schemes and multi-GP schemes. The share of number of beneficiaries from the schemes implemented in partnership with the KWA is 25 percent, which shows a substantial increase from 9.4 percent in *Jalanidhi I*.

50. **Delays in project preparation adversely affected its implementation and outcomes.** While *Jalanidhi I* closed in September 2008, GoI did not request Bank financing for *Jalanidhi II* until November 4, 2008. In the





context of preparing a new country strategy for India (2009–2012), the Bank proposed combining the second RWSS operation with a local government project. However, while the idea of a joint operation was progressive in its focus of strengthening decentralized governance for water supply, merging two fundamentally different projects implemented by different departments was seen as problematic. Deliberations ensued but GoK decided in February 2010 to pursue two distinct operations. Subsequently the preparation of *Jalanidhi II* was initiated and concluded with Board approval in December 2011. However, during these three years, most of the contractual staff engaged by KRWSA for *Jalanidhi I* left the organization. When *Jalanidhi II* started, it faced serious staff capacity challenges. As observed by the initial implementation support missions, the delays of hiring and training new staff before initiating subprojects adversely affected implementation.

51. **An attempt to adopt a common model of service delivery in all GPs did not fully succeed.** During preparation, lack of common guidelines was highlighted as a key challenge in scaling up the *Jalanidhi* approach. In July 2011, GoK issued an order approving a common guideline for all drinking water supply schemes in villages, following the *Jalanidhi* model of community contribution for infrastructure and full recovery of O&M cost. However, some GPs, particularly those not supported by the project, found it difficult to implement the *Jalanidhi* model owing to the lack of capacity. With a predetermined budget envelope, KRWSA could not support more GPs. Also, the guideline did not allow any financial support from GoK for post-construction support of community-managed schemes. Subsequently, based on stakeholder demand, GoK relaxed the guidelines.

## B. KEY FACTORS DURING IMPLEMENTATION

### Factors under the control of GoK and the Implementing Agency

52. **The successful implementation of *Jalanidhi I* and effective community mobilization helped to generate high demand** for schemes far exceeding the expectations, despite the requirement of CAPEX contribution and higher tariffs than KWA schemes. While it was planned to cover 225, 891 households from 200 GPs, the project covered 258,417 households from 115 GPs. In other words, while the expected average demand was about 1,130 households per GP, actual demand exceeded 2,240 households per GP.

53. **Government policies led to higher ownership of the GPs and scaling-up of community-based schemes.** *Jalanidhi II* ensured that all project-supported assets are jointly owned by the GPs with beneficiary societies and entered in the assets register of the GPs, which enables GPs to monitor and finance maintenance of the assets. Moreover, GPs contributed about 14.6 percent of the cost of the single village schemes and 10.4 percent of the multi-GP schemes. This contribution was around INR 10 to 15 million per GP, a major share of their annual budget. This not only demonstrated high demand but also ensured higher ownership by the GPs, as observed during the ICR mission. Also, a few GPs<sup>19</sup> started using their funds for initiating new community-based schemes or rehabilitation of existing schemes. This is further supported by the GoK order in 2019 allowing GPs to use funds from the Fourteenth Finance Commission for rehabilitation or expansion of community-based schemes.

54. **GoK started allocating budget to support sustainable operation of the commissioned schemes.** While most of the beneficiary committees manage O&M with the user tariff, the committees could find it difficult to finance major repairs, source improvement, or expansion of networks. Since 2018, the State started allocating funds to the KRWSA to support such schemes. The budget allocation was INR 100 million in 2018–2019 which was increased to INR 550 million in 2019–2020. The KRWSA has initiated rehabilitation or expansion of 210 schemes of *Jalanidhi I* using these funds following the same operational procedures adopted for *Jalanidhi II*. The GoK issued administrative approval for another 194 schemes, while estimates for another 568 schemes are under preparation. Further the GoK provided INR 102 million for rehabilitation of flood-affected schemes of both *Jalanidhi I* and *Jalanidhi II*. In addition to this, GoK had earlier transferred INR 50 million from the NRDWP fund to the KRWSA to support some of the schemes of *Jalanidhi I*.

<sup>19</sup> For example, Erimayur, Kavassery (Palakkad), Mundathikkode (Thrissur), Vettom (Malappuram), and Maruthomkara (Calicut).



55. **Weaknesses in the institutional mechanism affected sector development programs and Statewide scaling-up.** During preparation, it was planned to set up a State-level unit and conduct a range of sector development programs and studies.<sup>20</sup> A task force was established chaired by the head of the WRD.<sup>21</sup> However, the committee did not have sufficient incentive or political mandate to bring State-wide reforms, based on the findings of the various studies. Also, KRWSA was formed as a special purpose vehicle for implementing the project and had limited authority in driving such a large agenda, particularly in the context of different sector institutions promoting different models of service delivery. Nevertheless, by closing, supported by the sector study under the project, the reform agenda of the water sector gained traction with the RKI, which is a higher-level institution led by the Chief Minister and the Chief Secretary, supported by an executive body.

56. **Challenges and delays were seen in developing a partnership model with KWA.** While *Jalanidhi-I* was successful, some of the KWA officers perceived *Jalanidhi* would undermine the role of KWA in rural water supply. This initially resulted in an impasse for developing a partnership model for bulk water supply and for initiating multi GP schemes. With the intervention of senior officers of WRD and LSGD, this impasse was later overcome, and a partnership model was created. However, this delayed project implementation. As it turned out, bulk water supply is beneficial to the KWA with higher revenue and reduced burden of last mile service. For example, an assessment for rehabilitating the Cheekode multi-GP scheme showed that the KWA would make a profit with an operating expense ratio of 0.66, if the KWA supplied bulk water and beneficiary committees operated the scheme. Conversely, if the KWA continued business as usual, the scheme would make substantial losses with an operating ratio of 3.74.

57. **Frequent leadership changes aggravated early implementation delays.** Despite a legal covenant that mandated a minimum three-year appointment, GoK changed the Executive Director of KRWSA 12 times between 2012 and 2019, resulting in unstable leadership. Attrition of senior staff members including directors was also high. The regional directors were changed often, and one of the three positions was vacant during the last two years of the project. After the MTR, in April 2015, GoK engaged a senior officer at the level of secretary as executive director, who provided consistent leadership, which helped to turn around the project.

### Factors beyond the control of GoK and the Implementing Agency

58. **A total of 307 schemes (14 percent) faced water quality issues** and laboratory analysis indicated turbidity, iron, and color as major issues. The project supported water treatment units such as iron removal plants and pressure sand filters for 99 schemes and *terafil* filters for 78 schemes. During the visit to randomly selected schemes, in most cases, the treatment units were working effectively to the satisfaction of beneficiaries.

59. **Due to various external factors construction of many schemes lagged and took about three and half years on average.** (Small schemes were expected to take two years and larger schemes three years.) Delays were due to many reasons including recurring elections of assembly, parliament, and local government; demonetization; introduction of goods and service tax (GST); delays in obtaining permission of the Public Works Department for road cutting; and delays by contractors. While SOs were engaged for two years and payments were based on milestones, the delays in implementation resulted in SOs reducing the number of staff or engaging less experienced staff for handholding beneficiary committees beyond the two-year period. This could have arguably resulted in a reduced sustainability index. While *Jalanidhi I* schemes had very high prospects of sustainability (92 percent) and user satisfaction (90 percent),<sup>22</sup> they declined to 83 percent and 82 percent respectively for *Jalanidhi II* schemes, which is still substantial.

<sup>20</sup> Such as preparing medium-term sector development and investment plans, conducting performance assessments of existing schemes, conducting independent M&E and consumer surveys, and integrating functions of multiple sector institutions.

<sup>21</sup> Government Order 974/2011/WRD.

<sup>22</sup> ICR of *Jalanidhi I* (IDA-34310/P055454).



60. **Severe floods in August 2018 damaged many of the schemes and the piped water connections supported by the project.** Though 60,138 of 60,637 connections affected in the floods have been restored, this delayed completion of many sub projects and necessitated an extension of six months.

61. **Price increases and a loss of about US\$19.1 million due to currency fluctuations undermined the efforts to cover more households.** The restructuring in 2016 increased the target of piped water supply with the expectation that project could support two more large multi-GP schemes benefitting 234,000 people, using the savings from devaluation of the Indian rupee against the U.S. dollar. However, the project could not implement those schemes. The estimates of the additional multi-GP schemes increased from INR 11 million to 26 million and batch 3<sup>23</sup> schemes increased from INR 13 million to 23 million, due to unforeseen cost elements such as road cuttings, the command area design approach, increase of construction cost, and the additional burden of GST. Also, about US\$19.1 million was lost due to currency rate fluctuation between the U.S. dollar and SDR.

#### IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

##### A. QUALITY OF MONITORING AND EVALUATION (M&E)

###### M&E Design

62. **The project adopted a comprehensive M&E system building on the experience of *Jalanidhi I*.** The M&E system was designed comprehensively to monitor inputs, processes, outputs, and outcomes. The indicators were designed based on the logic behind the operation with clearly defined activities, outputs, and outcomes as illustrated in the Theory of Change. However, it did not include an indicator to measure sustainability of sanitation services. The PAD details various elements of M&E such as baseline surveys, MIS, Financial Management Information System (FMIS), process assessments, sustainability evaluations, concurrent audits, regular review meetings, and periodical reporting. The project envisaged an impact evaluation to assess project impacts on beneficiary households and communities and their sustainability over time. The design also aimed to provide a basis for moving toward sector-wide monitoring.

63. **The project designed a dedicated unit to manage the M&E system,** headed by a Director and supported by a Deputy Director for design, oversight, and maintenance of systems and processes. The project assigned field-level M&E responsibilities to specific functionaries at regional and GP level to collect and verify data.

###### M&E Implementation

64. **The project implemented the M&E system effectively and captured necessary information** on inputs, processes, outputs and outcomes. While the restructuring in 2016 modified indicators and targets (see section I-B), the system continued updating the data of the indicators that were dropped or changed (e.g. sustainability index). The summary of implementation against the key elements of the M&E system is given below:

- (a) **Baseline.** Extensive surveys were undertaken in covering 683,773 households from 115 GPs by the SOs. The survey captured the baseline data of demography, socioeconomic status, and access to water supply and sanitation. Further, water security plans mapped available water resources in 115 GPs.
- (b) ***Jalanidhi* Information Management System (JIMS).** The project launched an online MIS in 2013, which monitored a wide range of indicators and milestones of implementing microprojects. The data entered by beneficiary committees and SOs were fully verified by the GP Support Team and randomly checked by the DPMU. JIMS delivered real-time updates with increasing efficiency and received several awards including the GoK State e-Governance Award, SKOCH Award,<sup>24</sup> and Elets Digital India Knowledge Exchange Summit Award and recognition by the Ministry of Drinking Water and Sanitation.

<sup>23</sup> The smaller schemes were implemented in three batches for efficient community mobilization and demand management.

<sup>24</sup> <https://www.skoch.in/skochaward/about-skochaward/>





- (c) **FMIS.** KRWSA developed an online financial module for real-time accounting, monitoring of financial flows, and auto generation of interim financial reports (IFRs). This had a disbursement module integrated with JIMS, which helped to ensure consistent financial and physical data.
- (d) **Process study.** The project commissioned two process studies (2014 and 2017), which monitored the processes adopted for community mobilization, planning of microprojects, implementation management, and administrative processes.
- (e) **SEE.** An independent agency conducted three rounds of sustainability evaluation studies (2015, 2017, and 2019) and assessed the degree of potential sustainability of the systems on technical, financial, institutional, and operational parameters that have an impact on sustainability.
- (f) **Service delivery monitoring (SDM).** The project developed an SDM mobile app to capture key indicators of service levels and sustainability (technical, financial, and institutional). This is meant to be adopted for monitoring all RWS schemes in the State and a pilot was undertaken covering 607 *Jalanidhi* schemes.
- (g) **Social audits** are compulsory in all *Jalanidhi* schemes for the KRWSA's exit from GP. The BG general body authorized 2–3 social auditors among its members other than office bearers to audit and submit the report. The audits covered BG accounting, community mobilization, water source selection, estimate, implementation, and procurement. The audit had been conducted in 1,790 schemes by July 2019.

65. **The project piloted advanced technologies in the M&E system.** First, the assets were geotagged and integrated with JIMS using the GIS. Second, the scheme assets displayed a quick response code so that the public can scan them to retrieve key information about this scheme and provide feedback. Third, JIMS was designed with the capability to capture external sensor data and/or Supervisory Control and Data Acquisition (SCADA)<sup>25</sup>.

66. **The project did not succeed in adopting an M&E system for sector-wide monitoring.** During preparation, it was envisaged that the M&E system would form a basis for moving toward sector-wide monitoring over the project period. Therefore, the M&E Unit designed the software systems to be adaptable and scalable to monitor all RWSS schemes in the State. The project made efforts to integrate data of other key sector institutions, such as integrating SCADA with JIMS. However, such efforts did not yield results given the absence of political commitment and appropriate institutional models.

67. **Impact evaluation was completed for *Jalanidhi I* schemes but not for *Jalanidhi II* schemes.** The World Bank conducted an impact evaluation of *Jalanidhi I* and published the report in 2017<sup>26</sup>. Early in implementation, the Bank planned to initiate another evaluation for *Jalanidhi II*, but priorities were shifted elsewhere.

### M&E Utilization

68. **The project-related data were made available online to all project stakeholders** including GoK officials, project functionaries, GPs, SOs, and beneficiary committees for concurrent project monitoring. The RPMU and PMU conducted regular monthly review meetings, referring the reports generated from JIMS. PMU and RPMU officials conducted field visits regularly which helped to address various issues hindering project progress at the field level. The PMU shared quarterly project status reports with the GoK, the Bank, project district collectors, and GPs regularly. Based on the M&E reports, KRWSA issued several guidelines to improve project implementation such as linking payments of SOs with performance as reported in JIMS, streamlining estimation of road restoration etc.

69. **The reports of process documentation and SEE provided key inputs** in preparing Implementation Status and Results Reports (ISRs) and MTR reports and planning midcourse corrections. For example, recommendations of process monitoring helped to fine-tune the Project Implementation Manual. Also, based on the SEE reports,

<sup>25</sup> A computer system for gathering and analyzing real-time data.

<sup>26</sup> <https://hubs.worldbank.org/docs/ImageBank/Pages/DocProfile.aspx?nodeid=27329170>



the KRWSA issued an O&M Manual to enhance sustainability. However, it appears that the actions taken were not enough given that the subsequent SEE report did not show improvement in the sustainability index.

#### **Justification of Overall Rating of Quality of M&E**

70. **Overall rating of quality of M&E is ‘Substantial’.** The project developed a comprehensive M&E system and implemented it effectively. Reliable data was gathered and used to improve implementation, though there was scope for further improvement. A ‘high’ rating could have been justified if the project had succeeded in developing a sector-wide M&E system and undertaken a final impact evaluation.

### **B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE**

#### **Environmental Safeguards**

71. **The project was classified Category B with four safeguard policies triggered:** (a) OP 4.01 Environmental Assessment; (b) OP 4.04 Natural Habitats; (c) OP 4.10 on Indigenous Peoples; and (d) OP 4.36 on Forestry. To comply with these policies, an Environmental Assessment was conducted, and an Environmental and Social Management Framework (ESMF) was prepared to guide subproject screening, categorization, and subproject-level environmental impact assessment and preparation of Environmental Data Sheets (EDS) and Environmental Management Plans. The EA report (Report E2839) and the Indigenous Peoples Plan (Report IPP519) were both disclosed in the Infoshop on July 1, 2011. All four policies were satisfactorily complied with.

72. **Out of the 2,176 sub projects supported under the project, 1,500 were under risk Category I, 675 were Category II, and one was Category III.** The implementing agency prepared EDS while preparing the detailed scheme reports and adopted generic mitigation measures for Category I subprojects. A limited environmental assessment was undertaken for Category II subprojects. A detailed Environmental Impact Assessment was undertaken for the Category III subproject and disclosed in December 2015, for the construction of a regulator across the Kadalundi River at Bakkikkayam in Malappuram.

73. **The project built capacity to ensure compliance on environmental safeguards.** Environmental safeguard specialists and specialized consultants were engaged at the SPMU and RPMUs. Structured training programs for staff and beneficiary committees were conducted. Systems for effective monitoring using GIS were developed. EDS were prepared and maintained by GP engineers using Google Earth. The requisite permits were obtained from concerned departments and GPs were made responsible for necessary follow-ups. Site supervision was carried out by an environmental specialist at the RPMU twice a month and reported to the Deputy Director (Environment) and Director (Technical). A panel of technical experts at the State and district level was constituted to provide technical support to the PMU and the RPMUs. After the floods in 2018, pamphlets with directions to maintain health and hygiene and to sanitize the wells were provided to the communities/beneficiaries. Training on the ESMF was provided to staff and project implementing support agencies during the start, mid, and end years to ensure compliance. Audits on environmental aspects were made part of independent construction quality and surveillance reports.

#### **Social Safeguards**

74. **The project complied to the safeguard policy on Indigenous Peoples (OP 4.10).** Kerala has an overall tribal population of only 1.45 percent but concentrated in hilly districts like Wayanad and Idukki. In view of this, OP 4.10 was triggered and 19 GPs with significant tribal populations were selected pro-actively to support the tribal population. Schemes were implemented only in places where there was informed consent and acceptance. Tribal development plans were prepared and implemented in all 19 GPs covering 321 schemes. The schemes benefitted around 14,000 tribal households, which represents about 78 percent of the tribal households in the selected GPs. Recognizing the inadequate capability of the tribal settlements, the tribal development plans adopted a distinct approach and process for inclusion of tribal communities in the project, which included



reduced but minimal beneficiary contribution to ensure ownership and affordability, extended scheme cycle to provide more time for consultations, extensive communication campaigns to ensure participation, and adaptation of the scheme designs to suit the needs of tribal communities.

75. **There was no involuntary land acquisition under the project, hence OP 4.12 was not triggered.** The total land used was 5,017 cents (about 203, 030 square meters) spread over 2,300 locations, each scheme using small parcels of one or two cents. Most of this was sited on Government/GP land (49 percent) followed by outright purchase (33 percent) and donation (18 percent). The staff provided due diligence confirmation that all land donations were voluntary. KRWSA maintained a data base of all land transactions.

76. **The project operationalized a formal computerized grievance redress mechanism.** The system allowed complaints to be registered over telephone, website, or email. Registration and resolution of messages were automated. The complaint status can be tracked live on the Internet. Since inception, 164 complaints had been received by the closing of the project and all those complaints were resolved.

### Fiduciary

77. **Financial management (FM).** The project complied with the two main FM covenants in the project Financing Agreement without significant issues. The performance of the project involving all implementing agencies in terms of FM was satisfactory. Initially, the project faced issues such as delays and weaknesses in internal audit arrangements, delays in external audit, high staff turnover, and weaknesses in financial reporting. The project later managed to establish strong FM staffing arrangements in the PMU, which helped to improve the performance by 2015. The project submitted accurate and timely IFRs owing to the FMIS integrated with JIMS. Submission of annual external audit reports was satisfactory with occasional delays up to four months. In most audit reports, the audit opinion was qualified, however, the audit observations in external audit reports did not reflect any serious shortcomings or accountability issues.

78. **Procurement.** The project complied with the procurement procedures. The project largely followed the procurement systems developed in *Jalanidhi I*, whereby most procurement was implemented by the beneficiary committees with guidance from the PMUs. But some larger procurements were implemented by the project implementing agencies. The key challenges included delays in procurements due to absence of timely decision making by the beneficiary committees and implementing agencies. Also, there were inordinate delays in execution and completion of majority of contracts. An area of concern was the gaps in entering details of large number of small schemes in Systematic Tracking of Exchanges in Procurement, which was introduced towards the end of the project by the implementing agencies. Despite training, delays persisted.

## C. BANK PERFORMANCE

### Quality at Entry

79. **The project design, based on the successful experience of *Jalanidhi I*, was sound.** It reflected the lessons learned and a sound understanding of the capacity of the borrower and implementing agency. The PDO was clear, but the result framework could have included an indicator for monitoring sustainability of the sanitation services. The continuity of key task team members of *Jalanidhi I* helped to prepare the project efficiently. The project was prepared in 14 months from the Concept Review to submission to the Board. However, the Concept Review was delayed (see paragraph 50). The careful inclusion of legal covenants helped the Bank monitor key risks and follow up with GoK to address gaps. Also, the Bank supported the development of 50-step standard operating procedures to ensure process-driven implementation of large schemes.

80. **The design envisaged sector development programs and a sector-wide monitoring system, though risks were underestimated.** A task force for sector development, chaired by the head of the WRD, was established during preparation. Attempts were made to adopt a common model of service delivery in all GPs.



While it reflected thorough assessment and efforts of the team to address sector issues, the design was less ambitious with respect to the components, the institutional model, and the monitoring indicators to achieve sector development. The design underestimated institutional risk and mitigation measures to support the sector program.<sup>27</sup> Also, the design could have included provisions for extending TA to non-project GPs to adopt community-led water supply schemes.

### Quality of Supervision

81. **The project supervision was adequate and proactive.** The Bank carried out 15 supervision missions as well as several technical missions and produced 17 ISRs over seven years. The ISR ratings were candid, which reflected the delays and gaps in implementation; the project was rated moderately unsatisfactory during 2013 to 2015. The Bank provided extensive support in reviewing technical designs and quality of construction of microprojects. The Bank introduced innovative elements such as SCADA and recommended solutions to address water quality. The Bank ensured compliance with environmental and social safeguards and provided FM and procurement training to build capacity. The Bank was proactive in advancing the sector development agenda initially, but institutional challenges could not be overcome (see paragraph 55). At the time of the MTR (March 2015), the Credit was only around 18 percent disbursed. Only 397 of 2,170 schemes had been completed, with no multi-GP scheme contracted. Based on the MTR, the Bank provided more detailed analytical inputs and recommended specific actions to address implementation bottlenecks. The Bank escalated implementation issues to a higher-level including the Chief Secretary and the Chief Minister. The 2016 restructuring improved implementation, though increasing the target of water connections was overly optimistic.

82. **Bank performance is rated as Moderately Satisfactory.** The Bank ensured sound project design, incorporating lessons from Phase I, and proactive supervision. However, there were moderate weaknesses in terms of identifying and mitigating risks to achieve sector development.

## D. RISK TO DEVELOPMENT OUTCOME

83. **Inadequate institutional capacity for post-construction support and monitoring community-managed water supply schemes is a risk to development outcome.** While the beneficiary committees operate schemes reasonably well with satisfaction of more than 80 percent of beneficiaries,<sup>28</sup> they would require management support and financial assistance in circumstances such as major equipment breakdown or scaling up service. Also, it is important to have an oversight mechanism as many committees fail to maintain proper records of water supply, tariff collection, and water quality. Clarity about the institutional mandate to support and monitor community-managed schemes for sustainable operation could be improved. While GPs are expected to assume this role, they currently experience challenges such as lack of clarity on using plan funds for supporting operation of community schemes and inadequate skilled employees to monitor and support such schemes. Despite the GoK allocating budget to the KRWSA for rehabilitation (see paragraph 54), the scope of this support is limited given the inadequate budget and indistinct institutional mandate of the KRWSA.

84. **More frequent floods and droughts due to climatic variations have become an increasingly high risk in the recent years.** The State witnessed a major flood and a series of landslides in 2018 which damaged many water supply schemes. The State also witnessed a major drought during May–July 2019, followed by another flood in August 2019. While KRWSA and beneficiary committees were able to restore most of the schemes within a reasonable time, these increasing climatic extremes pose a high risk for sustainable operation of water supply schemes as well as source security and water quality. GoK plans to reduce the risk by promoting climate resilient WSS services under the RKI.

<sup>27</sup> Internal review of the Project Concept Note highlighted the need of more mitigation measures to address institutional risk as well as importance of a sector-wide approach and technical assistance to non-project GPs.

<sup>28</sup> SEE-3. (Sustainability Evaluation conducted by CSES in 2019).



## V. LESSONS AND RECOMMENDATIONS

85. **Scaling up of satisfactory piped water supply requires balancing a demand-responsive approach and a supply-side service delivery model.** The *Jalanidhi* project mobilized GPs and beneficiaries to assert control over resources and investment decisions that impact them, and operations of piped water supply. This resulted in high levels of beneficiary satisfaction and a high willingness to pay for services, even though the schemes charged a higher tariff than the KWA.<sup>29</sup> The impact evaluation<sup>30</sup> of *Jalanidhi I* shows that the schemes on average rank 30 to 40 percentile points higher than comparable KWA schemes in terms of overall performance, availability, reliability, household satisfaction, and O&M. On the other hand, the KWA provided bulk water supply to the *Jalanidhi*-supported GPs which lacked adequate water sources and the technical capacity of KWA ensured competent construction of the infrastructure (see paragraph 42). This highlights the importance of balancing the demand-side and the supply-side for optimizing efforts to scale up water supply.

86. **Sustained operation of the community-managed water supply schemes requires post-construction support from the government.** One key assumption of the *Jalanidhi* project was that, once handed over after completion, the communities would plan, operate, and monitor the schemes sustainably. However, it has been observed that sustainability tends to decrease with the aging of the schemes and GPs often lack financial and technical capacity to provide necessary support (see paragraph 32). Adequate allocation of budget and administrative provisions for structured and predictable post-construction support mechanisms will help the community to address the complexities of piped water supply. This support should cover several areas including: technical backstopping to address any major breakdowns; enhancement of source sustainability; capital mobilization for expansion or rehabilitation; legal support to address conflicts; managerial support to ensure high standards of service delivery; and monitoring of assets and water quality.

87. **Planning for expansion of services during design of schemes not only maximizes development outcomes but also contributes to sustainable service delivery.** Following the *Jalanidhi I* approach, most of the schemes designed distribution systems based on the number of beneficiaries who contributed to the scheme. This limits the ability of beneficiary committees to expand connections to more households after commissioning of the project, despite an increasing demand. This would eventually necessitate construction of a new scheme in the same area or partial replacement of distribution networks to connect new households. Learning from this, the project started designing distribution networks based on expected future demand in the command area for some of the batch 3 and multi-GP schemes. Experience of schemes such as Nenmeni and Nadathara (see paragraph 47), which had the ability to expand connections, shows that new connections not only supply drinking water to more households but also provide additional income, contributing to financial sustainability.

88. **A strengthened institutional mechanism to support and monitor RWS is needed for State-wide scaling up and provision of post-project support.** The KRWSA's attempt to create a sector-wide monitoring system did not succeed as there exist different institutions and models for RWS. While the KWA monitors and manages its schemes, *Jalanidhi* schemes are monitored through JIMS. There are numerous other community-managed schemes supported by various agencies, for which there is no institutional mechanism for regular monitoring and support sustainable operation. Moreover, while most of the households and housing complexes practice self-supply with piped connections from domestic wells, there is no system to regularly monitor quality of water. The newly launched *Jal Jeevan* Mission by the GoI also requires enhanced institutional capability to scale up piped water supply in an unprecedented rate. Thus, strengthening institutional arrangements with a mandate and authority to monitor and support the entire range of water supply systems is required.

<sup>29</sup> On average *Jalanidhi* schemes charge INR 10 per KL while KWA tariff starts at INR 4 per KL.

<sup>30</sup> Andres, Luis Alberto, Saubhik Deb, Martin P. Gambrell, Elisa Giannone, George Joseph, Pramod Kannath, Manish Kumar, P. K. Kurian, Rajesh Many, and Abdu Muwonge. 2017. "Sustainability of Demand responsive Approaches to Rural Water Supply: The Case of Kerala." Policy Research Working Paper No. WPS 8025. Washington, DC: World Bank Group.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Access to improved water supply + Access to improved sanitation

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries	Number	0.00	1841848.00	1746000.00	1547000.00
		01-Jan-2012	30-Jun-2017	28-Jun-2019	28-Jun-2019
Female beneficiaries	Percentage	0.00	51.00 15-Mar-2018	51.00	50.30

Comments (achievements against targets):

84 percent of the original target and 89 percent of the revised target achieved . The target could not be fully achieved as two large multi-GP schemes were dropped due to the fall in the dollar against SDR and increased costs.

Objective/Outcome: Access to improved water supply

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of people in rural	Number	0.00	1150848.00	1376000.00	1157000.00





areas provided with access to Improved Water Sources under the project		01-Jan-2012	30-Jun-2017	28-Jun-2019	28-Jun-2019
<p><b>Comments (achievements against targets):</b>  100 percent of the original target and 84 percent of the revised target achieved. Out of 1,157,000 people provided with access, 1,154,750 people used the water supply, as some flood affected connections were yet to be restored by closing.</p>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of project supported water supply schemes that are managed by beneficiary groups following demand responsive approach	Number	0.00 01-Jan-2012	0.00 30-Jun-2017	2175.00 28-Jun-2019	2167.00 28-Jun-2019
<p><b>Comments (achievements against targets):</b>  Target achieved. This is a revised indicator , as per the restructuring in June 2016, in place of " Number of GPs in the State that are implementing decentralized, demand responsive projects in RWSS", which had a target of 200 GPs.</p>					

**Objective/Outcome:** Access to improved sanitation

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
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People provided with access to "improved sanitation facilities" under the proj.	Number	0.00 01-Jan-2012	691000.00 30-Jun-2017	370000.00 28-Jun-2019	390000.00 28-Jun-2019
People provided with access to "improved sanitation facilities" - rural	Number	0.00 01-Jan-2012	691000.00 30-Jun-2017	370000.00 28-Jun-2019	390000.00 28-Jun-2019

**Comments (achievements against targets):**

Achievement exceeded (105 percent) the revised target. The original target was reduced by half, due to modification in the project scope.

**Objective/Outcome:** Sustainable water supply services

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of water supply schemes improved under the project that are delivering satisfactory services to all intended households by recovering full operational costs	Number	0.00 01-Jan-2012	0.00 30-Jun-2017	1950.00 28-Jun-2019	2030.00 28-Jun-2019

**Comments (achievements against targets):**

Achievement exceeded the target (104 percent). This is a revised indicator , as per the restructuring in June 2016, in place of " Number of operational water schemes for which KRWSA's sustainability index is >80% " , which had a target of 3150 schemes.





**A.2 Intermediate Results Indicators**

**Component: Institution Building**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of capacity building training events carried out (cumulative)	Number	0.00 01-Jan-2012	15179.00 30-Jun-2017	9120.00 28-Jun-2019	8546.00 28-Jun-2019
No of person days of capacity building carried out	Days	0.00	602000.00 07-Mar-2017	602000.00	627394.00

**Comments (achievements against targets):**

94 percent of the revised target achieved.8,546 capacity development events covered 627,394 person-days

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
People trained to improve hygiene behavior/sanitation practices under the proj	Number	0.00 31-Jan-2012	56700.00 30-Jun-2017	56700.00 28-Jun-2019	72752.00 28-Jun-2019
People trained to improve hygiene behavior/sanitation practices - female	Number	15684.00 31-Mar-2009	30000.00 30-Jun-2017	30000.00 28-Jun-2019	36376.00 28-Jun-2019



**Comments (achievements against targets):**  
Achievement exceeded the target (128 percent)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of sector development studies successfully completed (cumulative)	Number	0.00 01-Jan-2012	9.00 30-Jun-2017	9.00 28-Jun-2019	10.00 28-Jun-2019

**Comments (achievements against targets):**  
10 studies completed against the target of nine studies.

**Component: Technical Assistance to Implementing Agencies**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of project GPs benefiting from technical assistance and capacity building (cumulative)	Number	0.00 01-Jan-2012	200.00 30-Jun-2017	300.00 28-Jun-2019	598.00 22-Mar-2019

**Comments (achievements against targets):**



The achievement exceeded the target considerably (199 percent of the revised target), because the project supported the *Suchithwa Mission* by providing 84 resource persons in project districts covering 598 GPs to conduct a behavioral change campaign, which was not originally envisaged.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of water utilities that the project is supporting	Number	0.00 01-Jan-2012	1.00 30-Jun-2017	1.00 28-Jun-2019	1.00 28-Jun-2019

**Comments (achievements against targets):**

The project supported capacity-building of key technical staff of the KWA for rehabilitation of multi-GP schemes.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of other water service providers that the project is supporting	Number	0.00 01-Jan-2012	4713.00 30-Jun-2017	4713.00 28-Jun-2019	3578.00 28-Jun-2019

**Comments (achievements against targets):**

76 percent of the target achieved. While only 3,578 BGs received technical assistance for RWSS against the target of 4713, the number of households per BG were more. While it was planned to cover 225, 891 households from 200 GPs, the project covered 258,417 households from 115 GPs.



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of project supported multi-Gram Panchayat schemes by local institutions successfully demonstrated improved service delivery	Number	0.00	0.00	5.00	3.00
		01-Jan-2012	30-Jun-2017	28-Jun-2019	28-Jun-2019
<b>Comments (achievements against targets):</b>					
Three of the five targeted schemes completed. This is a revision of the original indicator " Total number of multi-GP schemes partially transferred to GPs and rehabilitated/ modernized (cumulative number of GPs benefited)" with a target of 15 GPs. The project has completed three multi GP schemes, covering 12 GPs. Two multi-GP schemes were dropped due to the fall in the dollar against SDR and increased costs					

**Component: Infrastructure Development**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Total number of new water supply schemes being operated (cumulative)	Number	0.00	0.00	1775.00	1700.00
		01-Jan-2012	30-Jun-2017	28-Jun-2019	28-Jun-2019
Total Number of Rehabilitated Water Supply schemes being operated	Number	0.00	0.00	400.00	467.00

**Comments (achievements against targets):**



96 percent of the target achieved. This is a revised indicator. The original indicator included both new and rehabilitated schemes together with a target of 3938. The restructuring in 2016 split it into two indicators with a target of 1775 for new schemes and 400 for rehabilitated schemes

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Piped household water connections that are benefiting from rehabilitation works undertaken by the project	Number	0.00 01-Jan-2012	225891.00 30-Jun-2017	112370.00 28-Jun-2019	102893.00 28-Jun-2019
Piped household water connections that are benefiting from new water schemes under	Number	0.00	0.00	152330.00	155524.00

**Comments (achievements against targets):**

92 percent of the revised target achieved. The original target was split into a sub indicator to show new and rehabilitation works connections separately. Achieved 102 percent targets against the indicator on new schemes.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Improved latrines	Number	0.00	115.00	10000.00	36376.00



constructed under the project		01-Jan-2012	30-Jun-2017	28-Jun-2019	28-Jun-2019
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**Comments (achievements against targets):**

Achievements exceeded the targets considerably (363 percent), because the State focused more on achieving the ODF status in order to align with the priorities of the SBM

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of GPs where interventions for safe disposal of solid and liquid waste successfully implemented and managed on a pilot basis	Number	0.00 01-Jan-2012	75.00 30-Jun-2017	10.00 28-Jun-2019	0.00 22-Mar-2019

**Comments (achievements against targets):**

While the project could not develop any GP wide SLWM pilots, the project has supported 9652 small SLWM units covering 93 GPs benefitting 225,939 people, which showcased workable solutions for solid and liquid waste.



**B. KEY OUTPUTS BY COMPONENT**

<b>Objective/Outcome: Increase the access of rural communities in Kerala to improved and sustainable water supply and sanitation services, using a decentralized, demand-responsive approach</b>	
Outcome Indicators	<ul style="list-style-type: none"> <li>• Direct project beneficiaries (number), of which female (percentage)</li> <li>• Number of people in rural areas provided with access to improved water sources under the project</li> <li>• Number of GPs in the State implementing decentralized, demand-responsive projects in RWSS <i>(dropped with restructuring)</i></li> <li>• Number of projects supported water supply schemes that are managed by beneficiary groups following demand responsive approach <i>(added with restructuring)</i></li> <li>• Number of people with access to improved facilities for safe disposal of solid and liquid waste <i>(dropped with restructuring)</i></li> <li>• People provided with access to improved sanitation facilities <i>(added with restructuring)</i></li> <li>• Number of operational water schemes for which KRWSA's sustainability index is &gt;80 percent. <i>(dropped with restructuring)</i></li> <li>• Number of water supply schemes improved under the project that are delivering satisfactory services to all intended households by recovering full operational costs <i>(added with restructuring)</i></li> </ul>
Intermediate Results Indicators	<p><u>Component A: Institution Building</u></p> <ol style="list-style-type: none"> <li>1. Number of capacity building training events carried out; Number of person days of capacity building carried out</li> <li>2. People trained to improve hygiene behavior/sanitation practices under the project</li> <li>3. Number of sector development studies successfully completed</li> </ol> <p><u>Component B: Technical Assistance to Implementing Agencies</u></p> <ol style="list-style-type: none"> <li>1. Number of project GPs benefiting from technical assistance and capacity building</li> <li>2. Number of water utilities that the project is supporting</li> <li>3. Number of other water service providers that the project is supporting</li> <li>4. Number of project supported multi-Gram Panchayat schemes by local institutions successfully demonstrated improved service delivery</li> </ol>



	<p><u>Component C: Infrastructure Development</u></p> <ol style="list-style-type: none"> <li>1. Total number of new water supply schemes being operated (cumulative)</li> <li>2. Total Number of Rehabilitated Water Supply schemes being operated</li> <li>3. Piped household water connections that are benefiting from rehabilitation works undertaken by the project</li> <li>4. Piped household water connections that are benefiting from new water schemes</li> <li>5. Improved latrines constructed under the project</li> <li>6. Number of GPs where interventions for safe disposal of solid and liquid waste successfully implemented and managed on a pilot basis</li> </ol>
Key Outputs by Component	<p><u>Component A: Institution Building</u></p> <ol style="list-style-type: none"> <li>1. 627,394 person days of capacity building carried out with 8546 training events</li> <li>2. 72752 people were trained to improve hygiene behavior/sanitation practices</li> <li>3. 10 sector studies completed. Draft sector plan prepared</li> </ol> <p><u>Component B: Technical Assistance to Implementing Agencies</u></p> <ol style="list-style-type: none"> <li>1. 598 GPs received capacity building for sustainable RWSS services</li> <li>2. KWA was supported by the project</li> <li>3. 3,578 BGs received technical assistance for RWSS (1,576 technical staff engaged for technical support through SOs)</li> <li>4. 3 multi-Gram Panchayat schemes supported by the project, covering 12 GPs</li> </ol> <p><u>Component C: Infrastructure Development</u></p> <ol style="list-style-type: none"> <li>1.1700 new water supply schemes are operated</li> <li>2. 467 rehabilitation schemes are operated</li> <li>3.102,893 piped connections from 467 rehabilitation schemes</li> <li>4.155,524 piped connections from1700 new schemes</li> <li>5. 36,376 improved latrines constructed</li> <li>6. No GP wide pilots on SLWM pilots undertaken. 9,652 small SLWM units installed covering 93 GPs benefitting 225,939 people</li> </ol>





**ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION**

**A. TASK TEAM MEMBERS**

<b>Name</b>	<b>Role</b>
<b>Preparation</b>	
Martin Gambrill	Task Team Leader
R.R. Mohan	Co- Task Team Leader
G. V. Abhayankar	Senior WSS Specialist, consultant
Kishor Uprety	Senior Counsel
Priti Kumar	Senior Environment Specialist
Priti Jain	Senior Procurement Specialist
Atul Deshpande	Senior Financial Management Specialist
Abdu Muwonge	Economist
D.M. Mohan	Senior WSS Engineer, consultant
Pratibha Mistry	Water Resources Specialist
Suseel Samuel	WSS Specialist
Junxue Chu	Senior Finance Officer
Oscar Alvarado Senior	WSS Specialist
Mamata Baruah	Program Assistant
Michele Lisa Chen	Program Assistant
Parimal Sadaphal	Environmental Specialist, consultant
Anil Das	PIP, ORAF and GAAP consultant
<b>Supervision/ICR</b>	
Srinivasa Rao Podipireddy	Task Team Leader
Sangeeta Patel	Procurement Specialist
Bernadeen Enoka Wijegunawardene	Financial Management Specialist
Maruthi Mohan Dharmapuram	Team Member
Ramachandran R. Mohan	Team Member
Mridula Singh	Social Specialist
Balaji Kuduva Prem	Team Member
Roshni Sarah John	Team Member
Deepa Balakrishnan	Environmental Specialist

**B. STAFF TIME AND COST**

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
<b>Preparation</b>		
FY10	9.595	97,709.12
FY11	41.633	268,867.30
FY12	24.894	207,839.52
<b>Total</b>	<b>76.12</b>	<b>574,415.94</b>
<b>Supervision/ICR</b>		
FY10	0	0.00
FY12	11.139	106,939.86
FY13	33.564	191,852.80
FY14	18.112	134,530.29
FY15	21.150	122,460.57
FY16	21.775	90,645.60
FY17	19.184	158,863.56
FY18	18.389	113,153.55
FY19	25.974	123,176.15
FY20	9.705	25,233.94
<b>Total</b>	<b>178.99</b>	<b>1,066,856.32</b>



**ANNEX 3. PROJECT COST BY COMPONENT**

Components	Amount at Approval (US\$M)	Amount Revised (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval	Percentage of Revised
Institution Building	26.8	16.49	14.9	56	90
Technical Assistance to Implementing Agencies	27.2	16.58	11.9	44	72
Infrastructure Development	187.2	207.93	170.5	91	82
<b>Total</b>	<b>241.2</b>	<b>241.2</b>	<b>197.3</b>	<b>82</b>	<b>82</b>
Loss due to currency exchange fluctuation with SDR			19.1		

Note: The financial data was updated as of December 5, 2019. Minor changes are expected by the disbursement deadline, December 28, 2019.



ANNEX 4. EFFICIENCY ANALYSIS

1. The overall efficiency rating is Substantial. The EIRR and NPV of the project are positive, though highly sensitive to key assumptions. The cost-effectiveness of the operation was relatively weaker than expected at appraisal, primarily due to reaching fewer beneficiaries than targeted, but expenditures per beneficiary nevertheless remained well within expectations for the sector. Design and implementation of the project were substantially adequate and facilitated the observed positive economic outcomes and overall cost-effectiveness, despite some weaknesses constraining results relative to initial expectations.

2. The ICR economic analysis finds an NPV of INR 640million (US\$ 9.3 million), an EIRR of 13.4 percent, and benefit-cost ratio of 1.08. These economic outcomes are positive, if lower than expectations at appraisal, as illustrated by Table 4.1. The EIRR is within a range typical for water sector projects of the World Bank<sup>31</sup>. Notably, however, the observed positive results are also highly sensitive to the underlying model assumptions as detailed below.

Table A 4.1. NPV, EIRR, and Benefit-Cost Ratio as Estimated at Project Appraisal and at Closure

	Net Present Value <sup>a</sup>	EIRR	Benefit-Cost Ratio
Estimate at appraisal	INR 4.09 billion (US\$90 million)	19.4	1.64
At closure	INR 0.640 billion (US\$ 9.3 million)	13.4	1.08

Note: a. The rupee depreciated from INR 45.4 to the dollar at appraisal to INR 68.9 at closure.

3. To ensure comparability, the ICR followed the approach of the economic analysis at appraisal, which focused on the “quantifiable economic benefits of improved water supply”. This meant the “benefits from non-incremental water consumption, incremental water consumption, and [...] time and resource savings”, but excluded benefits the available data renders “unquantifiable”, notably “those due to improved sanitation” which also received less than 10 percent of total investments. The original discount rate of 12 percent at appraisal was retained for the ICR analysis.<sup>32</sup>

4. As in the original model, “the rate of return is most sensitive to changes in the opportunity cost of time.” At appraisal, it was assumed that beneficiary households would save as much as 160 minutes per day in water fetch-time due to the project. In fact, a survey carried out in 2019 found time savings of only 52 minutes per household per day on average. The lower time savings have a number of reasons: firstly, even before the project, 66 percent of households were already primarily dependent on a source inside their premises, though typically a well rather than a piped connection; for these, *Jalanidhi II* brought improvements in quantity and quality of water, but few fetch-time savings. Moreover, a significant percentage of schemes do not supply water every day, which limits average time savings, as beneficiaries have to resort to other sources during supply cuts<sup>33</sup>. Finally, a significant number of households appears to complement *Jalanidhi* water with other sources, even when the former is available.

5. The lower-than-expected time savings were compensated in the ICR analysis by a higher than originally assumed valuation of time. At appraisal, fetch-time savings were valued based on a “rural wage

<sup>31</sup> IEG World Bank. 2010. “Cost-Benefit Analysis in World Bank Projects”.

<sup>32</sup> The original sensitivity analysis and additional details about the economic model at appraisal were presented in an annex to the PAD available to the ICR team, but not published at the time.

<sup>33</sup> SEE-3 (Sustainability evaluation conducted by CSES in 2019).



rate for the unskilled labor... assumed to be INR 8.5 per hour.”<sup>34</sup> This wage figure appears to be in line with the Indian average at project inception; however, rural wages are significantly higher in Kerala state according to the Labour Bureau’s Wage Rates for Rural India (WRRRI) data. Drawing on this data, the ICR analysis based the time valuation on an unskilled wage of INR 26, adjusted for wage inflation across the project lifetime.<sup>35</sup> As the sensitivity analysis in Table 4.2 demonstrates valuing fetch-time savings based on the original wage of INR 8.5 would not produce a positive return for the project. However, the Kerala wage data provides a more legitimate estimate for this Kerala-based project and was thus preferred. The sensitivity analysis also shows that reaching the project target in terms of rural water beneficiaries would have improved the rate of return by more than 2 percent.

6. For comparability, the ICR economic analysis retained an assumption of the original model with important implications for the robustness of the estimated economic outcomes: actual time savings were discounted by 50 percent to account for the fact that not every hour saved is transformed into paid income (“for example, time for children fetching water [or] not all households will take up paid work after gaining savings in time”).<sup>36</sup> As the sensitivity analysis underlines, changes in the discount factor have a large impact on estimated project viability. This is a significant factor of uncertainty as empirical data on how much of saved fetch-time is monetized is scarce.

**Table A 4. 2: Sensitivity Analysis**

Assumption	NPV	EIRR (%)	Benefit-Cost Ratio
<b>Change in Valuation of Time (2012 value) <sup>a</sup></b>			
INR 26per hour (ICR model)	INR 0.640 billion (US\$ 9.3 million)	13.4	1.08
INR 20 per hour	– INR 1.04 billion (– US\$11.9 million)	9.5	0.88
INR 8.5 per hour (appraisal model)	– INR 4.9 billion (– US\$71.3 million)	-2.5	0.42
<b>Change in Discount Factor for Fetch-time</b>			
50 percent (appraisal and ICR model)	INR 0.640 billion (US\$ 9.3 million)	13.4	1.08
30 percent	– INR 2.3 billion (– US\$ 34 million)	6.1	0.73
10 percent	– INR 5.3 billion (– US\$77.2 million)	–4.3	0.38
<b>People in rural areas provided with access to improved water sources by the project</b>			
1,154, 750 (actual; ICR model)	INR 0.640 billion (US\$ 9.3 million)	13.4	1.08
1,367,000 (project target)	INR 1.67 billion (US\$24.2 million)	15.5	1.19

Note: a. Assumes wage inflation at same rate as Kerala values from WRRRI.

<sup>34</sup> At appraisal, this figure was not clearly sourced; however, it appears to correspond to the 2009–2010 female Indian wage for unskilled non-agricultural labor in the Wage Rates in Rural India time series by the Indian Labour Bureau, Gol.

<sup>35</sup> Labour Bureau of India, Ministry of Labour and Employment. Kerala daily wage for the category ‘Unskilled’ labor until 2013 (thereafter the equivalent category ‘Non-agricultural laborers including porters and loaders’. Female wage rates used as more than 95 percent of persons fetching water are female in the sample. Nine-hour work day has been assumed. Past wage inflation has been projected forward for years beyond 2019.

<sup>36</sup> Detailed in an annex to the PAD available to the ICR team, but not published at the time. Note that in addition to the time discount, a 0.9 standard conversion factor was applied in both the appraisal and ICR analysis.



7. Additional key benefits contributing to the observed economic returns were savings on non-incremental consumption of water and the value of incremental (additional) water use. Savings on non-incremental use stem from the fact that water from *Jalanidhi* is, on average, slightly cheaper than other sources. This effect is driven by a sizable minority of approximately 12 percent of households which pay a relatively high price for *non-Jalanidhi* water, even though alternative sources (for example, surface water) are free of cost to most households. A larger, more widely distributed economic benefit consists of the value of the additional water consumption the project enabled. At appraisal, the economic model supposed almost no increase in water consumption, essentially assuming *Jalanidhi* water would only replace existing consumption. In fact, it seems the project has led to a significant increase in average consumption of over 50 lpcd, with households complementing the relatively cheap and convenient *Jalanidhi* water with other sources. As willingness-to-pay data is not available, the incremental water was valued at the average cost of (*Jalanidhi* and *non-Jalanidhi*) water, indicating an annual benefit of at least US\$19 per average household.<sup>37</sup> As in the analysis at appraisal, health benefits from either less contaminated water or more hygienic sanitation facilities were not quantified due to an absence of reliable data on health outcomes and their specific links to water and sanitation infrastructure in the project area.

8. From the perspective of cost-effectiveness, expenditures per beneficiary were higher than anticipated at appraisal, but remain within expectations for the sector. Investment costs per person provided with an improved water connection were approximately US\$136 under the project, with costs per improved sanitation beneficiary of approximately US\$27.<sup>38</sup> This was higher than expected at appraisal by approximately 17 percent for water and 44 percent for sanitation investments. This was primarily because of the two large multi-village schemes that were dropped due to exchange rate fluctuations, as well as a greater than anticipated focus on higher quality house-connections which serve fewer beneficiaries than public connections do. The unprecedented floods of 2018 also imposed delays and rehabilitation costs, however, these were relatively minor and largely borne by the GoK.

9. Nevertheless, costs per beneficiary remain within expectations for the sector: data from the UNICEF-WHO Joint Monitoring Program suggest a typical range of US\$92 to US\$144 in average costs per person served by improved house connections in developing countries.<sup>39</sup> The project achievement would thus be well within a typical range. The same source suggests a range of US\$6 to US\$14 per beneficiary of improved pit latrines in construction costs (WHO-UNICEF 2000). While costs per sanitation beneficiary were higher under the project, these also include costs for the ODF campaign, rather than construction costs only.<sup>40</sup> A recent review of DFID water and sanitation investments in Bangladesh found a “total cost per person who gained access to a sanitation facility and uses it” of US\$23.6<sup>41</sup>.

10. The project did undertake serious efforts to achieve an efficient use of resources through its design and implementation, though some weaknesses persisted. The design of the project built on the lessons learned in the predecessor *Jalanidhi I* with a decentralized, bottom-up, and demand-responsive approach focused on sustainability. As the economic analysis shows, the chosen design centered on

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<sup>37</sup> This conservative estimate undervalues the real consumer benefit as it captures only part of the consumer surplus.

<sup>38</sup> Including counterpart funding.

<sup>39</sup> WHO-UNICEF. “Global Water Supply and Sanitation Assessment 2000 Report”. The data stems from 1990–2000. Adjusting for inflation suggests an even higher range of US\$250 to US\$390.

<sup>40</sup> Moreover, adjusting for inflation increases the WHO-UNICEF range to approximately US\$16 to US\$37.

<sup>41</sup> S. Trémolet, M. Prat, L. Tincani, I. Ross, A. Mujica, P. Burr, B. Evans. 2015. “Value for Money analysis of DFID-funded WASH programmes in six countries”. London.



household connections was integral for producing the significant economic benefits related to fetch-time savings and significant incremental water use.

11. The design and implementation of the project were adequate overall and facilitated the observed positive economic outcomes. The project management expense remained less than seven percent of the total project cost. Nevertheless, delays due to extensions of closing date by two years in total and inefficiencies in implementation did occur (see Key Factors in Implementation), which contributed to the lower-than-expected number of beneficiaries and constrained efficiency.

12. The reliance on public funding remains justified in light of the lack of private providers incentivized to provide water at cost and scale to the poor and rural areas targeted by the project. During implementation, procurement- and FM teams were active and well-capacitated (sections Quality of Supervision and Fiduciary), contributing to overall adequate cost-efficiency.

13. The overall efficiency rating of Substantial thus reflects the fact that the project achieved positive returns and that costs per unit of output are within typical ranges for the sector, if somewhat lower than originally anticipated. The overall positive economic outcomes are qualified to some degree by uncertainty with respect to assumptions around the valuation of time savings, as outlined in the sensitivity analysis. Design and implementation of the project were substantially adequate and facilitated the positive economic outcomes and overall cost-effectiveness.



**ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS**

#	Comments of KRWSA (page and paragraph numbers updated)	Response
1	<p>The revised amount of Loan is 155.30M USD. During MTR considering the Rupee devaluation against USD the Loan Value was revised and as per the WB Client Connection portal the signed amount of Loan on 09.12.2019 is 135.11M USD.</p> <p>Actual Disbursed amount is shown as 130.32M USD in the Table. The actual disbursement as on date is 132.35M USD. Moreover, the actual disbursement as per the WB Client Connection portal on 9.12.2019 is 128.95M USD. There is a difference of 3.4M USD between the Historical Disbursement and Disbursement shown in the WB Client Connection portal.</p>	<p>The Credit amount remained SDR 98 Million throughout. The US dollar equivalent was US\$155.3 million at negotiations and dropped to US\$136.2 million due to exchange rate fluctuations.</p>
2	<p>Page.3 of ICR. The Claim details may be updated up to Oct. 2019 amounting to 132.35M USD.</p>	<p>The disbursement shown in the ICR datasheet is auto-generated, showing data as of December 19, 2019. Minor fluctuations may be expected.</p>
3	<p>Page.10 of ICR - Para 22.c. The cost sharing of CAPEX is 75:15:10 between GoK, GP and BG. The additional burden on subsidies on BG contribution granted to BGs is being met from the GoK fund. Hence the GP contribution to CAPEX shall remain constant at 15%. The Contribution ratio mentioned in page 11 and 17 are not as per our Second Draft of ICR submitted.</p>	<p>This para provides actual ratio against the CAPEX of the water supply schemes, as provided by PMU; reasons for variations, as reported by the PMU, are given in paragraph 43.</p>
4	<p>Page.14 of ICR - Para 37. Cost per person for providing improved water connection is shown as approximately 136 USD. The cost per household connection (mentioned in para 37 &amp; 45) shows slight difference, the Bank may be requested to verify the basis for calculation.</p>	<p>Paragraph 37 provides average cost per person of all water supply schemes while paragraph 45 provides cost per household separately for rehabilitation schemes and new schemes. Calculations are made based on data provided by the PMU.</p>
5	<p>Page.18 of ICR - para 54. The Budget Allocation under Sustainability Support Programme for the year 2019-20 is shown as 500M INR. Actual amount of allocation is 550M INR.</p>	<p>Updated, thank you</p>





6	<p>Page. 23 of ICR. Para 77. It has been commented that 'during 2015 to 2017 the project faced issues such as delays and weaknesses in internal audit arrangements, delays in external audit, high staff turnover and weaknesses in financial reporting. But Later managed to establish strong FM staffing arrangements in the PMU by engaging experienced consultant which helped to improve the performance toward the end of the project'.</p> <p>Actually there was no change in the FM side during the said period. The Finance Consultant was in the project since 2013 onward. Moreover the period mentioned in the para is the period of resurrection of Jalanidhi Phase II Project. During 2015-2017 Smt. Tinku Biswal IAS, Secretary WRD held the additional charge of ED, KRWSA and the project has attained the maximum annual expenditure during these years.</p> <p>As per the Table provided under Page. 7 up to 2014 the rating of the project was Moderately Unsatisfactory and from the beginning of 2015 the rating changed to Moderately Satisfactory and during 2016 and 2017 the rating of the project was at its highest ever at Satisfactory. Hence this is not matching with the comments in Para. 77 and hence may be revised.</p>	<p>Corrections made, thank you</p> <p>Para 77 refers to financial management only and the turnaround of the project is mentioned in paragraph 57.</p>
7	<p>Page.23 of ICR. Para.78. The last sentence of the para says that there was concern on gaps in entering the details of procurement in the STEP (Systematic Tracking and Exchange in Procurement). The total number of schemes under Jalanidhi Phase II Project is 2176. Minimum three procurement are being done in each scheme. This results in huge number of procurement transactions. Entering the details of all these transactions within a very short span of time in the STEP portal demand mammoth effort. However as directed by the WB Procurement wing the details of most of the schemes in MS Excel format were submitted.</p>	<p>Out of 2176 schemes, only 2167 schemes had been completed and were operational by closing, as reported by the PMU. The practical difficulties of entering the data in STEP are noted.</p>
8	<p>In page 39, the original targets based on PAD are mentioned. It would be better if the revised targets as per MTR is also included. The percentage of achievement will be different if it is based on MTR.</p>	<p>Revised amounts as per the 2016 restructuring added, thank you.</p>
9	<p>Our project was selected as the Best Disbursing Project during October and November 2017.</p>	<p>Noted, thank you.</p>



10	<p>As per the ICR the project is rated as Moderately Satisfactory. The WB has considered the performance of the project before and after the revision of targets in 2016. The application of this split rating (please see Table 6 under in the ICR) may be the reason for the moderate rating. The waited value of the rating before restructuring is 1.44 whereas the rating after restructuring is 2.6. The low level of achievement in the sanitation front is the major reason for the low rating in the period before restructuring.</p>	This observation is correct.
11	<p>In Table I of the ICR, the targeted beneficiaries for improved WS was 13,76,000 against which the achievement is 11,57,000. The gap in achievement is due to the dropping of two multi GP schemes (Nedumbassery and Cheekode) for want of sufficient funds. But for this, most of the targets have been more or less achieved.</p>	Noted and mentioned in para 24
	<p>The shortfalls in the Project have been objectively analysed and possible reasons which caused the same have been mentioned in the ICR. In the lessons learned, the ICR has highlighted the relevance of Jalanidhi model and emphasised the need for post implementation support mechanism.</p> <p>Jalanidhi has established the willingness to pay for water, irrespective of the income level of the community. Joint ownership of the schemes by the BG and GP, need for increased role for the GP for long term sustainability. These very important lessons for the sector may also be incorporated.</p> <p>In general, the ICR is acceptable. However we may request the Bank to consider the comments and suggestions accorded above.</p>	<p>Thank you</p> <p>Paragraphs 85 and 86 were revised to incorporate points on willingness to pay and the need of addressing the challenges of GPs. Joint ownership of GPs is highlighted in paras 49 and 53.</p>



## ANNEX 6. SUPPORTING DOCUMENTS

1. Project Appraisal Document (Report No. 64658-IN) and legal agreement.
2. Aide Memoires of the Bank Missions and Management Letters (2010-2019)
3. Implementation Status Reports (17 ISRs during 2012-2019)
4. Restructuring Paper-2016 (Report No. RES16162).
5. Restructuring Paper-2018 (Report No. RES34738).
6. India Country Assistance Strategy 2009-2012 (Report No. 46509-IN).
7. India Country Assistance Strategy 2013-2017 (Report No. 76176-IN)
8. India Country Partnership Framework 2018-22(Report No. 126667-IN)
9. The Implementation Completion and Results Report (ICR) of Jalanidhi I (IDA-34310/ P055454)
10. National Annual Rural Sanitation Survey Reports (<https://jalshakti-ddws.gov.in/publications-and-presentations-sbm.>)
11. Study Reports (Annex 7)
12. Impact Evaluation of *Jalanidhi I* (<https://hubs.worldbank.org/docs/ImageBank/Pages/DocProfile.aspx?nodeid=27329170>)
13. The Project Implementation Manual

**ANNEX 7. STUDIES FINANCED BY THE PROJECT**

No.	Name of the study	Year	Objectives of the study	Key Recommendations /Outcomes
1	Sector status -Medium Term Plan Preparation	2012	To undertake a rapid assessment of the status of the water and sanitation sector in the State and draft a medium-term plan for five years.	The report provided inputs for other studies and helped KWA to make investment decisions. Though, the plan was not implemented fully.
2	Process Documentation-SWSS	2014	<ul style="list-style-type: none"> <li>▪ To assess whether and how community mobilisation, community action planning procedures, criteria, and training have been successful in enabling community decision-making and in reaching informed choices.</li> <li>▪ To study and comment on variations in each major activity.</li> <li>▪ To comment on changes needed in capacity building.</li> <li>▪ To study and suggest changes needed in scheme cycle.</li> <li>▪ To study and comment on staffing and institutional pattern.</li> <li>▪ To study and comment on the role and involvement of GP.</li> </ul>	The process studies made recommendations to improve process milestones, selection and orientation of SOs, training requirements of various actors, Do's and Don'ts, accounting processes, guidelines etc. It also highlighted the need of making documents available in Malayalam, technical expertise in design, effective communication, addressing KWA related issues for bulk water schemes, process optimization, affirmative actions for inclusion etc. Incorporating these suggestions, KRWSA revised the implementation manual.
3	Process Documentation-LWSS	2017	To assess the content, effectiveness, usefulness and efficiency of the approaches to advocate further improvements in institutional systems, procedures, and other interventions in strategic planning and assessment in respect to the implementation of Large/ Bulk Water Supply Schemes in Jalanidhi	
4	Sustainability Evaluation study- SEE-1	2015	To monitor the sustainability of the systems set up under this project:	
				The studies assessed and provided feedback on key factors (technical, financial, institutional and operational including) that impact sustainability of the WSS schemes. These inputs contributed to the



5	Sustainability Evaluation study- SEE-2	2017	<ul style="list-style-type: none"> <li>▪ Assess the degree of sustainability of the systems set up under the project</li> <li>▪ Study the organizational dynamics operating in a community driven service utility</li> <li>▪ Understand the emerging issues and suggest responsive measures that can be adopted in the project to either mitigate or even prevent such fallouts</li> </ul>	project updating the implementation manual and the training programs.
6	Sustainability Evaluation study- SEE-3	2019		
7	Study on Domestic Water and Sanitation Service Level in Kerala-First round	2015	To assess the service and customer satisfaction levels in domestic water supply and sanitation at the household level in the State of Kerala.	About one-third of the households were found unsatisfied on WSS services. About 40% of the households were experiencing shortage in water supply mostly in the summer months. These studies suggested various recommendations to improve services.
8	Study on Domestic Water and Sanitation Service Level in Kerala-Second round	2017	To assess the Water Supply and sanitation service levels of the rural households in the State of Kerala	
9	Performance assessment Survey for 10 MGPs	2017	to conduct an overall technical performance and service delivery assessment of the selected sample of 10 Multi-GP Rural Drinking Water Supply Schemes	Overall, none of the scheme could satisfactorily meet the objectives in terms of total coverage, duration, frequency and quality of the water supplied to the end consumers. The study recommended to utilize excess capacity to increase connections and provide 24X7 supply, which were not implemented.
10	Kerala Rural Water Supply Sector Development Plan	2017	To prepare Rural Water Supply Sector Development Plan	It developed a detailed investment requirement plan with a proposed institutional arrangement and interlinkages between various institutions at various levels. The Plan also proposed an M&E Framework for the RWS Sector.



**ANNEX 8. INDICATORS FOR SUSTAINABILITY ASSESSMENT**

1. KRWSA had developed an index to measure the sustainability of schemes by the time of project preparation. The index included three major aspects: source/technical sustainability, institutional sustainability and financial sustainability. The indicators were identified for each of these aspects and a scoring system were developed, from 0 (worst case) to 5 (best case) as detailed in Table A6.1. The score on the composite index of sustainability was obtained by assigning a weight of 60% for the scores of source/technical sustainability, 20% for institutional sustainability, and 20% for financial sustainability. The index was then converted to score out of 100.

**Table A6.1 KRWSA Sustainability Index**

Sl. No	Indicator		Scoring	Method of data collection
<b>A Source/Technical Sustainability</b>				
A1	Regularity of Supply	Frequency of supply of water to the beneficiaries.	7 days = 5 3 -6 days = 4 1-2 days = 3 No supply now = 0	BG Survey
A2	Source with problems	Status of source of the scheme.	OK =5 Working with problems= 3 Not working =0	BG Survey
A3	Disruption of supply due to technical issues	Number of days of partial or full disruption of supply due to technical issues during the last six months	10 days or less =5 11 -30 days =4 31 -60 days =3 61 -90 days =2 91-120 days=1 > 120 days =0	BG Survey
A4	Quality of construction	1. Covered well 2. No cracks in well cover 3. No cracks in protection wall 4. Reservoir/ OHT in good condition 5. No leak in the Distribution system	No problem- 5 With only one problem= 4 With 2 problems= 3 With 3 problems= 2 With 4 problems= 1 All 5 problems= 0	Transect Walk
<b>B. Institutional Sustainability</b>				
B1	Community Participation in BG Activities	Number of BG level meetings held in last financial year (GB+BC)	4 or more meetings =5 1-3 meetings= 3 No meetings = 0	BG Survey
B2	Maintenance of Records	Whether Minutes Book of GB is available?	Yes = 5 No = 0	BG Survey
<b>C Financial Sustainability</b>				
C1	Financial viability	Proportion of user charges to O&M expenses during last 6 months.	100 % or more =5 ≥80% and < 100%=4 ≥60% and < 80%=3 ≥40% and < 60%=2 < 40% or no data and collecting user charges = 1 User charges not collected= 0	BG Survey
C2	Defaulting users	Number of households chronically defaulting in O&M (Defaulting for more than 3 months)	10 % or less = 5 >10% and ≤ 20%=4 >20% and ≤ 30%=3 >30% and ≤ 40%=2 >40% and ≤ 50%=2 More than 50%=0	BG Survey



2. During the implementation of the project, the method of assessing of sustainability was further improved for three Sustainability Evaluation Exercises (SEEs), which were conducted by an independent organization named Centre for Socio-economic and Environmental Studies (CSSES during 2015, 2017, and 2019). Unlike KRWSA index, the sustainability was assessed primarily on four major aspects- technical sustainability, institutional sustainability, financial sustainability and user satisfaction. More sustainability indicators have been developed for each of these aspects and a scoring system has been developed, from 0 (worst case) to 5 (best case) as presented in Table A6.2. The scores on sub-indicators are added and converted into scores out of 100. Equal weights were given to the indicators.

**Table A6.2 Indicators of Sustainability for SEE Score**

Sl. No	Indicator	Scoring	Method of data collection
<b>A Technical Sustainability</b>			
A1	Regularity of Supply	Frequency of supply of water to the beneficiaries. 24X7 = 5 7 days but <24 = 4 4 -6 days = 3 2-3 days = 2 1 day = 1 No supply now = 0	BG Survey
A2	Source with problems	Status of source of the scheme. OK =5 Working with problems= 1 Not working =0	BG Survey
A3	Disruption of supply due to source problems	Number of days of partial or full disruption of supply due to drying up of source or poor water quality during August 2018-January 2019 No disruption = 5 10 days or less =4 11 -30 days =3 31 -60 days =2 61 -90 days =1 > 90 days =0	BG Survey
A4	Disruption of supply due to technical issues	Number of days of partial or full disruption of supply due to technical issues during August 2018-January 2019 No disruption = 5 10 days or less =4 11 -30 days =3 31 -60 days =2 61 -90 days =1 > 90 days =0	BG Survey
A5	Quality of construction	1. Covered well 2. No cracks in well cover 3. No cracks in protection wall 4. Reservoir/ OHT in good condition 5. No leak in distribution system No problem- 5 With only one problem= 4 With 2 problems= 3 With 3 problems= 2 With 4 problems= 1 All 5 problems= 0	Transect Walk
<b>B Institutional Sustainability</b>			
B1	Community Participation in BG Activities	Number of BG level meetings held in 2017-18 (GB+BC) 5 or more meetings =5 4 meetings= 4 3 meetings= 3 2 meetings= 2 1 meeting= 1 No meetings = 0	BG Survey
		Proportion of attendance in the last GB to the total number of households More than 50% = 5 41 – 50% =4 31 – 40% = 3 21 – 30% = 2 11 – 20% = 1 <10% or no GB = 0	BG Survey
B2	Renewal of Registration of the BG	Whether financial audit statement and names of BC members submitted to Registrar of Societies for renewing registration? Yes = 5 No = 0	BG Survey



Sl. No	Indicator		Scoring	Method of data collection
B3	Maintenance of Records	Whether Minutes Book of GB is available?	Yes = 5 No = 0	BG Survey
<b>C</b>	<b>Financial Sustainability</b>			
C1	Financial viability	Proportion of user charges to O&M expenses during last 6 months.	100 % or more =5 ≥80% and < 100%=4 ≥60% and < 80%=3 ≥40% and < 60%=2 < 40% or no data and collecting user charges = 1 User charges not collected= 0	BG Survey
C2	Defaulting users	Number of households chronically defaulting in O&M (Defaulting for more than 3 months)	Nil = 5 10 % or less = 4 >10% and ≤ 20%=3 >20% and ≤ 30%=2 >30% and ≤ 40%=1 More than 40%=0	BG Survey
C3	Book Keeping	Whether the Ledger of income & expenditure and the cash book are maintained by the BG up to date?	Both are up to date = 5 Any one is up-to-date =4 None = 0	BG Survey
<b>D</b>	<b>Consumer Satisfaction</b>			
D1	Overall consumer satisfaction	Average rating on overall satisfaction	>4 =5 >3 and ≤ 4 =4 >2 and ≤ 3 =3 < 2 = 0	Household Survey
D2	Jalanidhi scheme as primary source of drinking water during summer.	Proportion of households using water from the scheme as main source of drinking water during summer	80 % or more =5 ≥60% and < 80%=4 ≥40% and < 60%=3 ≥20% and < 40%=2 >0 % and < 20%=1 None = 0	Household Survey
D3	Satisfaction with quality of water	Average rating on satisfaction with the quality of water supplied.	>4 =5 >3 and ≤ 4 =4 >2 and ≤ 3 =3 < 2 = 0	Household Survey
D4	Satisfaction on Quantity	Average rating on satisfaction with the quantity of water supplied.	>4 =5 >3 and ≤ 4 =4 >2 and ≤ 3 =3 < 2 = 0	Household Survey
D5	Opinion on the present tariff	Proportion of families having the opinion that the present tariff is fair or low	80 % or more =5 ≥60% and < 80%=4 ≥40% and < 60%=3 ≥20% and < 40%=2 >0 % and < 20%=1 None = 0	Household Survey





## **ANNEX 9: FUND FLOW AND DISBURSEMENT ARRANGEMENT**

*(As stated in the Project Implementation Manual)*

**GoK budget line item and fund releases:** GoK's finance department has opened a separate head 2215-01-800-67 "Add on project of Jalanidhi", in WRD's 'Demands for Grants', for the year 2011-12, for the purpose of releasing funds to KRWSA under this project. KRWSA shall further release funds to the RPMUs who will thereon release funds to the GPs/BGs. During supervision missions, the Bank will review the system of utilization of these funds as per agreed project guidelines.

**FM and fund flow arrangements:** The project will be pre-financed by GoK through the above said dedicated budget line. Funds will be transferred from GoK's consolidated fund to a treasury account of KRWSA and thereon to the KRWSA/PMU bank account. The PMU will incur expenditure from this account for project.

**PMU to RPMU:** PMU shall transfer funds from its account to the bank accounts of the respective RPMU, based on the forecast in the Annual Action Plan and will be replenished from time to time based on the expenditures submitted.

**RPMUs to GPs:** RPMUs will transfer funds to the respective GPs under their jurisdiction, based on reviewing fund requests from the GPs in the prescribed format. Funds will be transferred from the RPMU's bank account to the GP's project bank account. Further, for a GP to receive Project funds, the minimum eligibility criteria are:

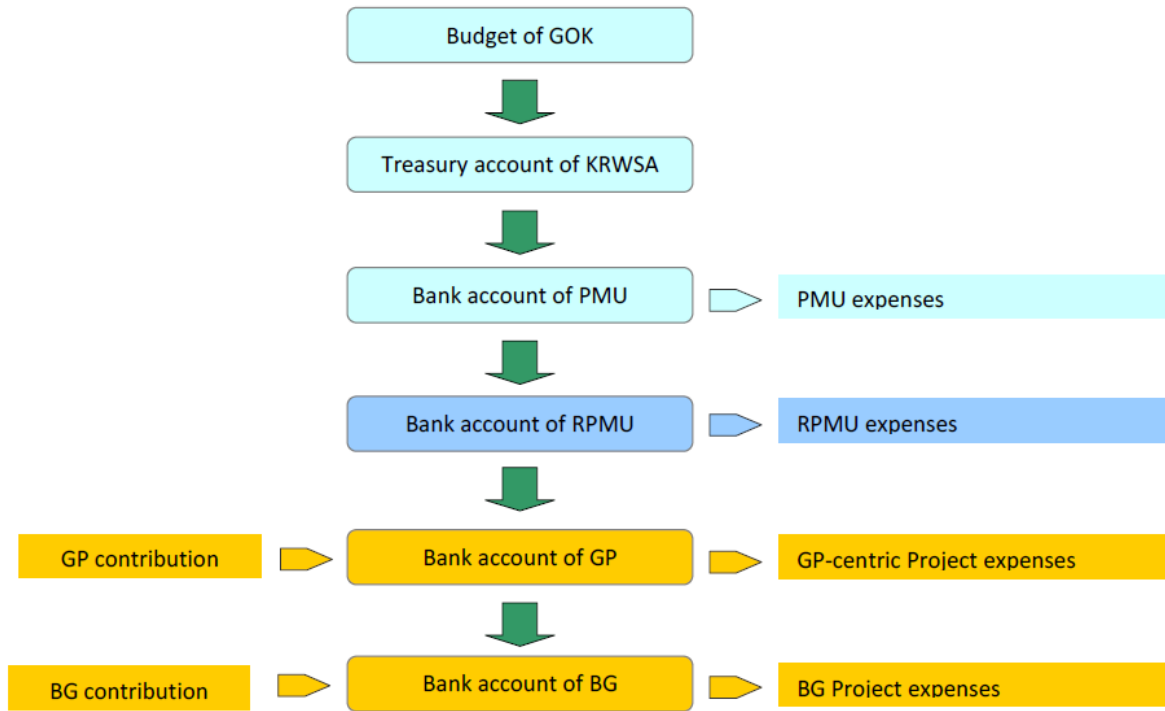
- The GP accounts are up to date;
- The GP should have a clean financial audit opinion (that is, not adverse or disclaimed) from GoK's Local Fund Auditor when considered for entry, for the most recent audit report prior to the year in which funds are to be released;
- In the case of a qualified audit opinion, the observations/qualifications should not be of the type that could affect the integrity and/or true and fair view of the financial statements (an indicative list of such qualifications is described in the FM manual). GPs with such qualifications will not be eligible to receive funds for the year under consideration and until the qualifications are addressed;
- The Panchayat Project Assistant has been engaged and is in place; and
- At least 50% of the GP's contribution to the subproject has been mobilised and deposited into the GP project bank account.

**GPs to BGs:** In addition to the society bank account, each BG will maintain a project bank account. Funds will flow from GPs to BGs, based on defined and pre-agreed criteria. The GPs will use part of the funds for subprojects/activities that are implemented by the GPs and shall transfer the funds required to the BGs on the basis of a formula that will be similar to that used under Jalanidhi-I (ie, fund tranches of 40%, 40% and 20% of a BG's project costs).

For a BG to receive Project funds, the pre-requisites are: (i) The BG should be registered under a Societies Act of Kerala; (ii) the BG should have opened a Project bank account in a scheduled bank; and (iii) At least 50 per cent of the BG's own contribution has been mobilised and deposited into the BG's project bank account.



The funds flow arrangements for the project are depicted in Figure below



**KRWSA and FM arrangements:** KRWSA, as the principal implementing entity, will be responsible for overall implementation and monitoring of all project components. The GPs will transfer funds to the BGs in tranches for small water supply schemes (less than INR 22.5 lakhs, or USD 50,000). The GPs will also utilise funds for implementation of other project components such as the large water supply schemes. All funding to the GP/BG will be subject to audit by GP/BG auditors (chartered accountant firms appointed by KRWSA under TOR agreed with the Bank). Release of subsequent tranches of funds to GPs/BGs will be subject to the audit certifying the actual expenditure in respect of the earlier releases. Actual expenditure incurred by these entities (as reflected from payment vouchers and not releases to lower level entities) will be captured in the Interim Unaudited Financial Reports (IUFs) and will be the basis for disbursement.

**KWA fund flow:** KWA, the Statewide authority for water supply, will be one of Gok’s agencies responsible for handling common infrastructure facility components of large WSS. It was agreed that the KWA will be involved in the project only through a closely ring-fenced FM arrangement, with KRWSA releasing funds to KWA for specific activities and closely monitoring the expenditure incurred by them. KWA will need to identify dedicated staff for managing the FM aspects of all the activities they undertake on behalf of KRWSA.