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R2015-0046/1

March 5, 2015

Closing Date: Tuesday, March 24, 2015 at 6 p.m.

FROM: The Corporate Secretary

India - Punjab Rural Water and Sanitation Sector Improvement Project

Project Appraisal Document

Attached is the Project Appraisal Document regarding a proposed loan to India for a Punjab Rural Water and Sanitation Sector Improvement Project (R2015-0046), which is being processed on an absence-of-objection basis.

Distribution:

Executive Directors and Alternates
President
Bank Group Senior Management
Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC and MIGA

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The World Bank

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Report No: PAD 1174

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$248 MILLION

TO INDIA FOR A

PUNJAB RURAL WATER AND SANITATION SECTOR IMPROVEMENT PROJECT

March 3, 2015

Water Global Practice
South Asia Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective Jan 12, 2015)

Currency Unit = Indian Rupee
INR 62.15 = US$1

FISCAL YEAR
April 1 – March 31

ABBREVIATIONS AND ACRONYMS

AE	Assistant Engineer
BCC	Behavior Change Communication
BCM	Billion Cubic Meters
BPL	Below Poverty Line
CAG	Comptroller and Auditor General of India
CDD	Community Driven Development
CE	Chief Engineer
CPHEEO	Central Public Health and Environmental Engineering Organization
CPS	Country Partnership Strategy
CQS	Selection Based on Consultant's Qualifications
DALY	Disability Adjusted Life Year
DBO	Design, Build, and Operate
DBOT	Design, Build, Operate, and Transfer
DC	Direct contracting
DEA	Department of Economic Affairs, GOI
DPMC	District Program Management Cell
DRDP	Department of Rural Development and Panchayats
DRG	District Resource Group
DWSS	Department of Water Supply & Sanitation, GOP
EE	Executive Engineer
EMF	Environmental Management Framework
ERR	Economic Rate of Return
FC	Fully Covered
FD	Finance Department
GP	*Gram Panchayat*
GPWSC	Gram Panchayat Water Supply and Sanitation Committee
GOI	Government of India
GOP	Government of Punjab
HoD	Head of Department
ICB	International Competitive Bidding
ICT	Information and Communication Technology
IDA	International Development Association

IEC	Information, Education, and Communication
IFR	Interim Financial Report
INR	Indian Rupee
IHHL	Individual Household Latrines
ISP	Implementation Support Plan
JE	Junior Engineer
LCS	Least Cost Selection
LPCD	Liter per capita per day
M&E	Monitoring and Evaluation
MIS	Management Information System
MoDWS	Ministry of Drinking Water and Sanitation, GOI
MOEF	Ministry of Environment and Forest
MOU	Memorandum of Understanding
MTP	Medium-term Sector Program
MV	Multi Village
NABARD	National Bank for Agriculture and Rural Development
NC	Not Covered
NCB	National Competitive Bidding
NGO	Nongovernmental Organization
NGP	Nirmal Gram Purushkar
NRDWP	National Rural Drinking Water Program
O&M	Operations & Maintenance
ODF	Open Defecation Free
PC	Partially Covered
PIP	Project Implementation Plan
PIU	Project Implementing Unit
PMU	Project Management Unit
PPP	Public-private Partnership
PRI	Panchayat Raj Institutions
PRWSSP	Punjab Rural Water Supply and Sanitation Project
QBS	Quality-based Selection
QCBS	Quality- and Cost-based Selection
RWSS	Rural Water Supply and Sanitation
SBM-G	*Swachh Bharat Mission-Gramin*
SC	Scheduled Caste
SDO	Sub-divisional Officer
SE	Superintending Engineer
SLC	Scheme-level Committee
SMAP	Social Management Action Plan
SNK	*Shikayat Nivaran Kendra*
SO	Support Organization
SPMC	State Program Management Cell
SQ KM	Square Kilometer
SSS	Single Source Selection

SSU	State Sanitation Unit
SV	Single Village
SWAp	Sector-wide Approach
SLWM	Solid and Liquid Waste Management
SWSM	State Water and Sanitation Mission
TOR	Terms of Reference
YLD	Years Lost Due to Disability
WHO	World Health Organization
YLL	Years Lost Due to Premature Mortality

Regional Vice President:	Annette Dixon
Country Director:	Onno Ruhl
Senior Global Practice Director:	Junaid Kamal Ahmad
Practice Manager / Manager:	William D Kingdom
Task Team Leader:	Srinivasa Rao Podipireddy

INDIA

PUNJAB Rural Water and Sanitation Sector Improvement Project

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PAD DATA SHEET

India

IN Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

PROJECT APPRAISAL DOCUMENT

SOUTH ASIA

0000009087

Report No.: PAD1174

Basic Information		
Project ID P150520	EA Category B - Partial Assessment	Team Leader(s) Srinivasa Rao Podipireddy
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [ ]	
Project Implementation Start Date 24-Mar-2015	Project Implementation End Date 30-Jun-2021	
Expected Effectiveness Date 15-May-2015	Expected Closing Date 31-Mar-2021	
Joint IFC No		

Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
William D. Kingdom	Junaid Kamal Ahmad	Onno Ruhl	Annette Dixon

Borrower: DEA, GOI

Responsible Agency: Ministry of Drinking Water and Sanitation

Contact:	Suresh Kumar	Title:	Additional Chief Secretary to Government
Telephone No.:	911722741524	Email:	sureshkumar@punjabmail.gov.in

Project Financing Data(in USD Million)					
[X]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[ ]	Credit	[ ]	Grant	[ ]	Other

Total Project Cost:	354.00	Total Bank Financing:	248.00
Financing Gap:	0.00		

Financing Source	Amount
Borrower	106.00
International Bank for Reconstruction and Development	248.00
Total	354.00

Expected Disbursements (in USD Million)

Fiscal Year	2015	2016	2017	2018	2019	2020	2021	0000	0000	0000
Annual	10.00	40.00	60.00	50.00	40.00	35.00	13.00	0.00	0.00	0.00
Cumulative	10.00	50.00	110.00	160.00	200.00	235.00	248.00	0.00	0.00	0.00

Institutional Data

Practice Area (Lead)

Water

Contributing Practice Areas

Cross Cutting Areas

[ ] Climate Change
[ ] Fragile, Conflict & Violence
[X] Gender
[ ] Jobs
[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Water, sanitation and flood protection	Water supply	40		
Water, sanitation and flood protection	Wastewater Collection and Transportation	30		
Water, sanitation and flood protection	Sanitation	15		
Water, sanitation and flood protection	Wastewater Treatment and Disposal	15		
Total		100		

☑ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)		
Major theme	Theme	%
Rural development	Rural services and infrastructure	75
Social dev/gender/inclusion	Participation and civic engagement	10
Social dev/gender/inclusion	Gender	10
Environment and natural resources management	Water resource management	5
Total		100

Proposed Development Objective(s)
To improve water and sanitation service levels, reduce open defecation, and strengthen service delivery arrangements in targeted villages in Punjab

Components	
Component Name	**Cost (USD Millions)**
Transformation - Improved Livability of Villages	160.00
Inclusive Household Water and Sanitation Services	85.00
Improved Water Quality	59.38
Strengthening Institutions and Project Management	49.00

Systematic Operations Risk- Rating Tool (SORT)	
Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Low
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Other	
OVERALL	Substantial

Compliance	
Policy	
Does the project depart from the CAS in content or in other significant respects?	Yes [ ] No [X]
Does the project require any waivers of Bank policies?	Yes [ ] No [X]

Have these been approved by Bank management?	Yes [ ]	No [X]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36	X	
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12		X
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50	X	
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants

Name	Recurrent	Due Date	Frequency
Funds flow	X		CONTINUOUS

Description of Covenant

Punjab shall make the proceeds of the Financing available to the Department of Water Supply and Sanitation within fourteen (14) days of its receipt of such proceeds from the Borrower.

Name	Recurrent	Due Date	Frequency
Eligibility Conditions	X		CONTINUOUS

Description of Covenant

Punjab shall ensure that the Gram Panchayats that participate in the Project are selected in accordance with the agreed eligibility criteria included in the Project Implementation Plan.

Name	Recurrent	Due Date	Frequency
Cost Recovery		30-Sep-2018	

Description of Covenant

Punjab will formulate and adopt a statewide water-supply operations and maintenance policy to ensure full-cost recovery of schemes managed by the Department of Water Supply and Sanitation and improve the department's collection efficiency to 80% by September 30, 2018.

Conditions

Source Of Fund	Name	Type

Description of Condition

Team Composition			
Bank Staff			
Name	**Role**	**Title**	**Unit**
Srinivasa Rao Podipireddy	Team Leader (ADM Responsible)	Sr Water & Sanitation Spec.	GWADR
Ishtiak Siddique	Procurement Specialist	Procurement Specialist	GGODR
Tanuj Mathur	Financial Management Specialist	Sr Financial Management Specialist	GGODR
Avjeet Singh	Team Member	Senior Operations Officer	GWADR
Manish Kumar	Team Member	Sr Institutional Dev. Spec.	GWASS
Michael John Webster	Peer Reviewer	Sr Water & Sanitation Spec.	GWADR
Mridula Singh	Safeguards Specialist	Senior Social Development Specialist	GSURR
Parameswaran Iyer	Peer Reviewer	Program Leader	EACVF
Poonam Ahluwalia Khanijo	Team Member	E T Consultant	GWADR
Pratibha Mistry	Team Member	Water & Sanitation Specialist	GWADR
Pyush Dogra	Safeguards Specialist	Senior Environmental Specialist	GENDR
Rajesh Balasubramanian	Team Member	E T Consultant	GWADR
Rohit Gawri	Team Member	IT Analyst, Client Services	ITSCR
Soma Ghosh Moulik	Peer Reviewer	Sr Water & Sanitation Spec.	GWADR
Sunita Singh	Team Member	Program Assistant	SACIN
Upneet Singh	Team Member	Water & Sanitation Specialist	GWASS
Vandana Mehra	Team Member	Communications Officer	ECRGP
Vikram Raghavan	Counsel	Lead Counsel	LEGOP
Joseph Shine	Procurement Specialist	Procurement	GGODR
Extended Team			
Name	**Title**	**Office Phone**	**Location**
Charu Jain	Consultant		New Delhi
Ghanasham V	Water Sector Specialist		New Delhi

Abhyankar			
Mohan Dr DM	Consultant		Hyderabad
Mohan R R	Social Development		Delhi
Raja BKD	Consultant		Hyderabad
Surekha Pillai	Communication Consultant		

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
India	Punjab	State of Punjab	**X**		All districts in the State

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required? No consultants are required

I. STRATEGIC CONTEXT

A. Country and State Context

1. India has been one of the fastest growing economies in the last decade but in recent years its economy is showing signs of slowing. Between 2004 and 2011- a period that includes the global financial crisis - India's growth averaged 8.3 percent per year. Expanding social programs lowered the poverty rate by 1.5 percentage points per year during 2004–09, double the rate of the preceding decade. India's growth rate, however, slipped to a decade low of 5 percent in 2012–13 due to a combination of domestic and external factors including high inflation, high fiscal deficit, and weak external demand for the country's exports. This slowdown carries high social costs for millions of Indians and threatens the gains made in poverty reduction over the past decade. However, the economy is showing signs of turnaround during the current FY2014–15.

2. India's 12th Five-Year Plan (2012–17) calls for major investments in infrastructure, including in water and sanitation, as one of the pathways to increased growth and poverty reduction. Lack of adequate water supply and sanitation facilities impacts the health and economic well-being of millions of Indians, especially those living in rural areas. It is estimated that the total economic impacts of inadequate sanitation in India amounts to roughly INR 2.46 trillion (US$53.8 billion) a year - equivalent to 6.4 percent of India's GDP in 2006 (WSP Study, 2010). This translates into an annual loss of INR 2,180 (US$35) per person. Therefore, improving access to water and sanitation services is a development priority for India.

3. While roughly 90 percent[1] of India's rural population had reasonable access[2] to an improved water source[3] by 2010, only 31 percent of them had access to a piped supply (2011 census). According to WHO/UNICEF, in 2010, an estimated 12 percent of the global population without access to an improved water source lived in India.[4] Of the 2.5 billion people lacking sanitation across the world, over 650 million live in India. The quality of water services in India is generally poor with unreliable or intermittent supply, low pressures, high leakage, poor cost recovery, inadequate attention to operations and maintenance (O&M), and poor water quality. Access to, and usage of, toilets to achieve open defecation free (ODF) status is a major challenge in rural areas.

4. Although Rural Water Supply and Sanitation (RWSS) is a state subject, government of India (GOI) investments in the sector have increased significantly over the past four decades. Whereas, GOI investments in the 4th Plan totaled INR 300 million for five years, the overall amount expanded to INR 110 billion for one year (2013–14) in the 12th Plan. The GOI's Ministry of Drinking Water and Sanitation (MDWS), which is the nodal ministry to promote RWSS development in the country, is responsible for designing national programs, funding, and monitoring the performance of the states on RWSS.

[1] *Source:* data.worldbank.org.
[2] Reasonable access is defined as the availability of at least 20 liters per person per day from a source within1 kilometer of the dwelling.
[3] Improved source is a household connection, public stand post, borehole, protected well or spring, and rainwater collection.
[4] Progress on Drinking Water and Sanitation, 2012 update, WHO/UNICEF.

5. Institutional arrangements for the RWSS sector vary across states. The 73rd constitutional amendment (1993) provided for the devolution of RWSS to the three-tier Panchayat Raj Institutions[5] (PRIs) or rural local governments by giving them constitutional status and transferring to them responsibility for 29 subjects, including water supply and sanitation.

B. Sectoral and Institutional Context

6. The state of Punjab has high service coverage for water (95 percent) and sanitation (71.9 percent). The state's Department of Water Supply and Sanitation (DWSS), which is the lead agency for implementation, has successfully implemented the World Bank (IDA) supported *Punjab Rural Water Supply and Sanitation Project (PRWSSP, Cr 42510-IN; 2007-14)* under a sector-wide approach (SWAp). The PRWSSP promoted community driven development (CDD) for the first time in the state that included (i) Gram Panchayat[6] Water and Sanitation Committees (GPWSC) taking full control over financial resources and decision-making, O&M, and collection of user charges; (ii) changing the role of the DWSS from direct service provider to that of supporting the GPWSCs; and (iii) building the capacity of the GPWSCs for sustainable operations. Within the framework of this SWAp, the CDD approach was implemented in some 4,000 villages funded both by the PRWSSP and by the GOI's National Rural Drinking Water Program (NRDWP). The project's successful implementation led to acceptance of the decentralized service delivery approach by the government of Punjab (GOP) as reflected in the recently approved Punjab State Rural Water Supply and Sanitation Policy (Gazette Publication May 16, 2014). The PRWSSP also demonstrated that higher levels of service were possible in rural India, including over 10 hours of supply in 109 villages and 24x7 supply in 90 villages. Of the 1,457 IDA-funded villages, 475 have 100 percent connections, 655 have between 70 to 90 percent house connections, 1024 are recovering full O&M costs, and 335 water schemes are fitted with water meters allowing for use of a volumetric tariff. The DWSS established a toll-free phone-based citizen's grievance redressal mechanism which has become a model in India.

7. Despite these achievements Punjab's RWSS sector continues to face major challenges.

a. The urban-rural divide is narrowing and the aspirations of rural people are growing, leading to demands for services that are close to urban norms. Meeting these aspirations calls for the consolidation of gains made under the first project and mainstreaming of the decentralized service delivery approach across the state.
b. While coverage appears high, a large number of water supply schemes are serving only a limited population with house connections. As a result many households continue to depend on the collection of water from public stand posts, particularly by women and children.
c. There is a need to provide toilets to over 625,000 households and to encourage toilet usage toward a target of universal ODF status for all villages. This is despite Punjab's serious attempts to deliver more toilets to households by availing loans from national banks. The results were not encouraging as the state government failed to target ODF. Punjab ranks 19 out of 28 states in terms of the number of GPs winning the *Nirmal Gram*

[5] The three-tier PRIs comprise *Zilla Parishads* (district councils), *Panchayat Samitis* (block councils), and *Gram Panchayats* (village councils). All these levels of rural local governments have an elected body and an administrative wing.
[6] *Gram Panchayat* is local government at village level.

Purashkar (NGP) (the GOI award for achieving ODF status) and is 25 out of 28 states in terms of the percentage of villages that won the NGP.

d. The rapidly deteriorating water quality is leading to serious health problems. It is suspected that the presence of contaminants like uranium and heavy metals, coupled with pesticides, are the causes. Roughly 29 percent of water supply schemes face water quality issues. Shifting to safe surface water sources for water supply to villages confronting serious ground water quality deterioration issues is the only way forward.
e. The DWSS is still a heavily engineering biased entity and needs to be restructured to sustain community management and redirect its focus from construction to service delivery and sector development.

8. In order to address these challenges, the GOP will have to: (i) reorganize the DWSS by changing staff skills mix and focusing incentives/accountabilities on supporting service delivery rather than on asset creation; (ii) progressively shift RWSS' management responsibility to the GPWSCs in the non-SWAp villages (over 8,000); (iii) progressively scale up service levels to achieve meter connections to all rural households with at least 10 hours supply daily (24x7 supply is ideal) and volumetric based charging; and (iv) encourage toilet construction complemented by behavior change toward ODF status.

C. Higher-level Objectives to which the Project Contributes

9. The project is aligned with the Bank Group's India Country Partnership Strategy (CPS) 2013–2017 and contributes to the Bank's strategic engagement areas of 'transformation' and 'inclusion' and the outcomes related to "improved access to water and sanitation services". The project aims to strengthen the decentralization processes initiated under the PRWSSP. It will support key strategic initiatives in line with the CPS, including (i) supporting sustainable RWSS programs and strengthening the capacity of the PRIs; (ii) integrating water supply, sanitation, and hygiene awareness promotion interventions; (iii) piloting the use of public-private partnership (PPP) models such as design, build, and operate (DBO) for select surface water supply schemes; and (iv) institutionalizing and scaling up proven policies and strategies demonstrated through the PRWSSP. The project's strong alignment with the CPS on transformation and inclusiveness will support achievement of the World Bank Group's twin goals.

II. PROJECT DEVELOPMENT OBJECTIVES

A. Project Development Objective

10. The development objective of the project is to improve water and sanitation service levels, reduce open defecation, and strengthen service delivery arrangements in targeted villages in Punjab.

Project Beneficiaries

11. The project will support the RWSS sector in all 22 districts (~12,827 villages). As per the 2011 census, approximately 63 percent (17.3 million people) of the state's population live in rural areas. More than 28.9 percent of the rural population belongs to the Scheduled Caste (SC)

category that is mostly poor and vulnerable. The project is expected to directly benefit an estimated 8.47 million rural people, including roughly 4.02 million female beneficiaries and 2.44 million SC beneficiaries. It will also support the water quality affected districts in the state. Women and children will be significant beneficiaries of project interventions. The rural population is also expected to benefit from targeted communication and social development activities which will promote behavior change leading to adoption of improved sanitation and hygiene practices, including use of latrines.

PDO Level Results Indicators

12. The PDO indicators will be as follows:

- Villages with higher service levels managed by the GPWSCs (Number)
- GPWSCs that are managing O&M of water supply schemes through full cost recovery (Number)
- Districts with MIS operationalized, and monthly reporting of scheme data (Number)
- Villages declared ODF (Number)
- Direct project beneficiaries (Number) - (Core) Female beneficiaries/ SC Beneficiaries
- Villages receiving improved quality of water (Number)

III. PROJECT DESCRIPTION

A. Project Components

13. The project will have four components with beneficiary villages or households selected using the objective criteria (refer to annex 2):

Component 1. Transformation - Improved Livability of Villages (US$160 million)

14. Approximately 570 villages with poor water services and/or partially covered status will be upgraded under Subcomponent 1(a) to receive service standards similar to urban areas (10 hours water supply per day, 100 percent household connections, volumetric charging) thus triggering a transformation in village living conditions. This will require significant scheme rehabilitation as a result of asset age or low capacity or localized problems from low water table in some districts. Following the approach piloted under the PRWSSP, those villages with a strong interest in enhancing community sanitation services, and demonstrating operational and financial capacity in managing the water supply schemes, will be allowed to compete for sewerage schemes under Subcomponent 1(b) (target: 315 villages). Improved service standards, particularly longer hours of water supply, are expected to bring significant benefits for women and children.

Component 2. Inclusive Household Water and Sanitation Services (US$85 million)

15. This component will benefit women and marginalized communities who currently do not have access to water and sanitation (toilet) in the household within existing schemes. Many villages have low household connection rates despite having the system capacity to deliver the same higher level of services as envisaged in Component 1. In these cases, achieving universal access and higher levels of service requires small investments to provide house connections or network extensions, or in some instances, to simply improve O&M practices. Subcomponent

2(a) will support service delivery to 0.65 million households through provision of small network extensions, minor upgrades, and free house connections. Subcomponent 2(b) will focus on schemes which are underperforming due to lack of operational capacity in the GPWSCs/GPs and the project will finance the diagnosis and implementation of the required intervention followed by four months of operation to build capacity and ownership before handing the scheme over to the GPWSC. Taken together these "low cost and high impact" activities will extend hours of supply mainly to benefit the women and children who are otherwise responsible for daily water collection and storage. The improved service levels also provide transformational/livable village benefits to all the households.

16. For those households without toilets, it is primarily the women who suffer the indignity, health impacts, and physical risks associated with open defecation. Subcomponent 2(c) will provide a subsidy to every toilet-less household to construct a toilet coupled with information, education, and communication (IEC) to trigger the behavioral change necessary to achieve ODF status at the village level. This component will coordinate and complement the evolving GOI program (*Swachh Bharat Mission-Gramin* [SBM-G]) aimed at eliminating open defection by 2019. As such, project funds will be allocated to support the planning and implementation of SBM-G statewide as needed.

Component 3. Improved Water Quality (US$59.38 million)

17. This component will begin to address the water quality problems that are now becoming more apparent rendering Punjab one of the most quality affected states in India. Of the total 9,096 schemes tested, 1,717 failed due to the presence of uranium and other heavy metals, and 891 do not meet basic parameters. Together, 29 percent of the schemes have water quality problems.[7] Subcomponent 3(a) will strengthen water quality monitoring and develop mitigation measures. A comprehensive strategy will be developed in the first six months of implementation. Under Subcomponent 3(b), the project will finance (i) cost-effective retrofitting of water schemes with engineering solutions to treat arsenic, fluoride, iron, and so on (target: 150 villages); (ii) construction of surface water supply schemes to supply safe drinking water in districts such as Moga and Barnala where most of the villages are affected by uranium and other heavy metals (over 121 villages).These district-wide schemes will treat water from good surface sources like large canals and deliver the treated water to the village boundary for internal distribution by the GPWSCs. PPPs are being considered for such schemes. Conjunctive use of ground water for general purposes and surface water for human consumption is envisaged.

Component 4. Strengthening Institutions and Project Management (US$49 million)

18. This component will support non-infrastructure project costs. Subcomponent 4(a), Strengthening Institutions, will finance transition costs as the sector institution (DWSS) moves from a construction-centric to a service-delivery-oriented organization. This will include the design and implementation of an MIS to monitor ongoing service delivery performance of the schemes and the performance of the GPWSCs that operate them. Capacity building to deliver technical and administrative support to the GPWSCs, and to network the GPWSCs to allow them to help each other, will form part of the project activities. Subcomponent 4(a) will also finance a

[7] *Source:* DWSS January 2015.

program to support the transfer of responsibilities to the project-supported GPWSCs. Subcomponent 4(b) will finance project management costs such as project implementation, consultancies, internal and external audits, and other incremental costs and recurring operational expenses .

B. Project Financing

Lending Instrument

19. The lending instrument will be Investment Project Financing (IPF).

Project Cost and Financing

20. Table1 presents project costs and financing by component.

Table1. Project Cost and Contribution

Sl. No.	Component	Total Project Cost (in US$, million)	Financing Share	
			GOP* (in US$, million)	World Bank (in US$, million)
1	Transformation-Improved Livability of Villages	160.00	66.00	94.00
2	Inclusive Household Water and Sanitation Services	85.00	7.50	77.50
3	Improved Water Quality	59.38	18.00	41.38
4	Strengthening Institutions and Project Management	49.00	14.50	34.50
	Total Project Costs	**353.38**	**106.00**	**247.38**
5	**Front end fee**	**0.62**		**0.62**
	Total Financing Required	**354.00**	**106.00**	**248.00**

Note: * GOP share will also include any support from the GOI or any other source.

21. The GOI, under the SBM-G will provide subsidies for eligible beneficiaries at INR 9000 for each toilet constructed and part of the IEC costs (which may total an estimated US$91 million).

C. Lessons Learned and Reflected in the Project Design

22. The GOP and the Bank have maintained a successful partnership since 2006 while the Bank has more broadly supported the GOI in piloting and scaling up the RWSS reform projects across 10 states in India over the last 20 years. The key lessons learned from this partnership, and from experience in other countries, and reflected in the design of this project include:

- Decentralized institutional models for the design, implementation, and management of RWSS services have proved to be highly sustainable.
- Sustainability is further enhanced through inclusive, community-based, participatory, demand-responsive approaches to RWSS service delivery leading to 24x7 water supply.
- Building the capacity of the sector and local institutions, support organizations, and communities is critical to successful outcomes.
- Governance, transparency, and accountability aspects need to be embedded in the design.
- A consistent approach at the state level helps scale up reforms and deepens its impact.
- Healthy villages need an effective sanitation program that aims at achieving ODF status.

- Individual house connections significantly increase user satisfaction levels and commitment to pay user charges.
- Sewerage systems tested under the PRWSSP can be replicated and managed by the GPWSCs.
- Project management through existing institutions tends to build more sustainable capacity than implementation through stand-alone project management units (PMU).
- A well-designed WSS project can contribute to broader goals of gender equality, empowerment, and decentralization.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

23. The GOP's Ministry of Water Supply and Sanitation (GOP) is responsible for overall project management with the DWSS, a government department under this ministry, as the implementing agency. State- and district-level project implementing units (PIUs) which implemented the recently completed PRWSSP will be subsumed within the DWSS. Table 2 shows broad functions and responsibilities. The State Water and Sanitation Mission (SWSM), an existing advocacy body, is envisaged to provide oversight to the sector program design and implementation.

Table 2. Functions and Responsibilities

Main Function	Responsible Institution
Policy, annual plans, sector reforms, regulation and budget approvals	DWSS of GOP
Sector development (leading and managing the reform process and outcome monitoring)	SWSM, strengthened DWSS with skills in IEC, social development, and water quality
Implementation and service delivery	Shared responsibility between the DWSS and GPWSC in the GPs

24. The DWSS, which was traditionally a pure engineering department, evolved under the PRWSSP to work with communities in implementing and managing RWSS schemes. The project will build on this process and support the GOP as it reorients the DWSS from its focus on construction to a mandate to ensure the development of higher quality rural water services and sustainable service delivery. A study conducted as part of project preparation(annex 11) provided the following recommendations to be implemented during the project:

- Unified responsibility of the DWSS and accountability to the GOP. Currently, the DWSS is fragmented as three chief engineers (CEs) report directly to the GOP. During the project, the DWSS will create the position of Departmental Head to which the CEs will report. This new position will be supplemented by an office to manage sector development functions, namely, program management, sector planning, financial management, quality, technical, sanitation, accounting, and administration.
- DWSS engineers will gradually reorient toward service delivery, with responsibility for monitoring service delivery in groups of villages—mostly located in their area of operations. The redeployment will be in phases.
- The DWSS will transition from a pure engineering department to a multidisciplinary entity including social, communication, environmental, and quality assurance professionals.

- Additional sanitation, IEC, social, environmental, and other specialists or consultants shall be hired for project implementation over the project period and paid under institutional and project management costs.

25. The responsibility for implementation and service delivery in the project villages will be shared between the DWSS (division) and the GPWSCs through a signed memorandum of understanding (MOU). At the village level, the GPWSC will continue to be a committee of the GP and will be the key driver of community management at that level. Specific measures to strengthen the role of the GPWSCs will be undertaken. The DWSS will be responsible for major replacements and repairs of assets and performance monitoring of the GPWSCs. In non-project villages, the DWSS will continue to manage through its operating staff.

26. The proposed institutional arrangements, roles and responsibilities of various actors and their organizational linkages have been described in detail in Annex 3. A brief description of the key actors and their implementation responsibilities is provided in the following paragraphs.

27. *DWSS*. Currently the DWSS, a state entity, is comprised of three zones each headed by a CE. At the circle level, the superintending engineer (SE) serves as the head who is responsible for supervising activities in a group of districts/divisions (1 to 3). The executive engineer (EE), working under the supervision of an SE, heads a division that is responsible for ensuring service delivery in all villages under this jurisdiction and monitoring and managing the project-level activities at the division level in the proposed restructured DWSS setup. The division also includes multidisciplinary teams such as environment, social development, and IEC. Assistant engineers (AE) and junior engineers (JEs) also work under the EE. The DWSS will provide coordination support with other relevant departments such as the Department of Rural Development and Panchayats (DRDP), the Department of Health, and the Department of Education. The DWSS will manage the implementation and operation of the surface water schemes until the state makes alternate arrangements.

28. *GPs.* At the village level, the GPs will mainly be responsible for (i) seeking project assistance following a self-selection process; (ii) constituting a GP-level GPWSC representing the user communities; and (iii) empowering the GPWSCs to take responsibility for project implementation on behalf of the GP. During the post-implementation phase, the GPs will monitor the sustainability of scheme operations and ensure that the GPWSCs discharge their management (O&M) functions - including levying and collecting user charges from the beneficiaries – in a satisfactory manner.

29. *GPWSC*. The broad functions of the GPWSCs are (i) planning and technology selection; (ii) collection of beneficiary contribution; (iii) procurement, construction, and provision of house connections; and (iv) post-implementation management. To sustain services, the GPWSCs will collect sufficient user charges as decided by the committee. The composition of the GPWSCs, their functions, method of selecting members, bylaws, legal framework, and relationship with the GPs has been agreed (included in the project implementation plan [PIP]). The project will make vigorous efforts to maximize women's role in the GPWSCs and ensure that they have an equal voice in decision-making. For MV schemes, scheme-level committees (SLCs) will be set up with representatives from participating GPWSCs to perform the same functions.

30. *Sanitation/Individual Household Latrines (IHHL).* Sanitation is to be delivered in mission mode under SBM-G to achieve state-wide ODF by 2019 and for which a dedicated institutional structure is proposed to be created. At the state level, a sanitation unit will work directly under the Head of DWSS. Each district will have a dedicated District Sanitation Cell, which will be supported by block level teams and District Resource Groups for community mobilization with necessary program implementation officials. This cell is responsible for implementation of the sanitation program according to the project and SBM-G guidelines and an executive engineer will provide cross-support as head of the District Sanitation Cell with the key task, among others, is transfer of funds. At the GP level, the forum for interaction is the GPWSC or GP. This forum will be used for planning, monitoring, and implementation. A monitoring (*Nigrani*) committee will be formed from the community members, which will aim at attaining and sustaining ODF status. At the GP level, social mobilizers will be engaged to work closely with the GP and villagers.

Implementation Arrangements

31. *Implementation schedule.* The project will be implemented by the DWSS in all 22 districts. A detailed project implementation schedule has been developed for a 6-year implementation period. The SBM-G mission is to be completed by 2019 and the dedicated implementation cell will be closed upon achievement of its objectives of 100 percent toilet coverage and ODF.

32. *Scheme cycle.* Detailed scheme cycles have been developed for water and sewerage schemes and are presented in the PIP.

33. *Operational guidelines.* Operational guidelines have been prepared for village selection criteria and process, scheme appraisal criteria, and model formats for various agreements, and MOUs to be signed with the GPs and GPWSCs. Operational manuals on fiduciary, technical, and safeguard aspects, developed under the PRWSSP, will be fine-tuned to meet this project's requirements.

B. Results Monitoring and Evaluation

34. The PDO and intermediate result indicators will be monitored through the project MIS. The MIS will be redesigned in such a way that it is accessible to DWSS functionaries and to other stakeholders (following Open Data principles) with data captured in real time. A minimum set of indicators will be reported on: (i) sector performance, including the number of water schemes constructed, people/habitations that are fully covered by improved water sources, household connections, per capita investment costs, functionality of water schemes, hours of service and water quality, the number of households and institutions having access to a toilet, usage of toilets, women's representation in committees and decision-making, the number of women trained in O&M and technical aspects, GPs attaining and sustaining ODF, and policy dialogues on gender-sensitive policy framework for the RWSS; (ii) fiduciary performance, including budget variance, time efficiency of funds flow, timeliness of recording expenditures and account reconciliations, average length of procurement processes, number of bidders and bid responsiveness, and processing time for contractor payments; and (iii) project or contract management performance, including the schedule and cost performance of rural water supply

schemes**.** The MIS system will also include ongoing service delivery indicators related to quality of service and the performance of the GPWSCs.

C. Sustainability

35. *Ownership and financial.* The transparent and rigorous eligibility criteria, effective community mobilization efforts, upfront signing of MOU with the DWSS, and modest capital cost sharing by users will ensure ownership and demand by the communities. Over 3,000 GPWSCs in the first project have demonstrated their capacity in 100 percent financing of O&M expenses from user charges which demonstrates financial sustainability. Provision of free connections to households will further strengthen O&M cost recovery. If and where necessary, a transparent subsidy policy will be implemented by the GOP, especially in high O&M cost schemes (mainly sewerage and surface water schemes). The DWSS also collect 100 percent user charges from the villages that it is maintaining to assure full cost recovery. Further, the DWSS will not replace any GPWSCs with its own operators for any reason and hence ensure that schemes once handed over to GPWSC will continue to remain under community management.

36. *Water source.* Sustainability will be enhanced by adopting scientific practices in locating water sources as was successfully done under the PRWSSP. For water quality affected villages, the project will provide localized treatment facilities or long-term solutions (through surface water schemes) to ensure sustainable supply of potable water.

37. *Water and sanitation systems.* Sustainability will be strengthened by improved design and construction practices and by building the capacity of the GPWSCs in all aspects of O&M management and providing initial hand-holding during the post-construction period.

38. *Institutional.* Sustainability of the GPWSCs is likely because of their empowerment, strong GOP policy support, and abundant positive experience from the first project. Thus, the project institutional structure uses the existing delivery channel at the village level and, with the support of the proposed reorganized DWSS structure at the state and district levels, is likely to be sustainable.

39. *Post-implementation monitoring and back-up support.* The project implementation arrangements provide for regular monitoring of scheme performance and back-up support by the DWSS to the GPWSCs. It also provides for systematic consumer satisfaction and sustainability monitoring surveys. Feedback from these will provide ample opportunities to take corrective actions to ensure sustainability of scheme operations—the ultimate measure of project success.

V. KEY RISKS AND MITIGATION MEASURES

Overall Risk Rating and Explanation of Key Risks

40. The key risks to achievement of the PDO are with respect to (i) institutional capacities for implementation; (ii) challenges due to technical complexity or innovations of some components (surface water schemes, testing new sewage treatment plant technologies, and statewide implementation of household toilet component in a non-traditional manner); (iii) fiduciary risks (significant flow of funds to multiple GPWSCs across the state and thereby need to maintain adequate control); and (iv) potential opposition from certain stakeholders who may be impacted

by the restructuring of the DWSS. In view of the above, the overall project risk is rated Substantial.

VI. APPRAISAL SUMMARY

A. Economic Analysis

41. A cost-benefit analysis has been carried out for a sample of schemes, based on the proposed components and a representative household sample survey covering approximately 2,000 households. The following benefits have been quantified: (i) value of time saved in water collection; (ii) value of incremental water supply; and (iii) value of health benefits due to reduction in the incidence of diseases (diarrhea, malaria, jaundice, typhoid and dengue). Other benefits include time savings on account of having toilets in the house, thereby avoiding the need to defecate in the open. The economic rate of return (ERR) of the project is estimated to be 24 percent and the benefit-cost ratio is estimated to be 3.60. Annex 7 presents the details, including estimations for each of the scheme types. Sensitivity tests based on assessed risks indicate that the project will be able to absorb negative impacts and still generate an acceptable ERR.

B. Technical

Water Supply

42. There are no major technical issues to be addressed since Punjab has rich experience in both simple and complex technologies. The schemes will mainly involve (i) rehabilitating piped water systems (tube wells or canal sources) for single village (SV) and multi-village (MV) schemes, in plain and *kandi* areas (semi-mountainous terrains); (ii) improving performance of existing piped-water systems; and (iii) improving operational improvements of existing systems.

43. To help in deciding on the nature of investments, a protocol will be developed for carrying out a detailed diagnostic performance assessment for each of the existing schemes being considered for improvement under the project. The assessment will result in the best strategy or choice of intervention for the particular scheme based on service-level requirements and optimal costs.

44. Most water supply schemes will be designed by the DWSS engineers with initial support from private sector engineering consultants. Subsequently, when the DWSS engineers acquire required capabilities for the design, construction, and O&M of the rural water supply schemes, the support of consultants may not be required. The DWSS is now updating its technical manual which broadly follows Central Public Health and Environmental Engineering Organization (CPHEEO) norms covering design criteria; guidelines on sound engineering practices; standard drawings and cost estimates; and specifications for construction materials, goods, equipment, and civil works. Use of scientific methods, such as geophysical surveys, remote sensing data, and resource mapping coupled with local knowledge, are expected to ensure appropriate selection of sites for proposed groundwater sources. The DWSS will also recruit consultants to assist it in independently ensuring quality control in design and construction of water supply and sanitation schemes. Water quality protocols follow standard practices.

Community Sanitation (Sewerage Systems)

45. The project will support the construction of sewerage schemes and the supervision of O&M by the GPWSCs. The choice of technology, that is, small bore sewerage or conventional sewerage for conveyance, and treatment technologies will be determined by the DWSS based on appropriateness for a specific village and cost-effectiveness (using a per-capita norm as an indicator). The treatment systems will be designed to meet the effluent standards of the Ministry of Environment and Forest (MOEF) and CPHEEO norms for construction.

Household Sanitation

46. In keeping with the guidelines of the SBM-G, the initiative for ODF rural Punjab will be technology neutral, but necessary care will be taken to minimize negative environmental impacts. On the technology side, some key interventions may be required:

i. A detailed discussion note on sanitation technology options will be developed outlining menu options, including adaptations in technologies or construction for commonly encountered terrain conditions such as water-logged area and black cotton soil.
ii. IEC materials catalog on technology models will be developed to use in field interactions with community members, enabling them to exercise informed choices in selecting a toilet technology option.

47. The earlier approach of contractors being engaged through the line department for construction of toilets for rural households will be discontinued. The state will identify and set the principles for construction and maintenance of sanitary toilets that are environmentally safe and sustainable by ensuring proper confinement of feces. Beyond this, households will be allowed to construct toilets with substructure and superstructure according to their choice or a bath cum toilet. Masons and field staff will be trained on the dos and don'ts to be followed while constructing sanitary toilets.

C. Financial Management

48. Financial management (FM) arrangements for the project are considered to be adequate to account for, and report on, the project expenditure as well as satisfy the fiduciary requirements of IBRD. The FM arrangements have been built on, and integrated with, the GOP's own systems for budgeting, funds flow, accounting, and internal control, with specific strengthening in areas of audit, financial monitoring, and control over the GPWSC and ensuring timely release of funds. These arrangements are documented in the Financial Management and Procurement Manuals which were used in the PRWSSP (P090592) and have been significantly strengthened. The project will provide periodic financial reports and annual audited financial statements, with information on component-wise expenditure under Bank-financed schemes.

49. The GOP has recently implemented certain changes in which all schemes excepting surface water schemes shall be implemented by the GPWSCs. From FY2013/14, the finance department has done away with the Letter of Credit system and all payment requests are being made to the treasuries and in response, the treasuries make electronic transfers to the accounts of payees (GPWSCs in this case). In this background, the Finance Department (FD) of the GOP will make periodic 'allocation' to divisions based on requests received through the department's head

office. Further 'releases' will be made to the GPWSCs based on requests made by each division to the District Treasury. The inter-village component or the common facility of the MV schemes with the exception of surface water schemes will be implemented by the SLCs. Hence, the funds will be allocated to the SLCs and releases will be made to the SLCs for the inter-village component of the MV schemes.

50. The GPWSCs will award or sign contracts for water supply and sewerage schemes except surface water schemes that will be contracted by the DWSS. Divisions will monitor the performance of the GPWSCs' implementation and request for release of funds based on demands raised by various GPWSCs after adjusting actual utilization reported by them against the previous release. Each GPWSC will have the authority to issue checks to pay contractors or suppliers for undertaking project activities. For sanitation, the GP may be responsible for implementation if GPWSCs are not constituted. Funds for sanitation shall be released by the state to the district sanitation cell and onwards to the GPWSC/GP – which shall release the same to households in two installments linked with progress of work/ completion. This shall be subject monitoring by an independent verification agency.

51. *GPWSC's accountability arrangements.* The GPWSCs will be subject to concurrent audit by a firm of chartered accountants. This has worked well in the earlier PRWSSP project. The auditors will visit the GPs three or four times (at the request of the division) during the lifetime of the project to audit the utilization of funds. It is only after the auditors' certification, that the subsequent installment of funds will be released to the GPWSCs.

52. Funds for the Program Management and Community Development Support will be retained at the DWSS head office and division office levels.

53. *Audit.* The Comptroller and Auditor General (CAG) of India through its offices in Punjab will be the external auditor for the project. The CAG's office will conduct an annual audit of the financial statements of the project covering all sources of funds (GOI and the Bank). The audit report will be submitted to the Bank within nine months of the close of each financial year. This will be supplemented by an internal audit of the project.

54. *Disbursement arrangements.* The Bank will finance approximately 70 percent of the project cost subject to a limit of US$248 million equivalent. Funds from the Bank will be made available to the GOP (through the GOI) under the standard arrangements between the GOI and the states.

55. *Retroactive financing.* An equivalent of up to 20 percent of the Bank's contribution to the project will be available for financing eligible project expenditures incurred for a period of one year before the loan signing date.

D. Procurement

56. Goods, works, and consultancy services required for the project and financed out of the proceeds of the IBRD loan will be procured in accordance with the World Bank's Guidelines: Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011 and revised July 2014 (Procurement Guidelines) and Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011 and revised July 2014

(Consultant Guidelines). The project Procurement Manual is undergoing revisions in consultation with the Bank, which will result in an update of the detailed procurement arrangements and methods. In addition, all procurement will be conducted using bidding documents that are acceptable to the Bank.

57. The procurement risk assessment of the project has been undertaken and risk mitigation measures have been agreed on.

58. A common procurement framework will be adopted for the project comprising (i) community-based procurement (CBP) for small SV schemes where user groups will implement either through Community Force Account or through Shopping; (ii) conventional single responsibility contracts issued by the GPWSCs/SLCs with support from the department through national competitive bidding (NCB) and international competitive bidding (ICB) procedures, if applicable; and (iii) design-build-operate-transfer (DBOT) contracts involving PPPs. The project will continue to use the e-Government Procurement System (https://etender.punjabgovt.gov.in) approved by the Bank for works and non-consultancy bids with values greater than INR 0.5 million. The procurement of works for sewerage schemes, SV water supply schemes, and intra-village works for MV Schemes will be done by the GPWSC with technical assistance from the DWSS. The intra-village and common facilities for MV schemes may also be procured by the SLCs on a single responsibility basis wherein all materials and the labor component will be arranged by the contractor. Surface water based schemes will be contracted by the DWSS.

59. The procurement of works by the GPWSC will be in accordance with paragraph 3.19 of the Bank's Procurement Guidelines. The GPWSC will also follow NCB and shopping procurement procedures, with technical assistance and guidance from the DWSS at various stages. Procurement of consultancy services will be required to access consulting firms and individual specialists or resource persons in various project planning and implementation activities such as engineering design and construction management, community mobilization and development, financial and project implementation management, sector policy studies, M&E and MIS, and capacity building and training. All such procurements will be undertaken by the DWSS.

E. Social (including Safeguards)

60. GOP has confirmed that there will be no involuntary land acquisition under the project. The main component that requires land is sewerage scheme with treatment systems. These schemes require approximately 2.5 acres per scheme. These facilities would be located in encumbered GP lands. The scheme selection criteria will ensure that such sewerage schemes will be taken up in such GPs where land is available. The total extent of land needed for this entire project is of the order of 787.5 acres (315 scheme x 2.5 acre per scheme). Other project components are of the nature of up gradation of service levels, increasing access through expanding house connections, improving inclusion by extension to cover uncovered areas and addressing water quality issues. As such there is no requirement of land anticipated for these components. In exceptional cases if land is needed for these components, these facilities would be located on unencumbered GP lands or through direct market purchase (willing buyer-willing seller). Hence Bank operational policy on involuntary resettlement (OP 4.12) is not triggered.

61. The social assessment has confirmed that there are no indigenous populations in the State satisfying characteristics defined in Bank policy on indigenous people (OP 4.10). Hence this OP is also not triggered.

62. Punjab is quite socioeconomically diverse. As much as 30 percent of the population (highest in an Indian state) belongs to a scheduled caste. Further, the below poverty line (BPL) category constitutes 8.26 percent of the total population as compared to 29.5 percent of the Indian population as a whole.

63. The state however continues to face the challenges of (i) ensuring inclusion and enhancing equity, (ii) addressing gender issues, (iii) decentralizing service delivery, underpinned by the principle of subsidiarity, (iv) knowledge exchange among the GPWSCs, and (v) community capacity building. Social assessment was carried and a Social Management Action Plan (SMAP) has been prepared to take into account measures on inclusion, equity, participation, transparency, accountability, gender mainstreaming, and grievance management.

64. A detailed analysis of institutional and staffing requirements was carried out to support achievement of the project objectives, considering the subcomponents and project phasing. The institutional arrangement proposed for the successful implementation and sustainability of the program includes establishment of a Social Development and IEC unit, headed by Chief Social Development Officer, to be adequately staffed with (a) Social Development Manager, Gender Specialist, IEC specialists (state coordinator; internal communication; ICT and digital media and messaging and content generation) and Capacity building manager at State level, (b) a community development specialist at Division level, and (c) community facilitation and capacity building staff in the field (2 professionals per subdivision) (details in annex 3 and 6). The project will support strengthening of the supply and demand side of social accountability, that is, mobile-based application to track real-time progress and social audit for citizen's feedback. The existing grievance management system will be enhanced to address grievances during the entire project cycle.

65. To ensure effectiveness of the social mobilization at the village level, it would be useful to enlist the support of local professionals (such as Asha or Anganwadi workers or a committed volunteer) at the village level to support the work of project specialists. A small incentive payment could be paid to such mobilization support. Depending on the sub component, an incentive budget per village could be fixed.

66. Monitoring and evaluation will be carried out. The concurrent monitoring system will help track gender and social inclusion.

67. Communications or IEC. This is cross-cutting and will continue to play a crucial role in the project. The focus will be on addressing new challenges such as creating an ODF environment (sanitation) and introducing a sewerage scheme. The key objective of IEC in the project is to trigger positive behavioral change and help build sustainability. The IEC strategy will ensure strong convergence of IEC and behavioral change initiatives with those from the NRDWP and SBM-G and will be deployed at the state, district, and village levels. All IEC will be insightful- and research-driven for impactful outreach and advocacy and will be implemented through focused messaging, IEC events, and rich content.

F. Environment (including Safeguards)

68. The Environmental Assessment of the proposed project was updated based on the learnings of the ongoing Bank-funded project in the state by an independent agency. The state of Punjab (as per 2011 census) has a total population of 27.7 million, out of which the male population is 14.6 million and the female population is 13.1 million. There are 12,827 villages and 143 towns. The administrative structure of the state consists of 4 divisions, 22 districts, and 142 blocks. Punjab, the name derived from the Persian words, *Punj* (five) and *ab* (water) is a land of five rivers which formed part of the Indus basin till 1947. India's rights of usage are restricted to only three eastern rivers namely Sutlej, Ravi, and Beas; the three western rivers (Indus, Chenab, and Jhelum) were earmarked for the exclusive usage of Pakistan. The total stretch of canals and distributaries, including minor ones, in Punjab is approximately 14,500 km. The salient environmental aspects elaborated in the Environmental Assessment report are as in the following paragraphs.

69. The total forest area in the state is only 3.50 percent of the state geographical area. The total area under forests is about 1,764 sq. km, out of which 736 sq. km is moderately dense forest area and 1,028 sq. km is open forest area. There are 12 wildlife sanctuaries duly notified in the state, covering an area of 32,370.64 ha. Agriculture is a way of life. About 75 percent of its population depends directly on agriculture. Livestock plays an important role in the rural economy of the state. The contribution of the livestock sector in the Net State Domestic Product is about 13 percent. Of the total geographical area of Punjab State, about 4.23 million ha is under cultivation. In the seismic zoning map, most of the area of Punjab State lies in Zone III and IV. However, the northern boundary of Punjab State with Himachal Pradesh is in close proximity to Zone V. It is important that sources and schemes be sited so that forest land, if required for the scheme, may be acquired under prevalent country or state laws and procedures.

70. *Water* availability. Increasing levels of water contamination and over-exploitation of ground water resources due to anthropogenic activities is slowly becoming an area of concern in addition to natural contamination like fluoride and arsenic due to geogonic conditions. According to baseline data, the state of Punjab has annual replenishable groundwater resources of 22.53 billion cubic meters (BCM) and net groundwater availability is 20.32 BCM, out of which, 172 percent is being utilized annually. With regard to groundwater exploitation, out of the 138 blocks in Punjab, 110 blocks are classified as over-exploited, 4 as critical, 2 as semi-critical, and 22 as safe. The canal systems of Punjab, supply surface water for irrigation and water supply from the dams. About 9 percent of the water supply schemes in Punjab are based on canal-water supply. In some cases, the water supply is adversely affected during the periods of canal maintenance shutdown.

71. *Water quality.* According to the DWSS estimates for the year 2013–14, 1,587 villages of the total 12,827 villages suffer from poor water quality conditions, namely, iron, fluoride, arsenic, and nitrates. Apart from these villages, there are 2,307 villages affected with major water quality problems from uranium, lead, aluminum, and selenium. Due to its higher depth and relative hydrogeological isolation from shallow aquifers, deep groundwater is expected to be free from the presence of bacteriological contamination, but chemical contaminants such as fluoride, iron, lead, and aluminum could be present. The discharges of untreated domestic wastewater, industrial wastewater, run-off from agricultural fields, and urban sewage water is polluting the

canals in the state. Information available with different line departments dealing with water sector development suggests that heavy metals and chemical contamination may also bring in important considerations on water quality and needs appropriate management. Bacteriological contamination may also be of some concern for the project. In view of these issues, the project has developed specifications for treating the water. The proposed treatment involves threefold interventions: (i) undertaking regular residual chlorine testing (residue assessment) by the concerned departments; (ii) testing water samples from different SV or MV schemes (particularly from source collection point and storage tank) periodically (twice a year) for bacteriological parameters by using locally available techniques; and (iii) testing water samples (random basis) for possible heavy metal and chemical contamination once a year. The bacteriological test will be undertaken to assess the coliform and fecal coliform count in the common storage tank from which water is taken for households and common stand-post supply.

72. *Environmental sanitation.* In Punjab, more than 70 percent of rural households have household latrines and usage level is observed to be good. In many of the habitations, open defecation is not widely prevalent. The key issues identified by the EA studies as causes for concern are improper drainage facilities; improper disposal of household wastewater without adequate arrangements for treatment; effluent overflow from septic tanks, all leading to village ponds and thereby deterioration of water quality in the village ponds; lack of awareness on environmental sanitation and its impact on health; and absence of solid waste management.

73. *Environmental management*: In order to ensure that the environmental issues are systematically identified and addressed in the various stages of the implementation of the schemes, an Updated Environmental Management Framework (EMF) has been developed for this project. EMF activities in the pre-planning, planning, implementation and O&M phases of the proposed project cycle for the project sponsored schemes are given in respective tasks. A detailed procedure to apply the EMF in the project water supply and sewerage schemes has been prepared and described in the EA report and has also been captured in annex 6.

74. The project envisages improving the existing institutional model for environmental monitoring that enables demand driven community action. The EMF will be implemented through engineering staff and will be supported by environmental unit at state head office level; zonal (CEs office) and circle (SE level) offices will also be equipped with environmental specialists. Field engineers will also be training on EMF. Further, environmental specialists will also train sanitation teams to ensure that sanitation activities complies with environmental standards.

Safeguard Policies

75. The safeguard policies triggered by the project are summarized in the table.

Table 3. Safeguard Policies Triggered by the Project

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04		**X**
Forests OP/BP 4.36	**X**	
Pest Management OP 4.09		**X**

Physical Cultural Resources OP/BP 4.11		**X**
Indigenous Peoples OP/BP 4.10		**X**
Involuntary Resettlement OP/BP 4.12		**X**
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50	**X**	
Projects in Disputed Areas OP/BP 7.60		**X**

76. OP 7.50 is applicable to the proposed project since the rural water supply, drainage and sanitation activities will be carried out in the watersheds of the Sutlej, Ravi and Beas Rivers, or their tributaries. These rivers and their tributaries are considered "international waterways" for purposes of the policy. Taking into account the project's focus on improved efficiency and service delivery for already existing water supply and sanitation schemes in Punjab, it is the Team's assessment that the proposed activities will (i) not adversely change the quality or quantity of water flows to the other riparians, and (ii) will not be adversely affected by the other riparian's possible water use. Thus, an exception under paragraph 7(a) of OP 7.50 has been obtained.

G. Other Safeguards Policies Triggered (if required)

Not applicable

ANNEX 1: RESULTS FRAMEWORK AND MONITORING

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

1. The GOP's vision is toward strengthening decentralized management of water supply and sewerage schemes across the rural habitation. The project has been designed with the objective to strengthen sector institutions for improved water supply and sanitation service delivery in project habitations. This will include enhanced service levels of 70 lpcd safe water supply to all households, a minimum of 10 hours of supply daily, household water connections, and access to sanitation services. These would be provided through strengthened state- and district-level government facilitation and active GPWSC participation.

2. The project results framework was designed to ensure that key elements of improved service delivery for project beneficiaries are monitored. Core sector indicators have been incorporated to enable World Bank Group corporate-level aggregation of project results. An indicator on beneficiary feedback has been included in compliance with the citizen engagement framework. In addition to the reporting requirements of the results framework, the project will collect and report on a range of operational and financial data to enable more efficient and effective management and planning by the implementing agency.

3. The current MIS system used by the DWSS was developed under the Bank-financed Punjab Water Supply and Sanitation Project, which closed in December 2014. The system has been in operation since March 2012 and consists of modules covering most aspects of DWSS water supply performance improvement operations and some aspects of sanitation activities. These modules include Finance, Procurement, Inventory, HR., Project Management, Program Management, and Task Management. An email solution and project website was also developed. There are currently no analysis and visualization tools.

4. An assessment of the MIS system of the earlier project found that it was designed primarily to cater to reporting requirements rather than the department. For example, the current MIS is not integrated with IMIS, the mandatory central government reporting requirement of the Ministry of Drinking Water and Sanitation, resulting in similar information being entered into the MIS and re-entered into the IMIS separately. The current system does not provide for data input from the field. Field-level information is collected using paper and oral reporting, aggregated, and then converted into an Excel sheet that is submitted at subdivision level for entry into the MIS. In addition, there is insufficient staff at the state, district, and village level to ensure smooth functioning and maintenance of the MIS and associated data entry tools.

5. The project will introduce a number of technological innovations to support field-based data entry to further strengthen the centralization agenda, as described in annex 10. The MIS will be redesigned to meet the information and reporting needs of the department as a whole. Interoperability across state- and national-level systems will be enhanced. Geographic Information System (GIS) capability will be introduced to enhance spatial planning, analysis, and reporting. Enhanced visualization and analysis tools will improve reporting and planning.

Impact Evaluation

6. An independent impact evaluation will be designed and implemented. The impact evaluation will provide stakeholders with information regarding the cost-effectiveness and overall success of the project as well as its impact on the well-being of participants. Mixed methods will be used with data sources, including data collection conducted through the baseline study and follow-up household surveys (difference-in-difference comparison) and selected secondary data sources (census and other types of secondary data). The main focus of the evaluation would be to assess the impact of the community-level sanitation interventions on health and education outcomes in the beneficiary communities. The impact evaluation will also explore the relationship between improvements in the village environment and sustained ODF status of the village. The impact evaluation will address these primary research questions:

i. Does improved access to sanitation services reduce the incidence of water-borne, water-washed, water-related, and excreta-related diseases in rural Punjab?

ii. Does improved access to sanitation services result in better nutritional outcomes for children?

iii. Does improved access to sanitation lead to better educational outcomes such as less absenteeism and reduction in grade repeat rates?

iv. What is the effect of the interventions on the income of the beneficiary households?

v. Do the sanitation interventions and the consequent general improvement in the village environment lead the GPs to sustain their ODF status?

Annex 1: Results Framework and Monitoring

Country: India

Project Name: IN Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

Results Framework

Project Development Objectives

PDO Statement

To improve water and sanitation service levels, reduce open defecation, and strengthen service delivery arrangements in targeted villages in Punjab

These results are at | Project Level

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values									
		YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	End Target
PDO Indicator: Villages with higher service levels managed by the GPWSCs (Number)	926.00	1200.00	2200.00	3300.00	4400.00	5500.00	6556.00				6556.00
PDO Indicator: GPWSCs that are managing O&M of water supply schemes through full cost recovery (Number)	926.00	1500.00	2000.00	3000.00	3700.00	4500.00	5634.00				5841.00

PDO Indicator: Districts with MIS operationalized, and monthly reporting of scheme data' (Number)	0.00	0.00	22.00	22.00	22.00	22.00	22.00				22.00
PDO Indicator: Villages declared ODF (Number)	0.00	200.00	1000.00	2000.00	3000.00	4500.00	6900.00				6900.00
Direct project beneficiaries (Number) - (Core)	0.00	500000.00	2000000.0	3500000.0	5500000.0	7000000.0	8473604.0				8473604.0
Female beneficiaries (Percentage - Sub-Type: Supplemental) - (Core)	0.00	250000.00	1000000.0	1750000.0	2750000.0	3500000.0	4445298.0				4028305.0
SC Beneficiaries (Number - Sub-Type: Supplemental)	0.00	150000.00	500000.00	800000.00	1500000.0	2000000.0	2446881.0				2446881.0
Villages receiving improved quality of water (Number)	8933.00	8933.00	8933.00	9054.00	9200.00	9300.00	9304.00				9304.00

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values									
		YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	End Target
New piped household water connections that are resulting from the project intervention (Number) - (Core)	0.00	50000.00	125000.00	250000.00	400000.00	600000.00	724100.00				724100.00
Intermediate Results Indicator: Percentage of grievances redressed within the stipulated time period /proposed time standard (Days)	6.60	6.60	6.00	5.50	5.00	5.00	5.00				5.00
Piped household water connections that are benefiting from rehabilitation works undertaken by the project (Number) - (Core)	0.00	50000.00	125000.00	250000.00	400000.00	500000.00	619330.00				619330.00
New household	0.00	0.00	5000.00	40000.00	55000.00	70000.00	84969.00				84969.00

sewer connections constructed under the project (Number) - (Core)											
Improved latrines constructed under the project (Number) - (Core)	0.00	130000.00	325000.00	520000.00	625000.00	625000.00	625000.00				625000.00
People trained to improve hygiene behavior/sanitation practices under the project (Number) - (Core)	0.00	500000.00	1000000.0	1500000.0	2015000.0	2015000.0	2015000.0				2015000.0
People trained to improve hygiene behavior/sanitation practices - female (Number - Sub-Type: Breakdown) - (Core)	0.00	250000.00	500000.00	750000.00	1007500.0	1007500.0	1007500.0				1007500.0
Intermediate	No	No	Yes	Yes	Yes	Yes	Yes				Yes

Results Indicator: Annual report published on the state-wide rural drinking water quality status (Yes/No)											
Intermediate Results Indicator: DWSS organizational transition plan for improved service delivery approved and implemented (Text)	Zero	Approval of new structure and posting a Head	Filling of all senior sanctioned positions and implementing new job descriptions	Complete DWSS restructuring; and approval and implementation of training plans	Development and reporting of key performance metrics at unit and department level	Reporting of key performance metrics at unit and department level	Reporting of key performance metrics at unit and department level				Fully Operational DWSS with service delivery efficiency improved
GPWSCs that are managing O&M of sewerage schemes through full cost recovery (Number)	0.00	50.00	75.00	100.00	150.00	250.00	350.00	412.00			412.00

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
PDO Indicator: Villages with higher service levels managed by the GPWSCs	Villages with higher service levels managed by the GPWSCs	Annual	To be counted, Villages /habitations must satisfy all these conditions: i) scheme is being actively managed by GPWSC ii) water is supplied for a minimum of 8 hours every day iii) 70 lpcd or more is supplied and iv) 95% of households in the habitation are connected	DWSS
PDO Indicator: GPWSCs that are managing O&M of water supply schemes through full cost recovery	Number of Village water committees managing water supply at higher services through recovering full costs of operations and maintenance	Quarterly	Project MIS, review of district annual plans; review of annual performance reports	DWSS
PDO Indicator: Districts with MIS operationalized, and monthly reporting of scheme data'	Reports produced by the number of districts providing information on project related information (and also information on service delivery)	Quarterly	Project MIS, review of district annual plans; review of annual performance reports	DWSS
PDO Indicator: Villages declared ODF	Villages/ Habitations declared ODF (Open Defecation Free)	Annual	ODF status determined as per verification process specified under the most recent GOI guidelines.	DWSS
Direct project beneficiaries	Direct beneficiaries are people or groups who directly derive benefits from an intervention (i.e., children who benefit from an immunization program; families that have a new piped water connection).	No description provided.	The number of beneficiaries can be estimated by multiplying the actual number of piped household connections, rehabilitated	No description provided.

	Please note that this indicator requires supplemental information. Supplemental Value: Female beneficiaries (percentage). Based on the assessment and definition of direct project beneficiaries, specify what proportion of the direct project beneficiaries are female. This indicator is calculated as a percentage.		connections, latrines, sewer connections with an estimate of the number of people per household connection. Below poverty line and scheduled class defined as per the official census definitions.	
Female beneficiaries	Based on the assessment and definition of direct project beneficiaries, specify what percentage of the beneficiaries are female.	Quarterly	No description provided.	DWSS MIS
SC Beneficiaries	Scheduled Caste population regarded as poorer sections of the society will be monitored	Quarterly	DWSS MIS	DWSS
Villages receiving improved quality of water	The schemes in villages deliver quality of water but several of them failed in basic parameters, uranium and other heavy metals. Against 9096 schemes, 3922 schemes are failed in quality which will be addressed in the program through retrofit or supplying surface water.	Half yearly	DWSS MIS - Water Quality	DWSS Water Quality

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
New piped household water connections that are resulting from the project intervention	Number of new piped household water connections which result from the project intervention. A piped household water connection is defined as a connection that provides piped water to the consumer through either a house or yard connection. Hence, they do not include, inter alia, standpipes, protected well, borehole, protected spring, piped water	Quarterly	DWSS MIS	DWSS

	provided through tanker trucks, or vendors, unprotected wells, unprotected spring, rivers, ponds and other surface water bodies, or bottled water.			
Intermediate Results Indicator: Percentage of grievances redressed within the stipulated time period /proposed time standard	Time taken on average to resolve grievances reported in the redressal center (SNK; Shikayat Nivaran Kendra) for all types - compared against the established time period for each type of grievances (both project related and operational grievances)	Quarterly	SNK MIS and monthly reports	MIS / SNK of DWSS
Piped household water connections that are benefiting from rehabilitation works undertaken by the project	Number of piped household water connections benefiting from rehabilitation works. This indicator is measured as the number of piped household water connections benefiting from rehabilitation works. Rehabilitation works are undertaken so that existing customers see the quantity and/or quality of their water supply services enhanced.	Quarterly	DWSS MIS	DWSS
New household sewer connections constructed under the project	This indicator is measured as the cumulative number of new sewer connections constructed under the project. The baseline value is expected to be zero.	Half yearly	DWSS MIS	DWSS
Improved latrines constructed under the project	This indicator is measured as the cumulative number of improved latrines constructed under the project. The baseline value is expected to be zero.	Quarterly	DWSS - Sanitation MIS - district reports	Sanitation cell of DWSS
People trained to improve hygiene behavior/sanitation practices under the project	This indicator measures the cumulative number of people who have participated in a training activity to conduct improved hygiene behavior or sanitation practices. This does not include people who have been educated and/or informed through	Quarterly	DWSS Sanitation MIS	Sanitation Cell of DWSS

	public information or mass publication campaigns. The baseline value for this indicator is expected to be zero.			
People trained to improve hygiene behavior/sanitation practices - female	No description provided.	Quarterly	DWSS MIS	DWSS Sanitation team
Intermediate Results Indicator: Annual report published on the state-wide rural drinking water quality status	Annual reports of water quality testing reports showing results covering required parameter meeting sampling requirements as per the agreed strategy with relevant information; information placed in various websites and MIS	Annual	Project MIS, Review of district annual plans; Review of annual performance reports	DWSS - Water Quality wing
Intermediate Results Indicator: DWSS organizational transition plan for improved service delivery approved and implemented	The DWSS has agreed on a transition plan to reorient the organization to give right focus to service delivery.	Annual	Reports of DWSS	DWSS
GPWSCs that are managing O&M of sewerage schemes through full cost recovery	Number of GPWSC managing sewerage schemes through recovering full cost of O&M	Quarterly	DWSS MIS	DWSS

ANNEX 2: DETAILED PROJECT DESCRIPTION

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

A. PROJECT COMPONENTS

1. The project thrust is not on mere coverage or access but a strong shift to 'service delivery with higher level of services close to urban standards' for improved satisfaction and quality of life in rural Punjab. This is building on strong performance demonstrated in this direction under the PRWSSP and hence, poised to become a demonstration project for the India RWSS sector, thus meeting finance plus criteria of the GOI's Department of Economic Affairs (DEA). The beneficiary villages will be carefully selected using the defined eligibility criteria (see section C of this annex) such that the committed community groups ensure sustainable delivery of water and sanitation services while ensuring economic efficiency in investments. The project has four components with the total project cost of about US$354 million, with Bank financing of about US$248 million (70 percent):

i. Component 1. Transformation - Improved Livability of Villages (US$160 million)
ii. Component 2. Inclusive Household Water and Sanitation Services (US$85 million)
iii. Component 3. Improved Water Quality (US$59.38 million)
iv. Component 4. Strengthening Institutions and Project Management (US$49 million)

Component 1. Transformation - Improved Livability of Villages *(US$160 million)*

2. This component envisages investments that are demonstrative to bring about transformative change in village living conditions by improving water and sewerage services. Improved service standards, particularly longer hours of water supply, sewerage connections will have greater benefits for women. The main subcomponents are described in the following paragraphs.

3. **Subcomponent 1(a). Strengthening water supply schemes for improved service delivery.** The objective of this subcomponent is to bring about transformation in water service delivery to villages that have underperforming (partly covered or PC) SV or MV schemes that need augmentation to deliver a minimum of 10 hours of good quality at affordable cost of operations to all households. The DWSS will take extreme care to minimize wholesale asset replacement and propose improved efficiency though optimum utilization of existing assets. These schemes will be operated for a minimum of three months to demonstrate their efficiency before handing over to the GPWSCs to manage. This component supports improvements of water source, treatment, storage, disinfection, and distribution based on the need (schemes with ground water sources such as those contaminated with arsenic will not be augmented) and hence likely to be more cost intensive. The project will finance two categories of investment under this subcomponent. The cost is expected to be around US$70 million.

i. *Rejuvenation of damaged canal based schemes (from high ground water table and flooding).* Mainly the villages in the districts of Fazilka and Muktsar were affected due to extensive water ingress into filters; some of them are old and have low

capacity. Around 110 SV or MV canal schemes will be supported as a part of this subcomponent in these districts (will use nontraditional proven technologies).

ii. *Augmentation of schemes to deliver minimum 10-hour water supply to households.* The project will finance augmentation of underperforming 460 (partly covered or PC) SV or MV schemes which were old and designed to deliver less than 40 lpcd to deliver over 70 lpcd water of good quality at affordable cost for at least 10 hours a day. Both tube well and canal schemes (SV or MV) will be supported as a part of this subcomponent.

4. If a village from an MV scheme is to be detached and developed as an SV scheme (to augment capacity), a review of the likely improved performance of other villages under the MV scheme will be undertaken post detachment of those villages. If the existing MV scheme has capacity to supply more than one village at more than 70 lpcd or more than 10 hours of supply, all those villages will remain under the MV scheme but with necessary upgrade. If any villages fall outside the MV scheme, they will only be developed as SV schemes. All the villages under the MV scheme will also be upgraded to FC status, with each of them eventually brought under the GPWSC's management.

5. **Subcomponent 1(b). Sewerage schemes with treatment systems.** The sewerage systems which are normally limited to urban areas, but under transformative change, shall be provided in select villages as was done under PRWSSP. While improving sanitary conditions, the sewerage systems will also reduce pollution in local water bodies and bring overall environmental improvements in the villages which is the central theme of the SBM-G. The sewerage scheme proposals include conveyance system, house connections with a small chamber, restoration of existing brick-on-edge pavements, and sewerage treatment plant. Since unpaved roads transfer load on the sewer lines and lead to breakages or poor performance, villages with predominantly earthen roads will not be encouraged to use these schemes. Similarly, to minimize technical issues, scattered houses are not covered in the scheme (each scheme covers about 90 percent households in the core village only). Based on the GPWSC's past performance and strong demand expressed for sewerage schemes, the villages that will be selected for development of sewerage schemes with treatment systems will be those that have already achieved or likely to achieve ODF status upon commissioning the sewerage scheme and have demonstrated financial and operational capacity in managing water supply schemes.

6. Since there is huge demand for sewerage schemes, this will be projected as an 'incentive' for improved performance of the GPWSC in managing water supply services as indicated in terms of the number of hours of water supply, use of water meters, cost recovery efficiency, and the GPWSCs ability. A transparent selection process will be followed. About 315 villages will be implemented under this subcomponent and the cost will be around US$90 million.

Component 2. Inclusive Household Water and Sanitation Services *(Project funding: U$85 million; GOI under SBM-G funding: US$91 million)*

7. This component aims to provide inclusive coverage of water and sanitation services at household level mainly to benefit women and the poor, with specific focus on strengthening service delivery. This component therefore focuses on improved efficiency and optimum utilization of assets to deliver higher order services and at the same time, provide access to those

excluded (dependent on public sources of water and public places for defecation). The main subcomponents are described in the following paragraphs.

8. **Subcomponent 2(a). Improved access to water through household connections.** The objective of this subcomponent is to promote delivery of minimum 10 hours of water supply through private household connections, thereby reducing the need for women and children to carry water from public stand-posts or other sources. The component focuses on villages that have well-built water schemes which are relatively old and connections are limited to a few households, thus not effective in delivering services. Private water connections will be provided inside all households, including to households in relatively new clusters (not remote) where there is presently no water connectivity. The focus will be to achieve at least 95 percent connection coverage in the village. Increase in number of household connections to these new clusters also needs to be supplemented with small investments in extension of pipelines in streets that have no pipelines, with minor upgrades. This is envisaged that saving of time specially benefits women and children, who can engage in more productive activities, including livelihood and education. A village without a GPWSC can be covered provided the GP agrees to constitute a GPWSC and authorizes it to take over O&M of the scheme. These schemes will also be run for about three months before handing over to GPWSC. The project will support private water supply connections to 0.65 million households across the state with a cost of around US$17.50 million.

9. **Subcomponent 2(b). Operational improvement for improved water supply service levels.** The objective of this subcomponent is to improve operational and financial performance of existing; mostly recently built water supply schemes (mainly those under the previous SWAp) that are in good condition with more number of household connections to achieve optimal service delivery of at least 10 hours water supply to households. This subcomponent will finance operational improvements (and a few more household connections if required) to these schemes which would be made mostly through capacity building and demonstrative support using specially trained and skilled operational staff. Additional support to GPWSC strengthening will be provided for sustainable operations. Hence, this subcomponent will follow a 'low cost and high impact' principle, wherein the most cost-effective approach would be adopted to achieve the desired service delivery levels. Under this subcomponent, about 400 schemes will be covered across the state. In most cases, the component is expected to cover villages that have a GPWSC. If there is no GPWSC, the village should agree to form one and also agree that the committee would take over management of the scheme to deliver services at this level. IEC and community development inputs, use of NGOs will play major role in this. The expected cost of this component is US$7.50 million.

10. **Subcomponent 2(c). Household sanitation (Grants for construction of household toilets).**[8] This subcomponent will complement the **restructured** SBM-G and will be carried out in all the villages for 100 percent toilet coverage and then, 100 percent toilet use to ultimately achieve ultimate objective of 100 percent ODF status—an aim of the GOI. The project will finance individual beneficiaries to construct toilets in households which do not have a sanitary toilet and had not benefited from any earlier program. The project will therefore support by providing INR 6,000 per toilet as subsidy to an estimated 625,000 household toilets across the state. The toilets are to be built by the beneficiaries themselves or by anyone appointed by them;

[8] NGP is an award given to a GP for achieving ODF status, including safe disposal of solid and liquid waste.

meet the requirements/ choices of the households and hence usage would be higher (as opposed to toilets supplied) leading to achievement of ODF. The target beneficiaries are about 28 percent households without toilets that are mostly the poor and the marginalized sections (SCs). Some of these people live in varied, challenging terrains to construct toilets such as low water table areas, border areas, and hilly regions. Since bathing facility is also a priority for women, households will be encouraged to construct bath-cum-toilets; necessary financing will be facilitated through the Bank by the project. The project will also focus on creating awareness and demand for health, hygiene, and sanitation; motivating communities to attain ODF status though community mobilization; and stressing on behavioral change. Monitoring is critical to ensure sustainability of ODF. The likely cost of this component is US$60 million. GOP is expected to raise subsidy from SBM-G (expected to be INR 9,000) and other programs.

- Punjab has won 166 NGP to date; this is 1% of the total GPs in the state.
- Punjab ranks 19 out of 28 states in terms of the number of GPs winning the NGP and is 25 out of 28 states in terms of % of NGP won.
- In terms of sustainability, 47 NGP from 2009–11 were assessed in 2014 and 17% of this sample were found to be sustaining their 100% ODF status.
- The success rate of NGP at state level is 20%, i.e. this is the % of applicant villages that go on to win the prize and is calculated on a cumulative basis since 2005.

Component 3. Improved Water Quality *(US$59.38 million)*

11. Water quality is a major problem in the state. This includes common water quality issues like the presence of arsenic, fluoride, and iron and unusual chemical contamination with heavy metals, radioactive materials like uranium, and aluminum. Further, excessive use of fertilizers and pesticides for agricultural use also result in water contamination. Monitoring water quality and providing innovative treatment solutions to water quality affected areas is of utmost importance. The main subcomponents are as described in the following paragraphs.

Table 4. District-wise Water Quality Profile as on January 1, 2015

Sl. No.	District	Number of Schemes		Number of Schemes Failed Due to Uranium and Heavy Metals	Number of Schemes Failed Due to Basic Parameters	Total Number of Habitations Failed	Percentage of Schemes Failed
		Tube Well + Hand Pump	Canal				
1	Amritsar	668	0	105	91	253	29.34
2	Barnala	116	0	72	8	111	68.97
3	Bathinda	39	205	24	3	44	11.07
4	Faridkot	7	123	4	1	7	3.85
5	Fatehgarh Sahib	270	0	27	53	114	29.63
6	Fazilka	103	134	41	41	131	34.60
7	Ferozepur	588	7	103	114	324	36.47
8	Gurdaspur	620	0	120	34	307	24.84
9	Hoshiarpur	620	0	66	47	256	18.23
10	Jalandhar	719	0	143	13	211	21.70
11	Kapurthala	537	0	66	59	141	23.28
12	Ludhiana	803	0	136	45	223	22.54

13	Mansa	20	140	8	4	18	7.50
14	Moga	336	2	152	64	241	63.91
15	Muktsar (Canal)	0	216	0	0	0	0
16	Pathankot	211	0	58	12	166	33.18
17	Patiala	752	0	264	136	549	53.19
18	RoopNagar	391	9	131	77	423	52.00
19	Sangrur	449	0	94	33	156	28.29
20	SAS Nagar	315	0	23	23	65	14.60
21	SBS Nagar	288	0	32	14	70	15.97
22	Tarn Taran	408	0	48	19	112	16.42
	Total	**8,260**	**836**	**1,717**	**891**	**3,922**	28.67

Source: DWSS.

12. **Subcomponent 3(a). Water quality monitoring and mitigation.** The objective of this subcomponent is to build enabling monitoring and mitigation mechanisms and infrastructure to identify and mitigate water quality problems in the state of Punjab. This subcomponent will finance all additional statewide activities related to water quality protocols and monitoring and strengthening of water testing laboratories. The project will support need-based specialized testing for pesticides (outsourced), sampling for heavy metals and uranium, field-level bacteriological quality testing, GIS, mapping and reporting. In addition, the project will support special studies for investigations of the source of increasing metal concentration; testing program to determine levels and exposure to radium, radon, strontium; evaluation of pilot programs for new testing technologies; investigation of the health impacts of contaminated drinking water; preparation of scheme-level water safety plans for quality affected districts, including collation of data; characterization of water sources; identification of potential biological, physical, and chemical hazards; identification of control and mitigation measures; and development of a monitoring plan. The project will institutionalize the process which will allow involvement of field engineers in water quality monitoring to understand mitigation measures. The project will also support IEC and capacity-building programs for water quality training programs. A knowledge base will be developed to mitigate water quality problems through localized solutions. The project will develop a comprehensive strategy within six months and then implement for better results and impact. Budget for this subcomponent is US$6.18 million.

13. **Subcomponent 3(b). Improving infrastructure for providing safe and treated water to water-quality-affected villages.** The objective of this subcomponent is to provide safe and treated water to water quality affected villages. The project will finance two categories of investment under this subcomponent at US$53.2 million:

i. *Retrofitting water treatment plants with water quality issues.* This subcomponent will support activities related to retrofitting existing water treatment systems with cost effective technological solutions in select affected villages of regions showing signs of arsenic, fluoride, and iron in groundwater supply. No new water supply scheme will be developed under this subcomponent. Under this subcomponent, treatment plants will be provided to 150 schemes in eight districts of Punjab known to contain highly contaminated ground water.

ii. *Surface water supply to quality affected villages.* This subcomponent will support district-wide new water infrastructure (raw water collection systems, water treatment plants, supply mains, and reservoirs from source to villages) for supplying treated water from surface water sources such as rivers or canals to water quality affected villages that are using ground water contaminated with uranium and other heavy metals. Under this subcomponent, a pilot of around 121 villages will be covered in the districts of Punjab such as Moga and Barnala that are known to contain heavy metals. Procurement of these schemes follows the DBO model, and part financing from private sector is encouraged. The DWSS will take responsibility for cost recovery and financing O&M.

Component 4. Strengthening Institutions and Project Management *(US$49 million)*

14. The objective of this component is to finance non-infrastructure costs related to the project. The key thrust would be on strengthening the DWSS and GPWSCs as efficient service delivery oriented state and local sector institutions. This component will support the following subcomponents:

15. **Subcomponent 4(a). Strengthening Sector Institutions for service delivery and Capacity Building.** The subcomponent (US$13.5 million) will finance transition costs as the sector institution (DWSS) moves from a construction-centric to a service-delivery-oriented organization. The DWSS will also closely monitor the performance of schemes (asset condition and services delivered) and performance of the GPWSC. This subcomponent support costs necessary to manage transformation of the DWSS into a service-oriented organization. In addition, the component also supports:

- *One-time office infrastructure costs*. These costs include purchasing laptops or computers, printers or scanners, vehicles, construction of office buildings as required under DWSS restructuring, and other equipment required for implementing the project.
- *Monitoring and evaluation costs.* The M&E costs will include various consultancies, internal and external audits, and hardware and software required for M&E and upgrade of MIS.
- *Capacity building and state training center*. This subcomponent will aim at building capacity of the sector institutions and GPs implementing the project. This will also include the cost of setting up a state training center and training costs. Focus will be on to expose project functionaries to a minimum of six days of learning in each year.
- *Support to IEC and social development activities.* Cost of IEC and Social Development activities such as costs of IEC tools and information campaigns like manuals, handbooks, pamphlets, field books, audiovisuals, wall writings, hoardings, newsletters, and posters; social development activity costs such as constituting GPWSCs and their capacity building, social audits, participatory community action planning, implementing social development and environmental management frameworks, etc.
- *Sector-development initiatives.* It will include sector development studies, study tours, workshops environment sanitation plans, water security plans, baseline survey, pilots for innovative PPP approaches, and any other studies based on the need.

16. **Subcomponent 4(b): Project Management.** The subcomponent (US$35.5 million) supports:

- *Incremental staffing costs.* The sub component will support cost of staff retained specifically for implementing and managing the project, procuring services or consultants, assisting in internal and external audits, and so on. The staff retained for project management includes experts or specialists and contractual staff and/or those hired from outsourced agencies (for range of activities such as IEC, social development, and environmental); procuring services of consulting agencies or consultants to support the implementation of the project.
- *Recurring operational expenses.* Operational costs pertaining to the project cover office expenses (rent) and other costs (such as stationery and fuel).

B. PROJECT COSTS AND FINANCING

17. The table presents the detailed project costs, including component-wise costs and financing.

Table 5. Detailed Project Costs

Sl. No.	Component	Total Project Cost (in US$, million)	Financing Share	
			GOP (in US$, million)	Bank (in US$, million)
1	**Transformation - improved livability of villages**			
a.	Strengthening water supply schemes for improved service delivery: 570 villages	70.00	21.00	49.00
b.	Sewerage schemes with treatment systems: 315 villages	90.00	45.00	45.00
2	**Inclusive household water and sanitation services**			
a.	Improved access to water through household connections	17.50	5.25	12.25
B	Operational improvement for improved water supply service levels	7.50	2.25	5.25
c.	Household sanitation (toilets): 625,000 IHHL*	60.00	0	60.00
3	**Improved water quality**			
a.	Water quality monitoring and mitigation	6.18	1.86	4.32
b.	Safe and treated water for water quality affected villages • Installation of water treatment plants for technology retrofitting for water quality issues • Surface water supply to quality affected villages	53.20	16.14	37.06
4	**Strengthening institutions and project management**			
a.	Institutional strengthening costs	13.50	4.00	9.50
b.	Project management	35.50	10.50	25.00
	TOTAL PROJECT COSTS	**353.38**	**106.00**	**247.38**
	Front end fee	**0.62**	**0**	**0.62**
	Total financing required	**354.00**	**106.00**	**248.00**

Note: * The unit cost assumed to be borne by the project is INR 6,000 per IHHL. It is assumed that INR 9,000 from the GOI is outside the project cost.

18. In addition to the above project costs, there will be contributions from the community towards capital expenditure retained by GPWSC for which the principles of the first program will continue.

C. ELIGIBILITY CONDITIONS

Key Guiding Principles and Design Features

19. The project will continue to follow SWAp principles, which have been the cornerstone of the first project, wherein there was a common policy and principles adopted for implementation of water supply and sewerage schemes irrespective of the source of funding.

20. *Transformative change in service delivery for improved livability in villages.* The project is designed to achieve a significant transformation of the RWSS sector in Punjab by focusing on enhancing the livability of villages in rural Punjab and laying specific emphasis on improved and comprehensive delivery of water and sanitation services. All water supply schemes in the project villages will strive to achieve minimum 10 hours water supply with at least 95 percent water connections and 100 percent cost recovery from users for O&M. Further, achieving at least 90 percent household sewerage connections where such schemes are being implemented with treatment, timely acknowledgement and redressal of all service-level grievances improve satisfaction levels. All the villages will have 100 percent individual household toilets as the focus of this project is to achieve 100 percent ODF status for Punjab. All project schemes will be run for a minimum of three months to demonstrate desirable service levels and then handed over to the GPWSCs. The project therefore envisages a paradigm shift in focus on service delivery outcomes rather than construction-oriented approaches adopted in the past.

21. *Centrality of the GPWSC in the delivery of water and sanitation services.* The GOP has a vision of strengthening decentralized management of water supply and sewer schemes across rural habitations, which is consistent with the state's water policy. The GPWSCs, which are designed to be inclusive and representative of all social groups in the village, will be primarily responsible for the delivery of services that meet the aspirations and needs of the people (not limited to basic needs alone). Therefore, a key guiding principle of the project shall be that 'no project component (other than household toilets) can be implemented without an active GPWSC in place in any village' and to sustain the GPWSCs created under the first project.

22. It is important that the selection of GPWSC members should represent all social groups and remain an apolitical body. The GPWSCs will receive the necessary capacity-building support from the DWSS for scheme implementation and post-construction O&M management. The GPWSC may either hire an operator (preferably a local resident) to operate the scheme or enter into a contract with a private operator to operate and manage the scheme on their behalf while retaining oversight and overall responsibility that includes financing O&M. With the increasing number of GPWSCs managing the schemes, the DWSS will focus on performing the role of monitoring the GPWSC performance and providing technical support as well as undertaking major repairs. The GPWSC's performance will also be monitored by the DWSS and if needed, the DWSS will have the power to replace it with a new team through elections or nomination. At no point of time, is the DWSS allowed to take over management of these schemes from the GPWSCs by appointing/ reappointing their operating staff. DWSS will implement project rules and principles adopting a sector wide approach by which these rules and principles are adopted for all sources of financing. GOP agreed that a new statewide water supply O&M financing policy will be approved and implemented such that all DWSS managed schemes recover 100% of their O&M expenditure from user charges. Special focus will be given to monitoring cost recovery and management of sewerage schemes and water quality affected habitations. DWSS will progressively improve cost recovery (a project covenant) as follows: (i)

100% billing and 60% cost recovery in the first year; (ii) 100% billing and 70% cost recovery in the second year; and (iii) 100% billing and 80% cost recovery in the third year and thereafter. Progress reports are to be submitted twice a year to the bank

23. *Strong emphasis on behavior change and communication strategy.* The communications strategy will focus on creating awareness and motivating stakeholders to take affirmative action in community participation, water conservation, and adopting safe sanitation practices; generating demand; enabling behavioral change to achieve ODF; and promoting personal accountability and responsibility. The IEC strategy will ensure strong convergence of IEC and behavioral change initiatives with those from the NRDWP and SBM-G and will be deployed at three levels. At the state level, the focus will be on strategic issues such as message development and sustainability of services by the GPWSCs. At the district level, it will focus on providing advocacy on local issues and program development support. Village-level IEC will be aligned with awareness generation and behavioral change to achieve ODF. Project support will be aimed at sustainable operations and making best use of the assets created in the first program. The communications strategy will be insight- and research-driven for impactful outreach and advocacy and will be implemented through focused messaging, IEC events, and rich content. It will be based on the core principles of alignment, continuity, improvement, integration, impact, and augmentation and will include the following components: IEC for project support, continuing the good work done in the first program, improving IEC efficiencies, goal-oriented and impactful IEC, and focus on sewerage and sanitation.

24. The communication strategy will benefit from a data-driven approach in advanced collection, dissemination, monitoring, reporting, and community engagement. With open data and Information and Communication Technology (ICT), the project team can

- help assess customer demand (key focus area in the project); and
- help create tools that can assist in changed behavior and attitude toward issues such as open defecation.

25. *Mainstreaming vulnerable sections and gender themes for inclusive service delivery.* The project will emphasize on mainstreaming gender issues and covering vulnerable sections (especially SCs who account for more than 30 percent of the population and are considered as the poorest), including poorer sections in the design of each component. The strategic intent is to cover more than 90 percent households in every water supply and sewerage scheme and enable 100 percent households to have and use individual toilets. The GPWSCs shall be supported and encouraged to be inclusive, that is, work with marginalized communities, disadvantaged groups, and women. A two-pronged approach to social accountability will be considered: demand driven and supply driven. Citizen feedback will have specific focus in this project and a system will be developed for social audit to be carried out throughout the scheme cycle.

26. *Optimal asset management orientation.* The project will bring focus to the approach of ‘minimum investment, maximum returns’. This will bring about a shift in approach from new asset creation or complete asset replacement to asset management, wherein the asset in each scheme being considered will be assessed and an optimal investment plan will be developed to enhance service delivery to desired levels.

27. *Data and analytics based decision-making and disaggregated monitoring*. The project will provide strong focus on use of data and analytics for decision-making. MIS will be strengthened to focus more on monitoring systems and improved accessibility to end users. Use of mobile-based technologies will be explored for reliable and timely data. Monitoring will be done at a disaggregated level for different categories of beneficiaries such as women and SCs so that the project benefits these citizens who are most impacted by low service delivery. Open data will be an integral part of this process both on the supply and demand side. Open data will be used for:

- assessing customer demand (key focus area in the project);
- creating awareness before construction (a major area of emphasis in the project); and
- developing technical capacity and tools to monitor construction (see http://dashboard.taarifa.org/#/dashboard for an example of a community driven water points and assets management dashboard).

28. As part of the ICT strategy, a combination of open data and MIS upgrades will be used, with mobile solutions and cloud-based services—many potentially developed by the private sector, to (i) help achieve project objectives; (ii) improve monitoring and supervision and general project management; (iii) provide tools for better analytics and decision-making; (iv) facilitate better IEC; and (v) deepen community engagement.

29. *Stronger grievance redressal system - SNK*. The project will strengthen the SNK further to transform it into a true grievance redressal mechanism for the entire scheme cycle, that is, planning, implementation, and O&M and its performance will be monitored. In future, it is proposed that entire scheme cycle including O&M activities carried out by the DWSS should be based on the reports received through the SNK for better accountability. This will eliminate any direct repairs and will ensure that every complaint, however minor, is recorded in the system. It is necessary to convert the SNK as a single tool for reporting. Further the SNK will be upgraded into a grievance redressal system to cover issues of exclusion, deprivation, and marginalizing.

Component-wise Eligibility Conditions

30. The project will have clearly laid down eligibility conditions for enabling initial shortlisting, prioritization, and selection of villages. A review committee consisting of a CE as chairman and concerned SE and EE as members or as amended shall approve inclusion of a village in the project based on above conditions. Further, a committee will be constituted with external sector experts to review engineering proposals to ensure cost effectiveness; and to minimize unnecessary replacement of assets. Since all the villages have water supply schemes of varying degree of operational capability, no new bore well is envisaged to be financed under the project. Similarly, no scheme will be augmented which provides water with contaminants like arsenic, uranium etc.

Component 1. Transformation - Improved Livability of Villages

31. **Subcomponent 1(a). Strengthening water supply schemes for improved service delivery.** Under this subcomponent will be (i) schemes which are old and have been designed for 40 lpcd or less and (ii) schemes facing serious problems such as water ingress/flooding from low

ground water level and studies inform that they cannot be improved to deliver services effectively without some augmentation. Such defunct or underperforming schemes can be rehabilitated with new or augmented systems while making best of existing assets.

- All schemes must meet the following eligibility conditions: (i) at least 5 years old; (ii) not covered under the IDA SWAp program (which are built to cater to 70 lpcd); (iii) no major improvement, rehabilitation, or repair (greater than INR 0.5 million undertaken in the last 5 years; and (iv) technical assessment revealed that operational improvements will not allow the scheme to deliver water equal to 70 lpcd or more without major investments. These proposals should be based on studies conducted on the performance of existing assets.

32. Subcomponent 1(a). Sewerage schemes with treatment systems. The eligibility conditions for this subcomponent are listed:

- Villages that have already achieved ODF status or villages having minimum availability of toilets in 90 percent households and the remaining 10 percent households are ready to construct (in case of small bore sewers, septic tanks in 70 percent households and written commitment from the remaining to construct septic tanks in their houses before work commences).
- At least 90 percent households give a resolution of their readiness to get a sewer connection and are willing to make necessary investments for internal plumbing to minimize water flowing to roadside drains.
- Water supply operations are effectively delivering water for over 10 hours to over 90 percent households. Minimum one-year period of operation of water supply schemes by the GP/GPWSC with over 90 percent household connections and more than 100 percent cost recovery (operational surplus).
- Village roads are predominantly paved (for safety of sewers).
- Availability of land sewage treatment facility.
- Upper limit per capita cost to be monitored.

33. Sewerage scheme will be projected as an ‘incentive’ for improved performance of the GPWSC in managing water supply services, as indicated, in terms of the number of hours of water supply, use of water meters, and cost recovery efficiency. For example, schemes managing 24x7 water supply with water meters will be prioritized for sewerage schemes. In addition to GPWSC performance, lower per capita cost and low cost of O&M per year will be considered in prioritizing villages for a sewerage scheme. Therefore, selection shall follow a transparent process.

Component 2. Inclusive Household Water and Sanitation Services

34. **Subcomponent 2(a). Improved access to water through household connections.** The eligibility conditions for this subcomponent are listed:

- All fully covered (FC) or partially covered (PC) villages which are about 5 years old will be eligible for this subcomponent.

- The GPWSCs which are seeking to implement 100 percent coverage of water supply with 10 hours supply and the current proposal will allow them to recover 100 percent cost of operations through user fee.
- Technical assessment revealed that performance improvements through minor investments and extension of lines with new connections will allow delivery of more than or equal to 70 lpcd of water for over 10 hours. In addition, it will also lead to 100 percent cost recovery.
- No government operator is in place or unlikely to be in place after commissioning (DWSS to certify).

35. **Subcomponent 2(b). Operational improvement for improved water supply service levels.** All water supply schemes in the state that are run by the GPWSCs (including those implemented under the SWAp) will be eligible under this subcomponent. The GPWSC must show willingness and commitment to serve its beneficiaries with better services (over 10 hours water supply; 100 percent connections and coverage; and 100 percent cost recovery) and achieve self-sustainability. The GP-run schemes can also opt for operational improvement provided the GPWSC is constituted and the DWSS hands over the scheme to the GPWSC. So, the DWSS operator has to be withdrawn (applicable to all water supply components). IEC and social inputs are critical for strengthening the GPWSCs.

36. **Subcomponent 2(c). Household sanitation (toilet).** This will be implemented as per the national guidelines developed under the SBM-G. Only households not benefitted with a toilet under any previous programs (government and nongovernment) are eligible. Households and GPs should be provided adequate inputs on ODF, and subsidy to construct a toilet should be conditional on its use by all family members.

Component 3. Improved Water Quality

37. **Subcomponent 3(a). Water quality monitoring and mitigation.** Entry and eligibility is for all villages in the state (or in limited districts) with water quality problems

38. **Subcomponent 3(b). Safe and treated surface water for water quality affected villages.** Eligibility is for any village having major water quality problems. The project will support select villages affected by installation of water treatment plants for technology retrofitting for water quality issues such as arsenic, fluoride, and iron but only cost effective investments/ solutions are permitted.

39. In addition, in districts where incidences of uranium and heavy metals have been detected, feasibility studies have been carried out to explore the possibility of surface water schemes. It is expected that a number of schemes with common treatment plants will be proposed for a group of villages and water will be delivered at a single point at the village head. The water will then be distributed using existing pipe network systems by the GPWSCs (GPWSCs to be constituted if not existing). Depending on cost economics, surface water is primarily to meet drinking water needs (up to 30–70 lpcd) and for other needs, existing ground water supply systems shall be used.

40. The villages will be selected subject to the GPs' consent to pay for the surface water to be obtained. The GOP will decide on the use of GOI/ NRDWP funding (can secure funds under the water quality affected villages component). The GOP will also decide on the number of villages to be covered initially and set aside a suitable budget for this component. The remaining villages or schemes can be taken up in stages. The DWSS is responsible for tariff collection and O&M of surface water schemes.

ANNEX 3: IMPLEMENTATION ARRANGEMENTS

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

PROJECT IMPLEMENTATION ARRANGEMENTS

1. The GOP, through its Ministry for Water Supply and Sanitation (WSS) represented by the Principal Secretary or Secretary, administers the project and is responsible for achievement of the project objectives. The ministry's operational arm, the DWSS, is responsible for project implementation under the guidance of the Principal Secretary or Secretary. Unlike the PRWSSP, which was implemented by the State Program Management Cell (a PMU) created for this purpose, this project will be implemented directly by the DWSS, which will also be reoriented and restructured during the first year of this project to give better focus on sector transformation and excellence in service delivery to the citizens of rural Punjab. The reason for the DWSS taking direct responsibility is that it has gained experience in project implementation and it is time for project processes to be mainstreamed. Therefore, the DWSS is proposed to be strengthened with other ancillary disciplines such as social, communication, procurement, financial, water quality, and other streams to work closely with the communities for the ultimate goal of sector development in the state. The implementation arrangements will be aligned with the objectives of the Punjab Rural Water and Sanitation Policy 2014.

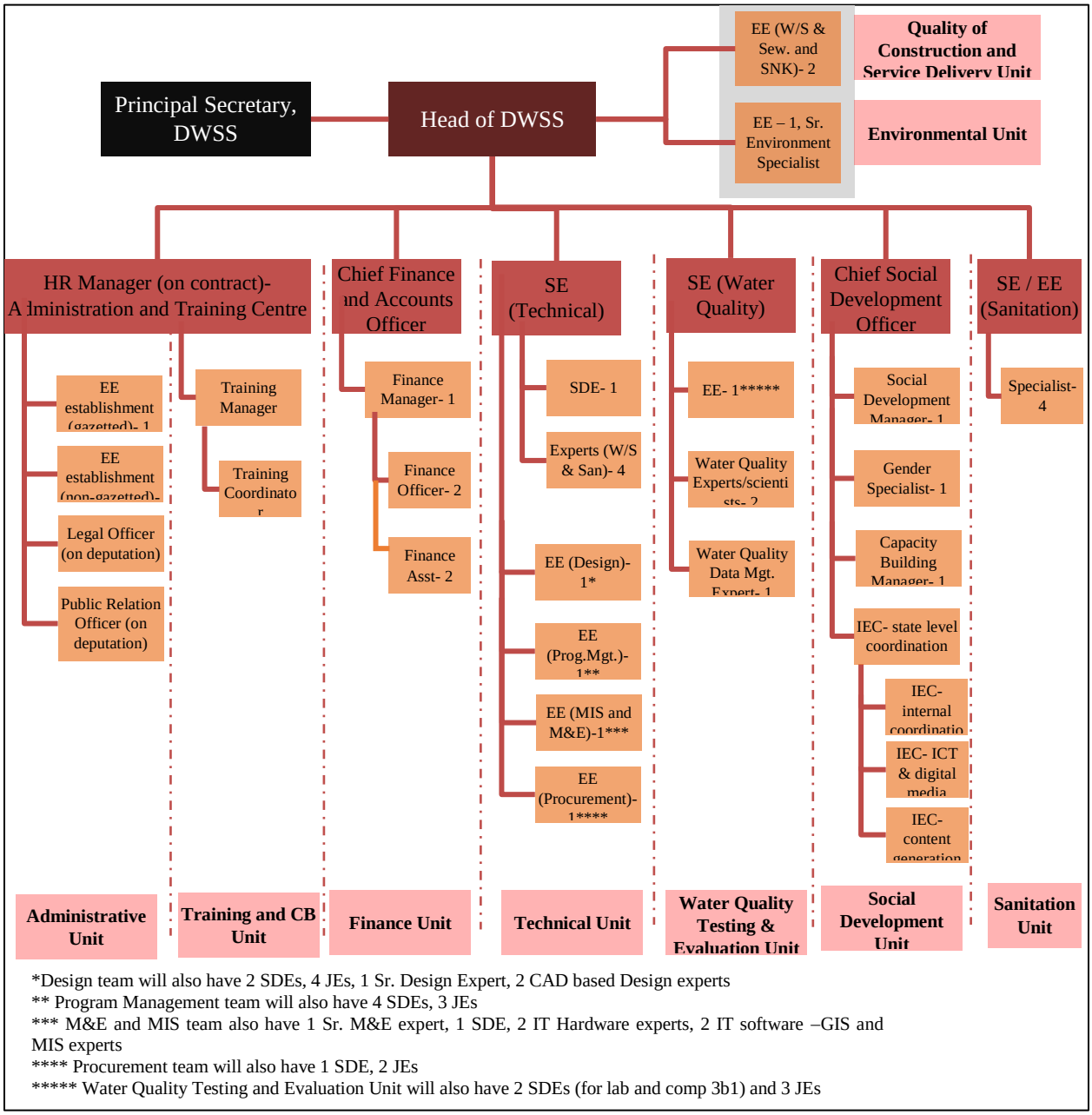
2. The government remains a policy maker, sector regulator, and facilitator of sector development in the state. The DWSS's mainstay was construction and maintenance of rural water supply schemes in the state. Under PRWSSP, the DWSS successfully made a shift in delivering excellent results by actively working with communities and together demonstrated sustainable operations and service delivery. In a way, the project also proved that decentralization works in Punjab. Building on this success and capitalizing on the results demonstrated, the project proposes the following:

i. The DWSS further transforms into an institution that is gearing up to face sector challenges through capacity building and by acquiring skills necessary to partner with communities and private sector agencies to fulfil this goal.
ii. As a provider agency, the DWSS strives to ensure that services delivered do meet the demands and aspiration of the rural people, which is changing with the times.
iii. Reorient the DWSS from a pure engineering or construction-centric agency to an agency that lays stress on monitoring and planning aspects and is responsible for service delivery.

3. *State Water and Sanitation Mission (SWSM).* The SWSM is the highest advocacy body in the sector. It is chaired by the Chief Secretary and Principal Secretary or Secretary; the DWSS is the Member Secretary. The other members of the Mission include a representative of the Department of Drinking Water, Ministry of Drinking Water and Sanitation (MoDWS), GOI; secretaries of other relevant GOP departments; and three sector experts. The SWSM will continue to provide guidance for the sector and review in line with the guidelines or notifications under which it was established.

Implementation of Project Activities

Figure 1. DWSS Structure - State Level - Head Office



*Design team will also have 2 SDEs, 4 JEs, 1 Sr. Design Expert, 2 CAD based Design experts
** Program Management team will also have 4 SDEs, 3 JEs
*** M&E and MIS team also have 1 Sr. M&E expert, 1 SDE, 2 IT Hardware experts, 2 IT software –GIS and MIS experts
**** Procurement team will also have 1 SDE, 2 JEs
***** Water Quality Testing and Evaluation Unit will also have 2 SDEs (for lab and comp 3b1) and 3 JEs

4. *DWSS.* Like any other Indian state's Public Health or Public Works Departments, the DWSS is also hierarchical; at apex level it is the CE and at first level, it is the AE/JE. The reporting lines, accountabilities, and roles and responsibilities are as defined in their department codes. However, it is proposed that the DWSS is restructured to make it an accountable government institution for service delivery to the people and sector development agency for the government. See annex 11 for more details on reorientation.

5. *The Head, DWSS.* The revamped DWSS will be responsible for implementation of the project. This project will support the transition and costs associated with that. Any consultancy support required to achieve this transition (preferably, within the first year) will also be financed. The project will be steered by the Head-DWSS who reports to the Principal Secretary, WSS in the GOP. The Head is responsible for overall program implementation and management of services. In the proposed restructured DWSS, there will be a Technical Unit (comprising the Design; Project Management [or operations]; MIS and M&E and Procurement subunits); Quality of Construction and Service Delivery Unit, Water Quality Testing and Evaluation unit; Social Development and IEC Unit (further comprising the Social Development, Communications [IEC], and Capacity Building subunits); Training and Capacity Building Unit; Sanitation Unit; Administrative Unit (further comprising the HR and Legal subunits); and a Financial Unit. The Head-DWSS is responsible for overall project planning and management to ensure that the PDOs are fully achieved in a timely manner, managing sector funds, building capacity of all project partners, managing state-wide IEC campaigns, ensuring appropriate community empowerment and participatory framework, ensuring appropriate procurement practices and high quality of engineering designs and construction, implementing enhanced transparency and disclosure action plan, and regular M&E of the sector performance. These would also ensure that the non-IDA schemes follow the same principles as those adopted by the project and move toward the objectives set out in the Punjab Rural Water and Sanitation Policy 2014. The DWSS will also provide coordination support with other relevant departments such as the DRDP, Department of Health, and Department of Education.

6. *Zone level.* In the restructured DWSS setup, the CE is the head of a zone and has primary responsibility of scheme-level planning, procurement, and implementation. There will be a finance officer to assist in finance and accounts related matters and other technical staff on designs and planning. The CE is also responsible for preparing yearly budgets for O&M. An EE will be a focal point for environmental issues supported by an environment expert. The CE monitors performance of all the engineers and other staff in the zone.

7. *Circle level.* In the revamped DWSS setup, the SE is the head of a circle. At the circle level, there will be an assistant finance officer to assist the SE in finance and accounts related matters. There will be an environment manager (EE level) and a water quality specialist at each circle. The SE is more responsible for program implementation, monitoring of water and sanitation services delivered.

District Level - including District and Division

8. *Division.* The EE heading a division will be responsible for managing the project level and primarily responsible for preparing proposals and implementation of project activities. As the DWSS division, it is responsible for ensuring service delivery and monitoring performance of the schemes in all the villages under its jurisdiction. Other key responsibilities include management of sector funds, capacity building of all project partners, community empowerment, service delivery and participatory framework, ensuring appropriate procurement practices. The EE with sub-divisional officer (SDO), AE/JEs, social and IEC staff develop partnerships with communities, constitute the GPWSCs, enter into an MOU, and work with them. The division is also responsible for reporting progress to the Head-DWSS through the concerned SE and CE. There will be a divisional accounts officer and environment officers (trained AE/JE) supporting

the EE. There will be a community development specialist and an IEC specialist in all the divisions.

Subdivision Level

9. The subdivision office, which may be coterminous with a block, will be headed by a SDO or sub-divisional engineer and report to the EE on design, operations and management, service delivery and execution of works within the subdivision. At the subdivision, there will be community coordinators, who will consist of the IEC/HRD coordinators and the Block Resource Centre (BRC) personnel.

10. When the DWSS transformed to focus on service delivery, the monitoring unit/scheme initiator is the 'SDO' who is in charge of a 'block'. Under the new project, the SDO and his JEs under the EE's supervision will monitor and develop a progress report on service delivery which shows the number of villages and their service levels, operational issues, and cost recovery. The SDO together with EE then proposes villages for implementation of various project subcomponents relating to water on yearly basis to improve them all over a five-year period to 10-hour to 24x7 water supplies with near 100 percent connections and full cost recovery. The MIS will provide support and he/she will deploy the IEC and HRD inputs accordingly.

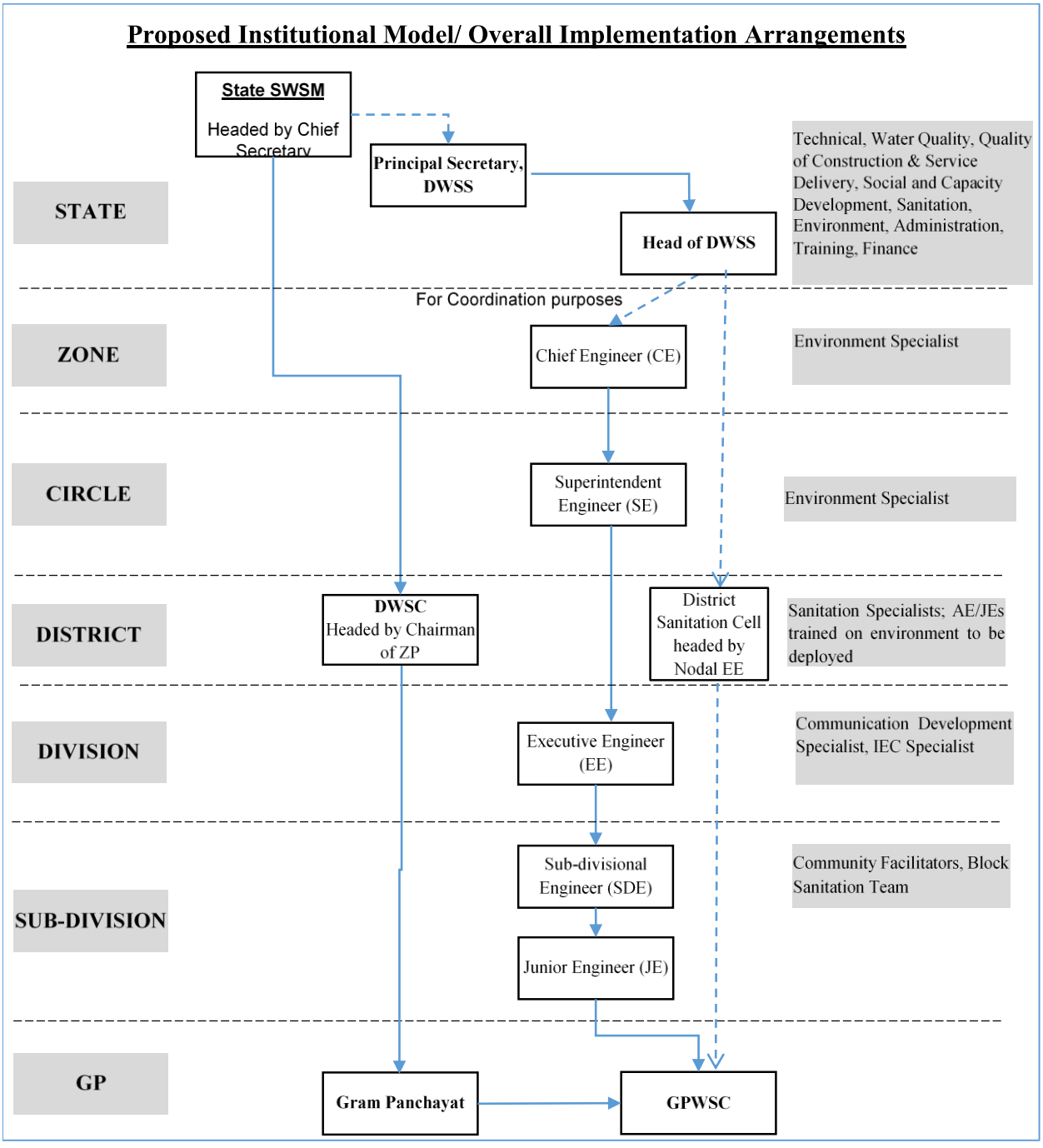
11. Each block will have one or more teams of a team leader and two community mobilisers, depending on the size of the block (number of villages), who will be responsible for planning, implementation, monitoring, and reporting of all ODF-related works at the block level. The teams will be report to the District Sanitation Cell.

Village Level

12. The GPs are responsible for seeking to participate in project activities by constituting a GP level called 'GPWSC' representing the user communities and empowering the GPWSCs to take responsibility for implementation of activities on its behalf and manage all water, sanitation, and other services post construction/rehabilitation. The GPs along with the DWSS will monitor sustainability of operations to ensure that the GPWSCs satisfactorily discharge their O&M management function, including levying and collecting user charges from the beneficiaries. For MV schemes, the GP will also be responsible for payment of bulk water charges.

13. *GPWSC*. Several of the GPWSCs constituted under the PRWSSP are managing SV schemes as well as intra-village infrastructure of MV schemes. Under this project, it is also mandatory for any GPs who wish to benefit from the project to set up GPWSCs to take over management of the water supply schemes (no new water supply schemes are envisaged). GPs with existing GPWSCs will be able to seek assistance for sewerage schemes, provided the GPWSCs are functioning effectively. The key functions of the GPWSC are (i) planning and technology selection, (ii) collecting capital cost contribution, (iii) procurement and construction, and (iv) management and full financing of O&M, including cost recovery. The composition of the GPWSCs, their functions, and method of selecting members, bylaws, legal framework, and relationship with the GPs are included in the PIP. The project strives to maximize women's role and participation in the GPWSCs. For MV schemes, the SLCs will have representatives from participating GPWSCs to manage bulk infrastructure.

Figure 2. Proposed Institutional Model/ Overall Implementation Arrangements



Institutional Arrangements for Household Sanitation

An Executive Committee (EC) exclusively for rural sanitation will be constituted under the SWSM, chaired by the Principal Secretary, DWSS with Head of DWSS as the Member Secretary. The EC membership will include the state departmental heads from RDPD, Women

and Child Development, Health, Education, and (by invitation) select key persons working in the sanitation domain. The EC should ideally meet once in three months and its role is as follows:

- Develop the strategy for achieving the goal of ODF Punjab, including milestones and timelines.
- Review and approve action plans and financial sanctions for sanitation programs.
- Review progress toward the goal of ODF villages and rural Punjab.
- Facilitate convergence of various programs and projects to accelerate achievement of sanitation goals.
- Constitute task force (as and when needed) for the subject of total sanitation and finalize the modalities of the functioning of the task force.

14. The State Sanitation Unit (SSU), which will be part of the office of the Head, DWSS , will focus on working towards the goal of ODF Punjab to compliment SBM-G IHHL with the following responsibilities:

i. Primary responsibility is to provide strategic direction and be responsible for implementation of the rural sanitation program through district, block, and village level organizations; play a mentoring role; and provide guidance to the district teams on GP-level implementation in line with the overall goal of 100 percent toilet coverage and usage at the collective level. For selected initiatives, especially new approaches and innovations, the SSU can develop models for piloting and approaches for scaling up the activity at district and state levels.
ii. Continue to update strategy and operational guidelines to facilitate districts, blocks, and GPs in implementation of the sanitation program. Periodic monitoring will be undertaken at district level to ensure quality implementation of activities and suggest remedial measures, if required.
iii. Identify resource agencies and consultants to support capacity building at different levels.
iv. Identify and train master trainers and resource persons at state level who can be made available to support districts in building capacity to implement a participatory approach to rural sanitation.
v. Under behavior change communication (BCC), identify the broad messages to be communicated for different target audiences and develop materials that can be used for a state-wide campaign.
vi. Specify and disseminate principles for engaging support organization/individual experts at district level as a part of the District Sanitation Cell.
vii. Develop guidelines for safe technology options for household sanitation at the state level.
viii. Monitor results, including behavior change and achievement of ODF status of villages and GPs.
ix. Develop guidelines for a state-wide competition among GPs, blocks, and districts to be recognized as the cleanest and the modality for implementation of the competition.
x. Develop case studies of successful implementation experiences and innovations for cross-learning.

15. The state-level unit will be staffed with four specialists in communication, capacity building, planning and monitoring, and technology options.

16. There will be a dedicated District Sanitation Cell, with one nominated EE as nodal officer, in each district with the following responsibilities:

i. Implement the sanitation program in the district with the focus of achieving 100 percent ODF status by developing a strategic approach suitable for the district, which includes working with communities and the DWSS.
ii. Identify and train members of the district/ block resource group and motivators at GP level, provide incentives to resource persons, and motivators based on results.
iii. Organize and facilitate behavioral change communication and awareness campaigns through interpersonal outreach and mass media channels.
iv. Continuously monitor program implementation and achievement of community-wide toilet use/ ODF at village level.
v. Ensure linkage with related project components.

17. The District Sanitation Cell will be supported by expert resource persons for each cell in behavior change communication, monitoring and capacity building. There will be one or more block level teams comprising of one team leader and two community mobiliser for triggering behavior change and community mobilization and motivators at block level. The District Resource Group (DRG) will be selected as the best among a larger group of motivators trained on participatory approaches to motivate behavior change in rural sanitation. The block level teams will provide the frontline for interactions with the village communities and institutions. One motivator/ community mobiliser is proposed to be engaged for up to two GPs, as per need and capacity. The following criteria can be used for selecting motivators:

- They should have an interest in working with rural communities, and especially for frontline government staff, have sufficient time to go to different villages and facilitate triggering exercises.
- They should have good communication and interpersonal skills.
- Community mobilisers should be selected from all blocks in a district to ensure geographical representation and distribution of resources.
- Adequate representation of women is essential.

18. It is recommended that motivators/ community mobilisers are selected from a wide range of groups, including field-level staff of government departments (for example, health and education), civil society organizations, NGOs, *Nehru Yuva Kendra*, Eco Clubs, and community leaders. In addition, the leaders of GPs which have become ODF, or natural leaders could also become motivators to be used by the district to motivate other villages or GPs.

19. After training and selection, the block level teams can start working in select GPs based on demand and the enabling environment in a GP. It is ideal to work as team of two to three motivators rather than have individual motivators. Each team may start work in three to four GPs based on the demand from communities or local administration. The number of GPs where the campaign will start will be decided by the district but it would be strategic to start with 'low hanging fruit' to get results and increase the confidence of the field team. The criteria for prioritizing GPs may include:

- Willingness of GP leadership to be involved in the ODF program and the district-wide ODF campaign
- Proactive and positive record on development programs
- Relatively smaller number of households

20. At the village level, the GP/GPWSC is supported by the block level teams. A monitoring (*Nigrani*) committee will be formed from the community members who will come forward for attaining ODF, after the triggering events. The role of the GP is as listed:

i. Involve people in awareness campaigns.
ii. Identify natural leaders/resource persons in the village who will take the campaign forward.
iii. Identify masons and suppliers of different sanitary materials. Beneficiaries will be responsible for constructing toilet, facilitated by GPWSC/GP if desired.
iv. Monitor usage at the village level.

PROJECT ADMINISTRATION MECHANISMS

Following are the key implementation and administration aspects:

21. *Implementation schedule*. The project implementation will be launched from April 1, 2015. A detailed project implementation schedule has been developed for a 6-year implementation period from July 2015 to June 2021 and presented in the PIP.

22. *Scheme cycle.* Each scheme under Subcomponent 1(a) and 1(b) would follow scheme cycles consisting of four distinct phases (Preplanning, Planning, Implementation, and Post Implementation). Model scheme cycles for water (SV and MV schemes) and sewerage schemes have been developed capturing learnings from the PRWSSP and presented in the PIP. The duration of scheme cycles vary from 6 months to 24 months depending on the complexity of the scheme. These will be an important tool for implementation planning and monitoring of project activities. The scheme cycle is not intended to be a process blueprint but would be flexibly used to accommodate the needs of the communities, GPs, and the schemes on a case-by-case basis.

23. *Capacity building of local communities.* The project will have a full-scale capacity-building component to enhance the capacities of the GPs and GPWSCs with additional focus on the sewerage component of the project.

24. *Operational guidelines.* The PIP to facilitate project implementation and monitoring has been developed building on the experience of the PRWSSP. These include guidelines on village selection criteria and process, scheme appraisal criteria, model formats for various agreements, and MOUs to be signed with the GPs and GPWSCs. Operational manuals on fiduciary, technical, and safeguard aspects are being updated to accommodate the key changes in the project. Where necessary, the GOP orders will be issued to formalize institutional roles and responsibilities, their mandates and powers, and approval of various operational manuals. All these are being documented and referenced in the PIP.

FINANCIAL MANAGEMENT

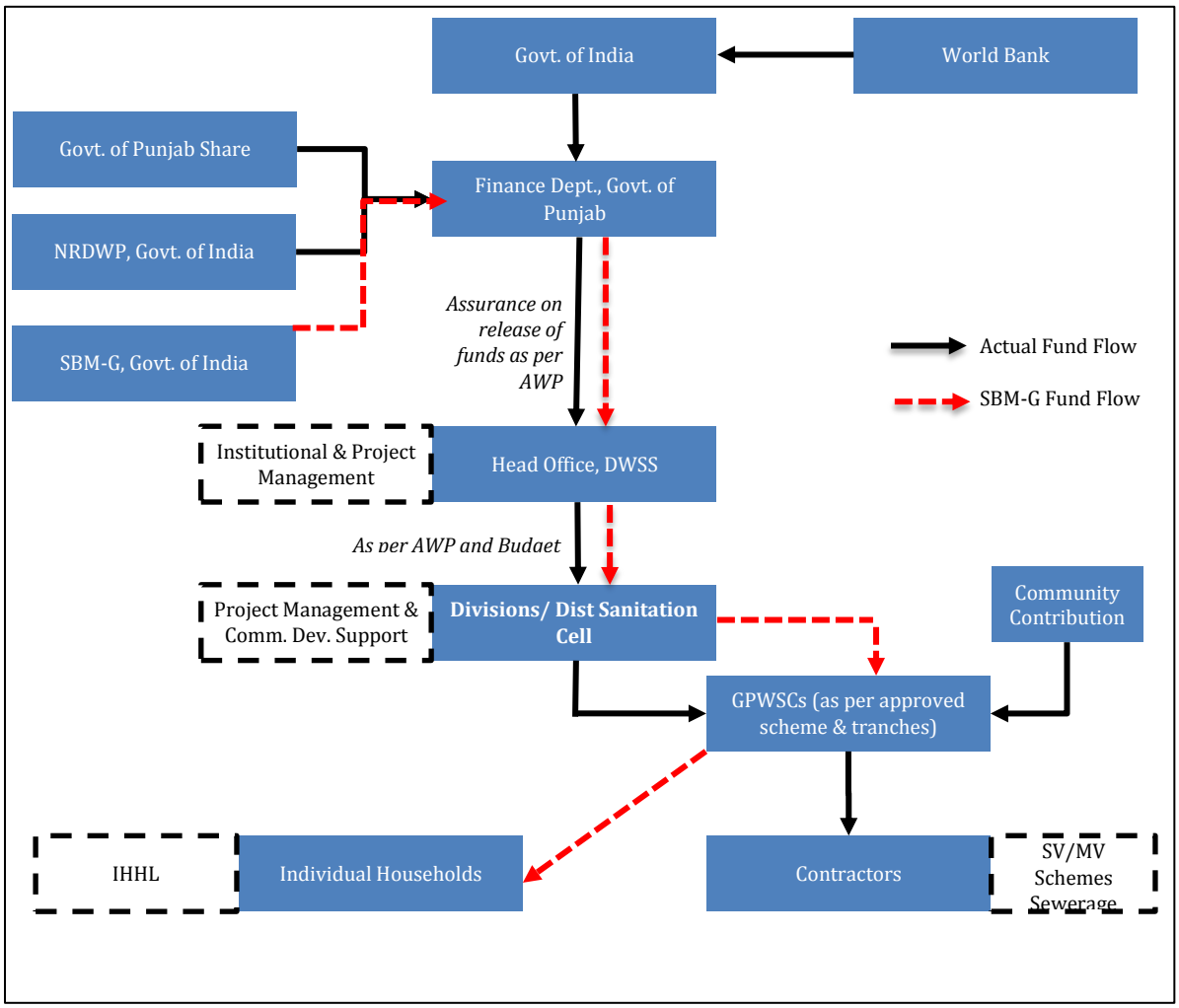
25. The FM risk is rated as Substantial based on assessment of the FM performance of the previous project (PRWSSP) and the agreed mitigation measures. The GOP has successfully implemented the recently closed PRWSSP (P 090592) and experience on the project included: (a) implementation of schemes through GPWSCs with adequate record keeping and oversight by Concurrent Auditors; (b) use of mainstream GOP systems for funds flow, accounting, audit; and (c) some concerns regarding timely availability of funds to the project implementing entities. This learning and experience has gone into strengthening of the FM systems on the proposed project.

Budget and Release of Funds

26. The project would be budgeted in the GOP's budget, with separate budget lines for GOI-funded schemes and Bank-funded schemes. The state's share of the project budget will be provided for in the Demands for Grants of the DWSS as part of the state's overall budget. The funds are to be transferred to the GPWSCs for all schemes and will be budgeted as Grant in Aid. The project budget for each financial year will be based on the Annual Work Plan (AWP) for the states. The budget planning process of each division will follow a 'bottom-up' approach, that is, it will start from the GPWSCs, get consolidated at each division, and then at the head office. After consolidating AWPs from respective divisions, the head office will prepare and compile an AWP for the entire project by December 31 of each year for the following financial year, in order to feed into the GOP's budget cycle. Similarly, on the receipt side, the GOP will reflect the funds to be received from the Bank and the GOI. Community contribution will only be reflected in the AWP and not in the GOP state budget. The line department (DWSS) will have the flexibility to reallocate budgets between the components, if required, and need not wait for legislative approval.

27. The FD, GOP will make a quarterly allocation to the department based on its requirement of funds according to the approved AWP. The head office will in turn make component-wise and scheme-wise allocation of funds to various divisions, according to their respective budgets. Divisions will be responsible for further allocation of funds to the GPWSCs for all schemes (including SV, MV, sewerage, and sanitation schemes). Funds will not be released to divisions for implementing MV schemes and community sanitation schemes. Funds will be released to various GPWSCs based on demands raised by them after adjusting actual utilization reported as per the GPWSC audit. Funds will be released into the GPWSC bank account based on request made by each division to the district Treasury. The GPWSC will maintain an account with a nationalized bank or a bank branch which has implemented the core banking solution. Each GPWSC will have the authority to issue checks to pay contractors or suppliers for undertaking project activities within the scope of the amount already approved. Funds for project management and community development support will be retained at the head office and divisions. This is depicted in the following flow chart.

Figure 3. Flow of Funds



28. For the IHHL component funds will flow from head office to the district sanitation cells and onwards to the GPWSCs. This shall then be released by the GPWSC to accounts of the individual households in two installments based on progress of work/ completion. This activity shall have adequate oversight in form of an independent verification process that shall include physical verification and use.

29. The fund flow arrangements will do away with unnecessary parking of funds with head office and divisions and allow efficient cash management by the DWSS. It will address the issue of float of idle funds across project bank accounts with no effective system to monitor the same and at the same time resulting in avoidable borrowings by the government.

30. This fund flow mechanism will simplify the book-keeping requirements at the head office, divisions, and the GPWSCs and also strengthen internal controls, as the head office will have online access to the bank statements of all participating GPWSCs in the state.

31. In order to address the delays in receipt of funds by the GPWSCs, the following procedures have been agreed:

i. Based on the approved budget, annual work plan (at the beginning of the year)/ expenditure performance (during the year) – allocations/ release of funds will be made by the FD to the DWSS (line department). This will be on a lump sum basis and not broken down by components, thereby giving the flexibility to the DWSS to allocate the funds as required. Such a request will be processed by the FD within two weeks of the request by the DWSS.
ii. The timely issue of allocations by the FD is a legal covenant.
iii. Divisions will not open any bank accounts to avoid parking of funds, which need to be released to the GPWSCs.

Accounting and Internal Controls

32. Accounting and internal controls at divisions will be as per established GOP systems which include reasonable book-keeping requirements and staff from the CAG office (Accounts and Entitlement wing) in the role of the Divisional Accountant.

33. Formats and records at the GPWSCs will be as prescribed in the project FM Manual and which have been used and tested in the earlier project. Payments will be made under joint signatures of the GP office bearers and an officer from the DWSS. As explained subsequently, 'Concurrent Audit' will play an important pre-control function for all releases to the GPWSCs.

34. Project interventions related to the sanitation component will be complemented by GOI's SBM-G programs. Both project funds and SBM-G funds will be used to construct new household toilets in the GPs identified for project intervention in the state. The SBM-G funds for the GPs identified for the project will flow through the existing mechanism. Releases for IHHL will be made by the GPWSC to the household in two installments and will include checks which include a baseline survey, technical assessment and independent verification.

35. The project funds will be used in providing additional support for IEC/BCC, capacity development and formative research, and incentives to households which will be covered through various community development programs.

Financial Reporting/ Disbursement

36. All divisions are required to prepare monthly and quarterly financial management reports which get compiled at the head office level. These will be submitted to the GOI and the Bank as may be required and will include the following information:

i. The monthly financial reports provide information on project expenditure by subcomponents, community contribution, payment to contractors, tax deducted at source/value-added tax deducted, details of funds received and utilized by the GPWSCs, and statement of concurrent audit reports of the GPWSCs.

ii. The quarterly financial reports provide information on project expenditure by components, summary of funds released and utilized by the GPWSCs, and reconciliation of overall expenditure with the expenditure report from the Auditor General (AG).

External and Internal Audits

37. *Internal audit.* The project will have a regular internal audit by an independent firm of chartered accountants who will review to ensure that the systems, procedures, and rules as documented in the FM Manual are being adhered to at the project level, that is, the head office and divisions.

38. *Concurrent audit.* Since a significant portion of the funds is expected to be spent at the level of the GPWSC, a concurrent audit by independent firms of chartered accountants (appointed by head office), according to the TOR agreed with the Bank, will be carried out before each tranche release except the first. The TOR covers aspects of community procurement, financial management, and community-level transparency. Second (and subsequent) tranche of funds will be released to the GPWSC subject to approval by concerned divisions only on receipt of the Report of the Concurrent Auditors.

39. *External audit (AG audit).* The CAG through its offices in Punjab will be the statutory auditor for the project. The CAG's office will conduct an annual audit of the project financial statements (sources and uses of funds covering all sources of funds). The audit report will be sent to the Bank within nine months of the close of each financial year. The TOR for the audit (along with the draft format of the financial statements and audit opinion) has been agreed by the CAG for all Bank projects in India. Audit by the CAG may also include a sample review of the GPs implementing the project. The following audit reports will be monitored in the Bank systems:

Table 6. Audit Reports

Implementing Agency	Audit	Auditors
GOP (DWSS)	Project Audit	CAG of India, Punjab
Department of Economic Affairs/GOI	Special Account	CAG of India, New Delhi

40. *Disclosure.* The following information will be disclosed to ensure transparency and good governance: (a) Annual Audited Financial Statements; (b) Quarterly Interim Unaudited Financial Reports (c) Project FM Manual; (d) Schemes – selected, releases, progress and payments.

41. *Financial Management Manual.* Detailed FM processes, including budgeting, funds flow, internal control framework, accounting, financial reporting and audit arrangements are described in the Financial Management Manual, which is comprehensive and easy to use.

42. *Training and capacity building.* The project will provide training to finance staff at the state, district, and GP levels, as required. Ongoing training will be conducted to maintain appropriate books and records and undertake other FM functions as envisaged in the PIP. Appropriate staffing, commensurate with the size and nature of the project, has been agreed for the head office and divisions. Consultants or chartered accountant firms will help in building the capacity of the GPWSCs/ SLCs to maintain books and records.

43. *Retroactive financing.* An equivalent of up to 20 percent of the Bank's contribution to the project will be available for financing eligible project expenditures incurred for a period of one year before the likely loan signing date.

Disbursements

44. Disbursements will be made by the Bank to the GOP through the GOI on the basis of quarterly financial management reports; reimbursing the expenditure reported. Releases to GPWSCs will be considered eligible for reimbursement purposes but will subsequently be subject to concurrent audit as described above. In case of IHHL, the Bank will disburse its agreed share (Rs. 6,000 ~ USD 96) once the entire funds (Rs. 15,000 for each toilet) have been released to the individual, by the GPWSC/GP. An advance of upto USD 25,000,000 is available to the project; which may be drawn down in tranches based on pace of implementation. This will be adjusted/ recovered near the close of the loan period. The applicable disbursement method will be Reimbursement. Funds will be disbursed by the Bank as given in this table.

Table 7. Project Disbursement Categories

Category	**Amount of the Loan Allocated (expressed in USD)**	**Percentage of Expenditures to be financed (inclusive of Taxes)**
(1) Grants for household toilets under Part B.3 of the Project	60,000,000	100%
(2) Goods, works, non-consulting services, and consultants' services for all Project activities except those for household toilets under Part B.3 of the Project	187,380,000	64%
(3) Front-end Fee	620,000	Amount payable pursuant to Section 2.03 of this Agreement in accordance with Section 2.07 (b) of the General Conditions
(4) Interest Rate Cap or Interest Rate Collar premium		Amount due pursuant to Section 2.08 (c) of this Agreement
TOTAL AMOUNT	248,000,000	

PROCUREMENT

45. The procurement to be made under the project will involve broadly the following: (i) Upgrading piped water Schemes; (ii) rehabilitation of existing piped water schemes; (iii) community sanitation schemes like development of underground small bore/ conventional sewerage system and construction of individual household toilets; (iv) goods like office equipment, computers, and bulk water meters; (v) NGO/consultancy services for project

management, MIS, quality assurance, capacity building, engineering design and supervision, and auditing.

Implementation Arrangements

46. The procurement under the project will be handled as listed:

i. The SLC will be responsible for procurement of common infrastructure of MV water supply schemes under the project excepting for surface-water-based schemes that will be procured by the DWSS.
ii. The GP/GPWSC will be responsible for procurement of SV water supply schemes and intra-village works for MV schemes and procurement of sewerage schemes with technical support from the DWSS.
iii. The DWSS will be responsible for procurement of all goods mentioned in the paragraph titled 'Goods' under 'Procurement Arrangements' and consultancies under the project.

47. For procurement under the project, the DWSS has developed a Procurement Manual in consultation with the Bank in order to update the detailed procurement arrangements and methods. All procurement under the project will be handled according to the provisions of this manual once it is finalized, the Bank procurement guidelines, and the legal documents. The manual requires that procurement of all goods, works, and services will be in accordance with the Bank Procurement Guidelines of January 2011, revised in July 2014. Similarly, all consultancy services shall follow the Bank Consultant Guidelines of January 2011, revised in July 2014. The manual also stipulates that for all procurement following NCB, the Bank's Standard Bidding Document (SBD) as agreed with the GOI task force and as amended from time to time will be used as a base. For procurement following ICB and procurement of consultancy services, the Bank's SBD and standard request for proposal (RFP) will be used as a base and will be as agreed with the New Delhi office of the Bank.

Procurement Arrangements

48. *Goods.* The goods to be procured under the project will generally be office equipment, computers, bulk water meters, household water meters, goods and equipment for water quality testing laboratories, field kits, vehicles, and IEC materials. Most of the procurement of goods will be of small value and will follow NCB/Shopping procedures.

49. *Works.* The works under the project will be procured as described here:

Water Supply Schemes

(i) *MV schemes.* The procurement of these works will be handled by the SLCs except that intra-village works of MV schemes will be procured by the GPWSCs as a separate package. The intra-village and common facilities for MV schemes may also be procured by the SLCs on a single responsibility basis wherein all materials and the labor component will be arranged by the contractor.

(ii) *SV schemes.* The procurement of SV schemes will be handled by the GPWSC. The GPWSC may engage a single contractor to carry out all components of the scheme. The GPWSC will also have the option to procure the SV schemes in three parts: (a) boring and installation of tube well (or the canal-related works of filtration plant, clear water reservoir); (b) construction of overhead service reservoir (OHSR) and civil works; and (c) providing and laying of the water supply distribution system. In addition, the GPWSC will also have an option to implement water supply distribution works by procuring material like cement, steel, and pipes separately and installing them either by awarding a labor contract or through the community. However, surface water schemes will be procured by the DWSS.

(iii) Water Supply Rehabilitation and Community Sanitation Schemes**:** The works for rehabilitation of water supply schemes and of the community sanitation schemes will be procured by the SLC/GPWSC following NCB or Community Force Account or through shopping procedures.

50. *Consultancies.* These will include procurement of consulting services (national and international) for hiring of support organizations, specialist firms, and individual consultants (management, HRD, social development, engineering, monitoring, and finance); training institutions; and for sector policy and other studies. The major consultancies will be as listed:

i. *Engineering design support consultancy.* Around 2 contracts of values approximately US$300,000 each, one contract for independent construction and another for water quality monitoring of values approximately US$250,000 each.
ii. *Management Support Consultancy*. Around 6 contracts of value ranging from U$35,000–500,000.
iii. *Chartered accountancy firms.* These firms will be hired for conducting concurrent audit (approximately U$400,000) and internal audit of the GPWSCs (approximately U$80,000). In addition, consultants will be hired for financial and procurement capacity building of the GPWSCs (U$17,000). The other consultancy services will include studies for impact evaluation, developing sector information management system, benchmarking and sector progress reports, M&E studies, research, and financial and technical audits. The project will fund services required for training, workshops, and seminars. The training and workshops will be arranged by the project at the state, district, and block level, and the expenditure would not exceed US$3,000 per training module.
iv. Use of government institutions and enterprises: Government-owned enterprises or institutions in India may be hired for activities of a unique and exceptional nature if their participation is considered critical to achievement of project objectives. In such cases, the conditions provided in clause 1.13 of the Consultant Guidelines will be satisfied.

51. Short lists of consultants for services estimated to cost less than US$800,000 equivalent per contract may consist entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

52. *Operating costs.* The costs will include staff salaries (of only contract staff employed for the project and any additional positions created for the project) and all staff travel, conveyance, and subsistence costs; office rental and other expenses; vehicle rentals; and equipment maintenance contracts.

53. *Procurement of goods, works, non-consulting services, and consulting services.* Table 8 indicates the various procurement methods for goods, works, non-consulting, and consulting services, with applicable value thresholds. These along with agreed thresholds will be reproduced in the Procurement Plan.

Table 8. Procurement Thresholds: Goods, Works, and Non-consulting Services

Category	Method of Procurement	Threshold (US$ Equivalent)
Goods and Non-consultant services	ICB	>3,000,000
	LIB	Wherever agreed by Bank
	NCB	Up to 3,000,000 (with NCB conditions)
	Shopping	Up to 15,000
	DC	As per para 3.7 of the Guidelines
	PPP arrangements	As per para 3.14 of the Guidelines
	Force Account	As per para 3.9 of the Guidelines
	Framework Agreements	As per para 3.6 of the Guidelines
	Procurement from UN agencies	As per para 3.10 of the Guidelines
	Performance-based procurement	As per para 3.16 of the Guidelines
	Community participation in procurement	As per para 3.19 of the Guidelines
Works	ICB	>40,000,000
	NCB	Up to 40,000,000 (with NCB conditions)
	Shopping	Up to 15,000
	DC	As per para 3.7 of the Guidelines
	Force Account	As per para 3.9 of the Guidelines
	Community participation in procurement	As per para 3.19 of the Guidelines
Consultants' services	CQS/LCS	Up to 300,000
	SSS	As per para 3.9–3.11 of the Guidelines
	Individuals	As per Section V of the Guidelines
	Selection of Particular Types of Consultants	As per para 3.15–3.21 of the Guidelines
	QCBS/QBS/FBS	For all other cases
	(i) International short list (ii) Short list may comprise national consultants only	>800,000 Up to 800,000

Note: DC - Direct contracting. CQS - Selection based on consultant's qualifications. LCS - Least cost selection. SSS - Single source selection. QCBS - Quality- and cost-based selection. QBS - Quality-based selection.

Review by the Bank

54. The Procurement Plan shall set forth those contracts which shall be subject to the Bank's prior review. All other contracts shall be subject to Post Review by the Bank. Initial

Procurement Plan indicates the following prior review thresholds which will be updated annually based on the review of the capacity and performance of the procuring entity and will be reflected in the updated procurement plan as appropriate:

- *Works.* All contracts greater than US$10 million equivalent;
- *Goods.* All contracts greater than US$1 million equivalent;
- *Services (Other than consultancy).* All contracts greater than US$1 million equivalent; and
- *Consultancy services.* Greater than US$500,000 equivalent for firms; and greater than US$200,000 equivalent for individuals

55. The justifications for all contracts to be issued on LIB, SSS (>US$30,000) or DC (>US$30,000) basis will be subject to prior review. In addition, the Bank would conduct an annual ex post procurement review of the procurement falling below the prior review thresholds mentioned.

56. *Community-based procurement.* This will be implemented by community institutions as per para 3.19 of the Bank Procurement Guidelines, January 2011 and revised in July 2014 and will be based on the processes and procedures detailed in the Procurement Manual.

57. *Procurement Plan.* The Procurement Plan for the first 18 months of the project will be prepared by the borrower and agreed with the Bank. For each contract to be financed by the Bank, the procurement methods or the consultancy selection methods, estimated costs, prior review requirements, and the time frame will be indicated in the Procurement Plan. The Procurement Plan will be updated annually or as required to reflect the project implementation needs and improvements in institutional capacity and would reflect the change in prior review thresholds, if any. The threshold indicated in Table 8 is for the initial 18-month period and is based on the procurement performance of the project. These thresholds would be modified as and when required.

58. *Domestic preference.* This will be applicable for ICB procurement of goods as per Appendix 2 of the Procurement Guidelines.

59. *Selection of NGOs and support organizations (SOs).* Bank Procurement Guidelines for Selection of Consultants will be followed for the selection of NGOs and SOs.

Procurement Risks and Mitigation Measures

Assessment of existing procurement procedures and capacity of the DWSS and GPWSC

60. The review of existing procurement policies and procedures was carried out for the rural water sector of the GOP to identify areas for strengthening. The assessment carried out suggests that the procurement adopted by the DWSS is governed by the Manual of orders, PWD Code, and DFR. All the codes and manuals are mandatory and some of them are outdated. Some of the deviations from Bank procedures include price negotiations, arbitration by department officials only, price variations permitted even for contracts of six months execution, defect liability period only for three months, the DWSS reserving the right to supply cement and steel and other material like pipes in execution of works, and no provision to assess bid capacity.

61. Some of the issues identified during the procurement assessment include absence of a contract manual to deal with post-award processes (presently part of standard conditions of contract), limited training specific to procurement aspects to GPWSCs, no IT audit of e-procurement systems, no digitization of files and records, small contractor base in the state leading to limited competition in many bids, absence of a contractor performance management system, no standing Schedule of Rates (SOR) committee to periodically revise the SOR, absence of a dispute database, and an independent standing Dispute Settlement committee.

62. A Procurement Manual has been prepared, which contains methods and procedures to be followed for procurement. The provisions of the manual applicable for the GPWSCs have been translated in the local language as a part of the GPWSC Financial and Procurement Handbook and issued to GPWSCs. The GOP has opted to use the Standard Bidding documents of the Bank as agreed with the GOI task force (and as amended from time to time) for all procurement under NCB. For ICB procurement, the Bank's SBD will be used. For all procurement of consultancy services, the Bank's Standard RFP, as agreed with the Bank, will be used. The project will continue to use the e-Government Procurement System (https://etender.punjabgovt.gov.in) for NCB and Shopping contracts with estimated values greater than INR 0.5 million In addition, it has been agreed that for NCB procurement, the following conditions will apply:

i. Only the model bidding documents for NCB, as agreed with the GOI task force (and as amended from time to time), shall be used for bidding.
ii. The Invitation to Bid shall be advertised in at least one widely circulated national daily newspaper (or on a widely used website or electronic portal with free national and international access along with an abridged version of the advertisement published in a widely circulated national daily, among others, giving the website/electronic portal details from which the details of the invitation to bid can be downloaded) at least 30 days prior to the deadline for the submission of bids.
iii. No special preference will be accorded to any bidder either for price or for other terms and conditions when competing with foreign bidders, state-owned enterprises, small-scale enterprises or enterprise from any given state.
iv. Except with the prior concurrence of the Bank, there shall be no negotiation of price with the bidders, even with the lowest evaluated bidder.
v. Extension of bid validity shall not be allowed with reference to contracts subject to Bank's prior review without the prior concurrence of the Bank: (a) for the first request for extension if it is longer than four weeks and (b) for all subsequent requests for extension irrespective of the period (such concurrence will be considered by Bank only in cases of force majeure and circumstance beyond the control of the purchaser/employer).
vi. Rebidding shall not be carried out with reference to contracts subject to Bank prior review without the prior concurrence of the Bank.
vii. The system of rejecting bids outside a predetermined margin or 'bracket' of prices shall not be used in the project.
viii. Rates contracts entered into by Directorate General of Supplies and Disposal will not be acceptable as a substitute for NCB procedures unless agreed with the Bank on a case-by-case basis. Such contracts will be acceptable however for any procurement under the Shopping method.
ix. Two- or three-envelope system will not be used (except when using e-procurement system assessed and agreed by the Bank).

Procurement Risks and Mitigation Measures

63. The key procurement risks and mitigation measures are presented in this table.

Table 9. Risk Mitigation Action Plan

Sl. No.	Observation Head	Initial Risk	Risks	Suggested Mitigation Measures	Agreed Action	Residual Risk
1.	Low contractor base and thereby limited participation in bids	High	Several instances of premium bids; high risk of cartelization	Contractor training to encourage new contractors to come into the drinking water supply and sanitation area. Wider publicity in national papers and alerts to contractors through workshops Timely release of payments	The project will conduct contractor training and ensure timely release of payments throughout the project period.	Substantial
2.	Infrequent updates to SOR; several items not covered in the SOR	High	Absence of adequate reference points for the procurement team and subsequently for the contract management team	A standing committee for updating the SOR needs to be constituted on a predetermined periodicity.	A Standing Committee will be constituted by the DWSS	Substantial
3.	Weak contract management	Substantial	Time and cost overruns, including inadequate tracking of imbalanced items and variations therein post award	Contract management training to staff handling procurement	Training will be provided to staff handling procurement	Moderate
4.	Inadequate tracking and analysis mechanism for disputes	High	Delays in implementation	Computerized database of disputes and complaints may be considered.	Develop contract dispute database	Substantial
5.	Inadequate	Substantial	Non-	Specific, focused	Training	Moderate

Sl. No.	Observation Head	Initial Risk	Risks	Suggested Mitigation Measures	Agreed Action	Residual Risk
	training and exposure specific to procurement to GPWSCs		compliance with agreed procurement procedures	training to GPWSC members on all aspects of procurement	and need-based handholding by the DWSS to GPWSCs for procurement	
6.	Regular IT audit for e-procurement system absent	Moderate	No mechanism for detecting inadvertent bugs and systemic flaws	IT audit of the e-procurement system may be carried out periodically	Will be done by the Bank through an independent consultant	Low
7.	External interference (including F&C) in the procurement process	Substantial	Reputational risk for the department. Delays in procurement. Funds not used for intended purposes. Increased costs to the exchequer	External/internal procurement audits Continued use of e-procurement system Code of ethics to be signed by each of the procurement staff	Ensure audits are conducted in a timely manner and action is taken on a regular basis	Moderate
Overall Risk Rating						**Substantial**

64. *Frequency of procurement supervision.* The Bank will normally carry out the implementation support mission on a semiannual basis. The frequency of the mission may be increased or decreased based on the procurement performance of the Project.

65. *Audits.* The project will hire a consultant firm having adequate experience in Procurement Audits/ review to carry out post procurement review on a sample of contracts (at least 10 percent) let by the project on a yearly basis. The reports of the consultant will be shared with the Bank. In addition, the Bank too will conduct post review of contracts on a yearly basis.

66. Since a significant portion of the funds will be spent at the GPWSC level, chartered accountant firms will be hired to conduct concurrent financial audits which will cover procurement aspects as well.

67. *Complaint redress mechanism.* The DWSS website has tabs for logging complaints and grievances. When a complaint is lodged, a unique number is generated. The complainants can

know the status/action taken on their complaint by entering the complaint number on the web portal. Usage however seems to be low and awareness on this facility needs to be built in the bidding community. DWSS's complaint redress mechanism (SNK) will be updated in consultation with the Bank to further clarify the person responsible, role, timeline, and public disclose of information.

68. *Procurement training:* Though most of the DWSS staff are familiar with the World Bank guidelines, refresher training on World Bank Procurement Procedures will be provided at the beginning of the project. Key staff may be sent for training at ASCI, Hyderabad as well as NIFM, Faridabad. The project could also avail of the free Massive Open Online Course on public procurement (www.procurementlearning.org) offered by the Bank as well as the paid Professional Diploma in Public Procurement course delivered through the Charter of Public Procurement Studies.

Exhibit 1: ***Project Implementation Schedule***

Year	Unit	Quantity	2015-16				2016-17				2017-18				2018-19				2019-20				2020-21				2021-22			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A: Strengthening: Upgradation of service delivery																														
2015-16	Villages	130																												
2016-17	Villages	130																												
2017-18	Villages	128																												
2018-19	Villages	87																												
2019-20	Villages	70																												
2020-21	Villages	25																									#	#		
B: Sewerage Schemes with treatment systems																														
2015-16	Villages	0																												
2016-17	Villages	0																												
2017-18	Villages	100																												
2018-19	Villages	100																												
2019-20	Villages	115																									#			
2A: Improved access to water through household connections																														
2015-16	HH	100000																												
2016-17	HH	125000																												
2017-18	HH	125000																												
2018-19	HH	150000																												
2019-20	HH	150000																												
2B: Operational Improvement for improved Water Supply Service levels																														
2015-16	Villages	200																												
2016-17	Villages	200																												
2C: Household Sanitation (Toilet)																														
2015-16	HH	130000																												
2016-17	HH	195000																												
2017-18	HH	195000																												
2018-19	HH	105000																												
3A: Water Quality Monitoring																														
2015-21	-	-																												
3B: Safe and Treated Water for Water Quality Affected Villages (Retrofitting)																														
2015-16	Villages	50																												
2016-17	Villages	50																												
2017-18	Villages	25																												
2018-19	Villages	25																												
3B: Safe and Treated Water for Water Quality Affected Villages (Surface Water Schemes)																														
2015-16	Villages	0																												
2016-17	Villages	40																												
2017-18	Villages	45																												
2018-19	Villages	36																												
4A and 4B: Institutional Development and Project Management																														
2015-21	-	-																												
Population benefitted			**17.47 lakhs**				**22.71 lakhs**				**19.44 lakhs**				**15.35 lakhs**				**8.78 lakhs**				**0.37 lakhs**							

MTR EOP

Legend Pre-planning | Planning | Implementation | Post Implementation

Notes: Year = GoP Financial Year (April- March); Population benefitted from components 1B and 2C may overlap with other water supply components; #Post implementation activities will continue beyond Project period (2021-22)

ANNEX 4: SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

Table 10. Systematic Operational Risk Rating Tool (SORT) Matrix

Risk Rating	Rating (H, S, M, L)
Political and governance	M
Macroeconomic	M
Sector strategies and policies	L
Technical design of project or program	S
Institutional capacity for implementation and sustainability	S
Fiduciary	S
Environment and social	M
Stakeholders	M
Other	–
Overall	S

Overall Risk Rating Explanation

1. The key risks to achievement of the PDO are with respect to institutional capacity for implementation; challenges due to technical complexity or innovations of some components (surface water schemes, testing new sewage treatment plant technologies, and statewide implementation of household toilet component in a non-traditional manner); fiduciary risks (timely availability of funds for project implementation and risks arising out of implementation of sewerage schemes by the GPWSCs across the state and thereby, the need to maintain adequate control); and potential opposition from certain stakeholders namely, staff who may be impacted by the restructuring of the DWSS. In the light of these risks, the risk rating for the project has been assigned as Substantial.

Risk Ratings

2. *Political and governance (Moderate risk).* There is a stable political environment at the national and state level, with elections for the state assembly only in 2017. There is support for the project at the highest levels at the state government. However, there may be elections to GPs at different times. Based on experience from the earlier project, change in membership of the GPWSCs due to such elections had an adverse effect on project implementation. At the national level, there are adequate measures for enhancing transparency and accountability, namely, the Right to Information Act 2005 and The Lokpal and Lokayuktas Act, 2013 (anti-corruption), and project provision of concurrent third-party inspections. The Punjab Right to Service Act-2011 covers water supply and enables access to service in a transparent and time-bound manner. Further, the project will dovetail with the NRDWP and SBM guidelines which have a well-established governance structure involving the GPWSCs and will strengthen the participation of the GPWSCs in implementation of works.

3. *Macroeconomic (Moderate risk).* The macroeconomic framework is adequate and appropriate. Fiscal consolidation to keep the fiscal deficit within the targets of medium-term framework is a priority for the GOI. The latest projections for GDP growth is 5.6 percent for 2014–15, which is likely to pick up in the subsequent years owing to rising domestic investment and revival of global demand. The risk from domestic or external shocks, should they materialize, having an adverse impact on the achievement of the PDO is Moderate. The GOP's fiscal position is not very healthy with a fiscal deficit. However, the state has obtained clearance for debt sustainability.

4. *Sector strategies and policies (Low risk).* The national level policies under the NRDWP and SBM provide the overall framework for the sector. RWSS in Punjab is one of the most advanced in terms of achievements—more connections, coverage, and lower open defecation numbers compared to the national average. The earlier project was implemented on SWAp and this project will also follow a similar arrangement. The state has adopted a Rural Water Supply and Sanitation Policy (2014) which encapsulates the decentralized and demand-led approach and adopts higher service level standards for water supply and sanitation, which will ensure support to achievement of the PDO. The policy is well informed by experience from within the state and from across the country and has adopted the principles of community-led governance and cost recovery through user charges for sustainability. In case some GPWSCs fail to perform, there may be an incentive for the DWSS to assign its own staff to such schemes rather than take the effort to strengthen the GPWSCs. Such a move may undermine the long-term strategy of strengthening the GPWSCs.

5. *Technical design of project (Substantial risk).* This is a second project and the DWSS has gained good experience under the earlier project. The project has several subcomponents that focus on improving livability in villages by strengthening water supply and sewerage facilities and services. While some of the subcomponents will be implemented by the GPWSCs others relating to bulk infrastructure improvements will be undertaken by the DWSS. The project will primarily depend on technical solutions that have been successfully delivered in similar conditions for water supply. Implementation of sewerage schemes with appropriate technology will be more challenging since it needs to address liquid waste management in rural areas and it needs to be complemented with behavior change to successfully deliver the PDO. The implementation of IHHL will require selection of suitable options based on ground conditions.

6. *Institutional capacity for implementation and sustainability (Substantial risk).* The project seeks to support the DWSS in restructuring from a construction-oriented organization to a service delivery-oriented one. Such restructuring, while in the long-term interest of the sector, may have an adverse impact on the ability of the DWSS to provide sufficient resources for implementation of the project. While the GPWSCs have experience with implementation, they will be taking up sewerage schemes for the first time. In the case of some subcomponents, the project will support creation of the GPWSCs and capacitate them to take on implementation responsibilities. Different project subcomponents require a clear process for selection of beneficiary villages and sufficiently well-trained staff. While a PMU was created under the earlier project for implementation, it was not integrated into the DWSS. Therefore, the DWSS has only limited capacity for implementing such a large multidisciplinary project. The SPMCs and DPMCs created under the earlier project will be merged into the DWSS and to that extent, some of the relevant expertise will be available with the DWSS. However, the DWSS needs to

expand and enhance new skills in areas like social development, communication, and community participation. The project has a strong monitoring and evaluation framework based on open data principles and would further strengthen and support the DWSS in this activity.

7. *Fiduciary (Substantial risk).* The FM arrangements have been built on and integrated with the GOP's own systems for budgeting, funds flow, accounting, and internal control, with specific strengthening in the areas of audit, financial monitoring, and control over the GPWSC. Under the earlier project, there were some delays in release of the state's share of funds despite sufficient budgetary allocation. This will continue to be a challenge and source of risk to program implementation. Substantial amount of works will be executed by the GPWSCs, including those that have not yet been formed. To ensure adequate control, the GPs will be subject to concurrent audit by a firm of chartered accountants as this system worked well in the earlier project. For the sanitation component, the funds will be transferred to individuals for construction of toilets subject to certain checks and balances. The project will be implemented by the DWSS, GPWSCs, and SLCs which will be responsible for executing different works. The project will continue to use the e-Government Procurement System (https://etender.punjabgovt.gov.in) developed by M/s. ITI and approved by the Bank for works and non-consultancy works. This will improve transparency of the procurement process and ensure economy and efficiency. While the GPWSCs have undertaken simple schemes under the earlier project, they will manage the contracting of sewerage schemes for the first time. This will require considerable support from the DWSS. While the DWSS has experience with traditional contracting based on bill of quantities (BOQ), procurement of DBO projects may pose certain challenges and will require preparation of fresh bid documents and reorienting the staff to an output-based approach to contracting.

8. *Environmental and social (Moderate risk).* User groups have been made accountable under the earlier project, ensuring inclusion and transparency. The same arrangement would continue for this project. The project will also support mobile-based monitoring systems, gender sensitivity tools, and social audits to enhance accountability of service providers. Involuntary land acquisition is not envisaged under the project and an SMAP has been developed to address social safeguard issues. However, the institutional capacity of the DWSS to support the GPWSCs and to implement the SMAP needs further strengthening. Environmental management systems are appropriately established as part of capacity building of the first project. The project will reduce the risk of consumption of contaminated water and over-exploitation of ground water by supporting development of surface water schemes. Treatment of water containing heavy metals, chemical, and bacteriological contaminants pose a challenge to the project and it is proposed to adopt a three-fold intervention (for residual chlorine, coliform and fecal coliform, and heavy metals) to minimize such risks. All sewerage schemes will have adequate onsite and/or offsite treatment before discharge into water streams or for agriculture use. The project envisages utilizing water from three rivers which are fully allocated to it. Therefore, no international or interstate water sharing agreements will be affected.

9. *Stakeholders (Moderate risk).* The primary stakeholders are the rural households and communities who will benefit from the improved RWSS services. There is strong demand from users for the project and significant benefits are likely to accrue to these stakeholders. Therefore, the risk of disruption is likely to be low. Other stakeholders include the GPWSCs and DWSS who will manage implementation of specific subcomponents. The project further strengthens the

role of the GPWSCs and provides them with additional capacity and resources for implementation. However, working of the GPWSCs is susceptible to political environment at the GP level. Since the DWSS will be reorienting its role during the project, it is likely that certain positions may be impacted, which may affect some of the staff working on the project. Since the DWSS will need to create more positions and recruit staff for certain skill profiles, the inability to do so may also adversely affect the project. In the light of these factors, the risk from stakeholders is assessed as Moderate.

Risk Mitigation Plans

Sl. No	Risk Category	Risk Management /Mitigation Plans
1	Political and Governance	a) The IEC and communication strategy is built on open data and use of technology for monitoring will help further strengthen governance b) Improved accountability through strengthening of SNK (grievance redressal system)
2	Macroeconomic	–
3	Sector Strategies and Policies	a) Intensive support on IEC and community participation to GPWSCs to ensure that they function effectively
4	Technical Design of Project/ Program	a) Technical guidance note on sewerage system developed to guide selection on suitable option for implementation b) Supporting GPWSCs on IEC to trigger behavior change on use of toilets c) GOI guidance note on construction of IHHL to help individuals select suitable option for toilets
5	Institutional Capacity for Implementation and Sustainability	a) Phased implementation of organizational restructuring plan to ensure continuity of key staff at field level b) GOP to recruit suitable staff for skills like IEC, social and community development/participation
6	Fiduciary	a) Bank team to share bid document on similar project and provide technical advice to facilitate preparation of bid document under DBO b) DWSS will organize bidders' conference/workshop to familiarize bidders with the new bid documents
7	Environmental and Social	a) Follow up on safeguard and other environmental and social issues
8	Stakeholders	a) Government issues a suitable orders on the recruitment of new positions in a time-bound manner

ANNEX 5: IMPLEMENTATION SUPPORT PLAN

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

1. *Experience from the PRWSS Project and other Bank-assisted multistate RWSS projects.* The Implementation Support Plan (ISP) for the project builds on the experience of various Bank-assisted successfully implemented RWSS projects, including the earlier project as well as the Kerala, Uttarakhand, Karnataka, and Maharashtra projects. The ISP reflects the decentralized nature of the project. 'Twinning' arrangements will be established with the ongoing Bank-assisted RWSS Projects for sharing experiences, including programs and processes at the state, district, and village levels.

2. *Project management.* Based on lessons learned from the previous program, this project will have a unified structure for implementation and project management. The DWSS is proposed to be restructured and the Head-DWSS, supported by various units, will provide review and oversight of the entire project. The detailed structure for project implementation and management is presented in annex 3.

3. *Twinning arrangements with other Bank-assisted RWSS projects.* Punjab will have 'formal' twinning arrangements with ongoing Bank-assisted RWSS projects, including Maharashtra and Kerala. Twinning arrangements will include (i) workshops on implementing decentralized arrangements and (ii) exposure visits. In addition, twinning arrangements will be explored with Brazil and other countries for developing or upgrading the M&E system at the DWSS.

4. *Implementation supervision missions.* Bank supervision missions will be undertaken at least twice a year. The mission will start with discussions with the Principal Secretary, DWSS, followed by visits to the districts where subproject interventions are underway. These biannual supervision missions will include the task team leader (TTL), co-TTL, procurement and FM staff, environmental and social safeguards staff, and technical and institutional specialists and consultants, as appropriate. A team of specialist consultants will be recruited to support the Bank in reviewing implementation progress in each state. In addition, interim implementation review missions will be undertaken by Bank specialists, as required. The following are the major areas to be covered in the implementation supervision missions:

(i) *Institutional arrangements.* The mission will review the implementation of the decentralized arrangements, including roles and responsibilities of the different actors under the project implementation arrangements (refer to annex 4), including capacity-building activities.
(ii) *Implementation progress of water supply and sanitation schemes.* The mission will review progress in implementation of the RWSS schemes as per batches or scheme cycle and will address related issues (if any).
(iii) *Safeguards.* Supervision of the safeguard aspects of the project will entail verification that the EMP is being appropriately implemented and adjusted as deemed necessary, and the project's other features designed to enhance its social development outcomes are similarly being adequately implemented and adjusted as appropriate.

(iv) *Procurement.* Implementation support will include (i) ex ante and ex post reviews of project procurement; (ii) review of the Procurement Plan and procurement performance; and (iii) providing of information on training resources and preparation of training material and modules and need-based training on the Bank's procurement guidelines to the implementing agencies. In addition, guidance will be provided by the Bank's procurement specialist on any necessary revisions to the Procurement Manual, the Procurement Plan, and bidding documents, as deemed necessary. The Bank will assist the DWSS in identifying capacity-building needs, and the Bank's procurement specialist will provide timely support on procurement issues. Procurement supervision missions to Punjab will be carried out at least semiannually and will include visits to districts and the GPs to verify implementation arrangements in situ and make recommendations for their refinement, as deemed necessary.

(v) *Financial management.* The project would require some supervision to ensure successful implementation of the agreed FM arrangements. This will include field visits to districts and GPs every six months to review the FM arrangements. Implementation support will also include review of periodic interim financial reports (IFRs) as the basis for disbursements and reporting expenditures and review of the audit reports, including verifying the adequacy of the resolution of major audit observations.

(vi) *Monitoring and evaluation.* The M&E system will monitor processes, inputs, outputs, and outcomes and will include: (a) sector M&E system that consolidates sector data at the state level with regard to sector-policy implementation and project outputs; (b) Results Framework which captures processes, inputs, and outputs at the project level; (c) periodic review of inputs and processes through targeted evaluation, to learn from field experience and suggest strategic inputs for further strengthening (including audits by independent financial and technical auditors); (d) sustainability monitoring and evaluation to track long-term technical, financial, institutional, social, and environmental sustainability prospects of the schemes and assets created; and (e) community monitoring to help community members track the progress of their schemes in all phases of the project, for continuous use after scheme completion. The M&E system will include independent reviews, social audits, and third-party quality checks in each phase of the scheme cycle. M&E data and information will be transparently disclosed. The system will contain a set of suggested participatory monitoring tools.

5. *Mid-term review*. A comprehensive mid-term review will be conducted to review implementation performance of all aspects of the project and to discuss, agree, and take any mid-term course corrections deemed necessary.

6. *Timelines and skills.* The main focus of support for implementation during the project's major timeframes is presented in the table. The Bank team will be supported by specialist consultants for reviewing project implementation progress.

Table 11. Project Implementation Requirements

Time	Focus	Skills Needed	Resource Estimate Staff Weeks (SWs) per Year	Consultant Support Weeks per Year
First Year	• Project mission and launch workshop focused on project program and implementation arrangements, subproject scheme cycles, staffing up at the different levels (state, district, GP).	TTL Co-TTL	10 weeks 8 weeks	
	• Review of institutional and implementation arrangements	Institutional specialist	8 weeks	
	• Review of technical/engineering aspects of water supply and sanitation	Engineering specialist	2 weeks	8 weeks
	• Reviews of EMF	Environmental specialist	4 weeks	4 weeks
	• Reviews of social safeguards	Social development specialist	2 weeks	4 weeks
	• Review of Procurement Plan, Bidding Documents, training requirements	Procurement specialist	6 weeks	
	• Review of FM arrangements, training requirements	FM specialist	4 weeks	
	• Establishing M&E Systems	M&E specialist	4 weeks	6 weeks
Second – Fifth Year	• Review of Project Implementation Progress • Review of Project Implementation Progress	TTL, Co-TTL	10 weeks 6 weeks	
	• Review of institutional and implementation arrangements	Institutional specialist	8 weeks	
	• Review of technical/engineering aspects of subproject implementation – water supply and sanitation	Engineering specialist	2 weeks	4 weeks
	• Review of sanitation program	Sanitation specialist	8 weeks	8 weeks
	• Review of EMF	Environmental specialist	2 weeks	6 weeks
	• Review of social safeguards	Social development specialist	2 weeks	6 weeks
	• Review of Procurement Plan, Bidding Documents, training requirements	Procurement specialist	4 weeks	4 weeks
	• Review of FM arrangements, training requirements	FM specialist	4 weeks	4 weeks
	• Review of M&E systems	M&E specialist	2 weeks	6 weeks
Last Year	• Review of Project Implementation Progress • Finalizing Impact Evaluation Studies • Preparation of Implementation Completion Report • Review of Project Implementation Progress	TTL Co-TTL	6 weeks 4 weeks	
	• Review of institutional and implementation arrangements	Institutional specialist	2 weeks	
	• Review of technical/engineering	Engineering specialist	2 weeks	

Time	Focus	Skills Needed	Resource Estimate Staff Weeks (SWs) per Year	Consultant Support Weeks per Year
	aspects of subproject implementation – water supply and sanitation			
	• Review of sanitation program	Sanitation specialist	2 weeks	4 weeks
	• Review of EMF	Environmental specialist	2 weeks	4 weeks
	• Review of social safeguards	Social development specialist	2 weeks	4 weeks
	• Review of Procurement Plan, Bidding Documents, training requirements	Procurement specialist	2 weeks	
	• Review of FM arrangements, training requirements	FM specialist	4 weeks	
	• Review of M&E systems	M&E specialist	2 weeks	

ANNEX 6: ENVIRONMENT MANAGEMENT AND SOCIAL MANAGEMENT FRAMEWORK

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

ENVIRONMENTAL MANAGEMENT FRAMEWORK

1. *Environmental Assessment.* This assessment comprised an assessment of the current status of RWSS in the state, status of water resources availability for sourcing of drinking water in terms of quantity and quality, identification of baseline environmental issues pertaining to RWSS, institutional and policy assessment, expected environmental impacts of the proposed project interventions and proposed mitigation measures, development of the EMF, and institutional arrangements for implementation of the EMF. Findings of the EA indicate that while the proposed project interventions are expected to result in overall environmental and public health improvements in the state, potential adverse impacts could occur if the schemes are not properly designed, sited, implemented, and maintained.

Environmental Issues

2. *Water availability.* Increasing levels of water contamination and over-exploitation of ground water resources due to anthropogenic activities is slowly becoming an area of concern in addition to natural contamination like fluoride and arsenic due to geogonic conditions. Lack of means to dispose animal waste, garbage, and to some extent, open defecation, are major contamination factors in the state. The canal systems of Punjab state, supply surface water for irrigation and water supply from dams and in some cases, the water supply is adversely affected during the periods of canal maintenance shutdown.

3. *Water quality.* According to the DWSS estimates for the year 2013–14, 1,587 villages of the total 12,827 villages suffer from poor water quality conditions, namely, iron, fluoride, arsenic, and nitrates. Apart from these villages, there are 2,307 villages affected with major quality problems such as uranium, lead, aluminum, and selenium. The discharges of untreated domestic wastewater, industrial wastewater, run-off from agricultural fields, and urban sewage water is polluting the rivers in the state of Punjab, especially Sutlej and Ghaggar. Information available with different line departments dealing with water sector development suggests that heavy metals and chemical contamination may also bring in important considerations on water quality and needs appropriate management.

4. *Environmental sanitation.* In Punjab, more than 70 percent of rural households have household latrines and usage level is observed to be good. In many of the habitations/ open defecation is not widely prevalent. The key issues identified by the EA studies as causes for concern are improper drainage facilities; improper disposal of household wastewater without adequate arrangements for treatment; effluent overflow from septic tanks, which lead to village ponds and thereby deterioration of water quality in the village ponds; lack of awareness on environmental sanitation and its impact on health; and absence of solid waste management.

5. *Forests.* The total area under forests in Punjab is about 1,764 sq. km, out of which 736 sq. km is moderately dense forest area and 1,028 sq. km is open forest area. Against the total geographical area of 50,362 sq. km, forest area is only 3.50 percent. There are 12 wildlife

sanctuaries with an area of 32,370 hectares. It is important that sources and schemes be sited so that forest land, if required for the scheme, may be acquired under prevalent country or state laws and procedures.

Environmental Safeguards Management

6. To ensure that the environmental issues are systematically identified and addressed in the various stages of the implementation of the schemes, an updated EMF has been developed for this project. EMF activities in the pre-planning, planning, implementation, and O&M phases of the proposed project cycle for the project-sponsored schemes are given in respective tasks. The key elements of the EMF are as follows:

    - *Environmental data sheets on water supply and sewerage schemes.* The EMF requires that the basic environmental data pertaining to the proposed schemes be compiled at the field data collection stage. For this purpose, a simple EDS on water supply, sanitation/ sewerage schemes has been formulated.
    - *Environmental categorization of the schemes.* At the DSR preparation stage, the available environmental information in the EDS will be evaluated. Based on the level of expected environmental and public health impacts, the proposed scheme will be classified. Water supply and sewerage schemes shall be classified as either Category I (environmental data sheet to be prepared) or Category II (detailed environmental appraisal is required).
    - *Environmental appraisal and approval.* Based on the environmental categorization of the schemes for the proposed project, appraisals and approvals have to be obtained. According to the Bank's guidelines, land acquisition cost will not be financed through the Bank, and there should be no land acquisition under this project. The DWSS should ensure that the GP possesses the required land before conceiving a scheme.
    - *EMP for pre-planning, construction, and O&M phase impacts.* An EMP based on issues identified during the planning stage of the each scheme and necessary preventive and mitigation measures should be considered in the design. The contractor shall provide an undertaking for execution of the activities identified in the EMP. The EMP shall be initiated at the planning and design stage of project and the process shall involve addressing of relevant environmental issues ranging from household to village level, with appropriate detail.

7. *Provision for environmental cost.* Provision of 2 percent of the capital cost of water supply and sewerage schemes toward the EMP is notional. If the cost of implementation of the EMP is more than 2 percent then the actual cost needs to be factored in the cost of the scheme.

8. In response, the EMF has provided adequate management measures (under the ECoPs) to comply during the planning and design, construction, and O&M stages of RWSS schemes. Environmental management strategy, with technical specification required for effective implementation, is captured under the ECoPs given in the EMF. These ECoPs respond to the environmental priorities analyzed as part of the EA. The following are some of the ECoPs given in the EMF:

9.

- Identification of Sources of Water Supply
- Protecting Surface Water Supply Source and Ensuring Sustainability
- Protecting Ground Water Supply Sources and in Ensuring Sustainability
- Water Quality Monitoring
- Selection of Safe Sanitation Technology Options (Including Drainage) at Individual Household and Community Level
- Selection of Location for Community Toilets
- Site Selection of Sewerage Treatment Plant (STP)
- Identification of Quarry Sites/Borrow Areas
- Safe Sullage Disposal and Organic Waste Management
- Safe Solid Waste Management at Individual Household and Community Level Rainwater Harvesting Structures

10. *Water quality monitoring.* A robust water quality monitoring mechanism is introduced through institutional and capacity building of the existing systems and strengthening of the water testing infrastructure. Detailed water quality monitoring will be done at the time of selecting a site for tapping water sources. Critical water quality parameters identified would be kept in mind for future follow-up actions. Water testing will be done twice a year, at the end of July and February (pre and post monsoon), especially for bacteriological contamination. Provisions are also made for emergency water sample testing in case of any eventuality such as epidemic in the subproject area or in the vicinity. A protocol for regular water quality testing and control has been developed by the state, which will be implemented through the operations phase of the water supply schemes. Water quality testing for industrial and agricultural chemical contaminants shall be conducted in a phased manner by the DWSS, based on an initial sampling of groundwater and river or canal waters in all districts of the state before taking up subprojects in that area. Communities will also be trained in water testing using field testing kits. Further, the project will take up an effective IEC campaign aimed at behavior change to eradicate open defecation. The EMF gives guidelines for building latrines in high water table zones so that the groundwater is not contaminated. Further the siting, planning, design, and operation of the schemes will ensure that source selection is conducted with due regard to water quality of the source and that water quality at household delivery level meets the drinking water norms.

11. *Environmental sanitation.* The EMF suggests that construction of latrines and awareness building among the community should be ensured for the increased usage of latrines and a clean environment. To this end, the EMF suggests dovetailing the present central and state governments' sanitation programs, in particular, the SBM-G (formerly NBA), to the project's advantage. The project will support interventions on environmental sanitation to ensure that the benefits of improved water supply are not compromised by poor personal hygiene standards, inadequate drainage, treatment and disposal of sullage or wastewater. The EMF prescribes sustained high-decibel IEC campaigns first, to eradicate the practice of open defecation and second, to create and enhance awareness on hygiene aspects pertaining to hand-washing, water collection, storage, and handling practices. Further decentralization of the sanitation component will bring in a sense of ownership resulting in both higher coverage and usage. Selection of safe sanitation technologies and environmental considerations in location of toilets should be followed as per the ECoPs.

12. *Forest areas and related issues.* The EA studies have identified the forest areas and ecologically sensitive areas in the state. The EMF suggests that the project will ensure that schemes will not be taken up in close proximity to a wildlife sanctuary (which may require a pre-forest or environmental clearance from the State Forest Department/Ministry of Environment and Forests (MOEF, GOI) or inside a sanctuary. Forest land will be avoided to the extent possible and if such land needs to be acquired, due clearance procedures as per existing laws of the state and of MOEF, GOI shall be followed before taking up construction work of the scheme. Since project planning requires participation of the GPs and local communities, there will not be an opportunity for any project component to fall within forest areas. The EMF also prescribes actions to avoid any temporary, minor impact related to construction of project components. The EMF includes various other guidelines as well on working in forest areas and avoiding impacts on natural habitats.

13. *Environmental monitoring and audit.* The Focal Point Environment and the Environment Specialist at the state level will monitor compliance with the EMF. All completed schemes shall be visited at regular intervals by the environment team to check if all environment safeguard requirements are met and to identify any issues that need to be addressed. An External Environmental Audit of all the sewerage schemes and surface water supply schemes will be conducted by consultants on an annual basis. Apart from this, the project environment team will audit all the remaining schemes immediately upon completion, on a regular basis.

14. *Training and capacity building.* The state currently has limited capacity for environmental management. The training and capacity-building program developed for the project aims at building environmental awareness and environmental management capacity in the project implementation structure as well as in the intended targeted communities. Training programs will be organized for the staff at various levels in the project agencies as well as for the village communities. The capacity building for environmental management shall be integrated with the overall capacity-building component of the project.

15. *Institutional arrangements for EMF implementation.* The project envisages improving the existing institutional model on the environmental monitoring front that enables demand driven community action. The following is a brief description of the model:

- *Village level GPWSC.* The GPWSC is a standing committee of the GP which is expected to shoulder full responsibility for all activities, including planning, implementation, operation, maintenance, and management related to the RWSS at the village level.
- *District level.* At the district level, AE/JE shall be fully trained as an environment officer, who will assist the DWSS in monitoring and implementation of mitigation measures related to the RWSS at the village level, preparation of environmental appraisal for clearances, and train the GPWSC, community members, and other stakeholders in implementation activities under the EMF.
- *Circle level.* At the circle level, there will be an AE/SDO and an environmental expert to assist the DWSS in environment assessment and appraisal of the RWSS schemes, monitoring of the activities of environment officers at the division level, and environment monitoring of the completed RWSS schemes.
- *Zone level.* At the zone level, there will be an executive engineer and an environmental expert, who will assist the DWSS in environment assessment and appraisal of the RWSS

schemes, monitoring of the activities of environment managers at the circle level, and oversight of the training of environment staff of circles and divisions.

- *State level.* At the state level the DWSS (Head Office) prepares the environment policy and sets the guidelines for the EMF implementation and M&E. This office also liaises with other departments with regard to environment issues. The state-level officer of the DWSS will be responsible for ensuring the implementation of the EMF across the state. To assist the state-level officer, there will be an executive engineer and an environmental specialist, who will ensure that environment management activities are in conformity with the EMF and that necessary guidance and budget is provided to implement these plans.

SOCIAL MANAGEMENT ACTION PLAN

16. Social assessments were conducted by Punjab with the objective of identifying social issues and to design appropriate management measures for enhancing positive impacts and mitigating potential negative impacts. These assessments included collection and collation of secondary data, primary surveys, and field studies in a sample of villages representing all agro-climatic zones, analysis of the policy and legal framework, and wide stakeholder consultations.

17. The project does have the potential to offer significant opportunities to further social development objectives. A Safeguards Management Action Plan (SMAP) has been prepared following social assessments by independent consultants. Currently, the safeguards assessments and management plans have not been planned for Component 4 of the project. These will be updated and applied, as and when the Component 4 is made effective in the project.

18. *Social assessments.* The social assessments comprised (i) Beneficiary Assessment (BA); (ii) Stakeholder Analysis (SA); (iii) Institutional Analysis; (iv) Impacts Assessments; and (v) Risk Analysis. The BA enabled building of socioeconomic profiles at the national, district, sub district, and village levels and project beneficiaries' assessment on the current status of their linkages with governance or management mechanisms. The SA resulted in identifying stakeholders at different levels and mapping key expectations, issues, and concerns of each stakeholder group and the subgroup. Institutional analysis led to documenting and analyzing existing institutional arrangements and formulating inputs into the design of the decentralized extension delivery system in consultation/collaboration with the stakeholders. This was followed by impact assessments and risk analysis. The results helped in designing the delivery system to enhance positive and sustainable impacts which are detailed in the SMAP.

19. *Key stakeholders and consultations.* Key project stakeholders were identified and consultations were held with them. Grassroots level stakeholders include (i) beneficiary households (including women, poor, SCs); (ii) GPs (male and female elected representatives); (iii) JEs; and (iv) other community-based organizations. Block- or district-level stakeholders include the respective PRIs; other concerned line departments such as Health, Rural, Power, and Irrigation; district/block administration; government water and sanitation departments/agencies; and NGOs, contractors/suppliers, and consultants. Stakeholders at higher levels include Departments of Finance, Drinking Water Supply & Sanitation, Rural Development and *Panchayat Raj*, Science and Technology, Irrigation, Health, political leaders, NGOs, consultants,

and other international agencies. Consultations are being held throughout project preparation by the state government and the Bank.

20. *Social development issues.* Project interventions promise a significant potential for positive health, environmental, and social benefits through the supply of 'safe' drinking water and the creation of sanitary conditions in villages. However, given the diverse conditions—physical as well as socioeconomic and cultural—it will be a challenge to address inclusion, participation, transparency, and accountability. Success of the project depends upon the project's efforts in mobilizing local communities to participate in the development of water supply and sanitation facilities and enabling them to manage O&M, in order to derive benefits on a sustained basis.

21. Given this setting, the project identified the following significant social issues: (i) participation; (ii) ensuring inclusion and enhancing equity; (ii) decentralizing service delivery, underpinned by the principle of subsidiarity; (iii) customer base and demand generation—marketing the project and driving home the health and hygiene benefits; and (iv) human and institutional development. Other important issues are enabling participation of women, GP strengthening, change management initiatives for changing the role of government from 'provider' to 'facilitator', improving accountability and transparency, and capacity-building programs. The project will build capacity of the participating communities and local self-governments and strengthen existing institutions at the grassroots level, to enable local communities to participate in planning and construction of RWSS facilities and to subsequently operate and maintain the systems. The key features of the SMAP are listed:

- *Inclusion and equity.* The design of the proposed project is formulated to ensure that the beneficiary subgroups like women, SCs, and BPL families have equal opportunity to participate in the project and decision-making processes.
- *Decentralization and subsidiarity*. A key guiding principle of the project shall be that "no project component (other than household toilets) can be implemented without the active GPWSC in place in any village." It is mandatory for any village that wishes to be covered under this project to form its GPWSC. The GPWSCs are expected to be responsible for managing the schemes. It is important that the selection of the GPWSC members should represent all social groups and the GPWSC remains an apolitical body.
- *Participation.* To ensure participation of the beneficiary group from the designing and planning phase the GP will need to apply to participate in the project while accepting the demand-responsive principles of the project. This will ensure ownership. The GP will pass a resolution to form a Beneficiary Committee in the *Gram Sabha*; the constitution and the roles and responsibilities of the Beneficiary Committee will be affirmed at the *Gram Sabha*. A village plan will be prepared on the basis of a Participative Rural Assessment (PRA) exercise and transect walk to collate information on the current status of access and supply and demand. In addition, the project will leverage Open Data to promote transparency.
- *Land.* The findings of the SA indicated that GP land was diverted for the scheme. Most villages do have sufficient public/*panchayat* lands available for project installations. However, the nature of investments is such that additional land will not be required to augment the capacity of existing assets to deliver the service. No land

will be acquired. Hence, OP 4.12 - Involuntary Resettlement is not triggered. OP 4.10 - Indigenous Peoples is not applicable as there is no tribal population in the state.

- *Capacity building.* A training program (including the training calendar) is developed on key issues such as leadership, gender, conflict management, team building, monitoring, and reporting with appropriate resource people and specific target groups. A capacity-building program on social issues will be part of the overall training program developed for the project. Field-level capacity building of members of the GPWSC will be the responsibility of the Social Development Unit.

ANNEX 7: ECONOMIC ANALYSIS

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

1. The cost-benefit analysis of the proposed project in Punjab has been carried out based on a representative household survey covering about 2,000 households in the identified 'Project Villages' where investments under this project are envisaged. A questionnaire, especially designed for this survey, was administered with the assistance from the DWSS, Punjab in the proposed project habitations over the period September to November 2014.

2. The sample 'Project Villages' were selected against the specific component of investments which was targeted in that district. A snapshot of the coverage of the sample covered by the survey is presented in the following table.

Table 12. Snapshot of Survey Coverage

Component	No. of Districts	No. of Villages	No. of Households
Subcomponent 1(a): Strengthening WSS for improved service delivery – rejuvenation for water logged schemes	2	8	211
Subcomponent 1(a): Strengthening WSS for improved service delivery – upgrade from 40 to 70 lpcd	17	36	918
Subcomponent 1(b): Sewerage schemes with treatment systems	5	5	125
Subcomponent 2(a): Improved access to water through household connections	7	14	338
Subcomponent 2(c): Operational improvement	4	15	414
TOTAL		**78**	**2,006**

PROJECT BENEFITS

3. The proposed project is justified on the basis of direct benefits to about 5 million rural population to be covered under the Bank-assisted project. The population growth rate is assumed as 0.79 percent per annum based on past decadal rural population growth trends in the state. Based on the survey data and secondary sources of information, the likely quantifiable benefits due to the proposed project interventions (for the period 2015–2044) are as listed:

- Value of time saved in water collection/value of access time due to provision of toilets
- Value of incremental water supply
- Value of health benefits due to reduction in incidence of diseases–diarrhea, hepatitis A and E, enteric fever, dengue, and malaria as well as cancer, wherever applicable
- Value of time saved due to lost productive days on account of occurrence of diseases

4. Project beneficiaries will also benefit from improved sanitation as a result of improved community environment (on account of strong emphasis on behavior change to take affirmative action to adopt safe sanitation practices), better health, and safer hygiene activities of the households. Better health is also likely to enhance household productivity. There are also

possible efficiency gains from implementation of demand-driven and decentralized provision of water supply and sanitation through local self-government in the state.

5. The project will address the problems of water quality in the state in a comprehensive and holistic manner. The project beneficiaries in select quality affected villages that are presently using ground water having traces of uranium and heavy metals will benefit from safe and treated water. This has significant health benefits, including helping the state in tackling the growing incidences of cancer.

Quantifiable Benefits

6. *Benefits from time saved in water collection or improved access to household toilets*. The time saved per household is calculated based on the analysis of field data regarding time currently spent for collecting water through hand pumps and other sources like rivers/wells/ponds and time spent for traveling outside the home for open defecation. The phasing of benefitted households has been arrived at based on the phasing of investments proposed in the project. It is assumed that gradually 100 percent of the project households will shift to household connections (beginning from 50 percent in the initial year).

7. Survey results were used to estimate expected time savings in water collection for households that do not have piped water supply and do not use submersible pumps. From data available from the DWSS, it is inferred that the percentage of households without piped water connections and without submersible pumps ranges from 20 percent to 40 percent for various components other than Subcomponent 2(a). For Subcomponent 2(a), it is assumed that 75 percent of households do not have piped water connections and submersible pumps. The expected time savings in water collection per household for various component ranges from 81 minutes to 188 minutes per day (for the households that do not have piped water supply or submersible pumps). The expected time savings due to travel time for open defecation is estimated at 27 minutes. Only a conservative estimate of the time saved has been considered for the purposes of arriving at the value of time saved.

8. The value of time saved is calculated on the basis of wage rate or the income foregone. The daily wage rate for unskilled workforce obtained from the latest available Punjab State Gazette Notifications has been used for the analysis. The wage rate used for the analysis is INR 229 per day (USD 3.81 per day).

9. *Benefits from incremental demand for water.* The reduction of time in collecting water and improved availability will increase consumption of water. Based on analysis of field data, the average consumption of households is about 60 lpcd in the state.

10. The project is designed to supply 70 lpcd in the target habitations. The incremental water consumption is estimated as the difference between the designed supply and present water consumption, after the schemes are operational. The incremental water available on account of this project is valued at the ‘future cost of water’, that is, the cost of water per liter with the project.

11. The future cost of water is estimated as the project cost of the designed supply of water at 70 lpcd. The future cost of water for each component varies primarily on the respective unit costs of capital expenditure. In addition to capital expenditure, recurring expenditure of operating the asset is added to the future cost of water. The future cost of water for various components is estimated as given in the table:

Table 13. Estimated Future Cost of Water

Component	Future Costs of Water (per kiloliter)
Subcomponent 1(a): Strengthening WSS for improved service delivery – rejuvenation for water logged schemes	0.20 USD
Subcomponent 1(a): Strengthening WSS for improved service delivery – upgrade from 40 to 70 lpcd	0.14 USD
Subcomponent 2(b): Operational improvement	0.10 USD
Subcomponent 2(c): Improved access to water through household connections	0.11 USD

12. *Health benefits from improved water supply and sanitation.* One of the major thrust areas of this project is to improve water supply services and sanitation facilities and achieve ODF status in the target habitations.

13. The World Health Organization (WHO) carried out an assessment of the global disease burden from unsafe water, sanitation, and hygiene (WASH).[9] The study notes that drinking water is a medium that can serve to transmit pathogens and toxic chemicals; the lack of services to provide access to safe drinking water and adequate sanitation and the lack of solid waste management services increase the risk of several diseases; and water associated behaviors including, for example, personal and domestic hygiene water contact patterns and unsafe use of built environments may increase or decrease disease risks. The study notes that estimating the impacts of sanitation is a daunting task. To estimate the burden caused by a risk factor, a counterfactual (or baseline) exposure needs to be defined. The estimated disease burden is the burden that would be avoided if the current risk levels were reduced to the counterfactual exposure. This means, for example, that the counterfactual scenario would be no disease transmission through water supply, sanitation, and hygiene due to absence of pathogens or harmful levels of chemicals in the water supply and excreta in the environment. This economic analysis does not attempt this rather first-best approach but combines both literature reviews and some estimates of possible cost savings due to improved health resulting from improved water supply and sanitation.

14. The WHO report shows that the quantitative assessment of health impacts due to unsafe WASH can be based on five methodologies: (i) exposure-based method for infectious diarrhea; (ii) malnutrition, of which the study estimates that globally 50 percent are estimated to be due to WASH-related risks; (iii) full attribution to WASH for schistosomiasis, trachoma, ascariasis, trichuriasis, hookworm disease, and in certain regions, dengue; (iv) expert judgment

[9] World Health Organization (2007), "Quantifying the health impact at national and local levels in countries with incomplete water supply and sanitation coverage", Public Health and the Environment, *Environmental Burden of Disease Series*, No. 15.

recommended for malaria, lymphatic filariasis, and in some cases, dengue; (v) systematic literature reviews of the nature and magnitude of the association between water resources development and vector-borne diseases. Of all these methods, only the last one is attempted in this section.

15. The WHO report further notes that several studies have examined WASH and diarrhea; looked at changes in water supply, excreta disposal, or hygiene practices; and assessed the effects on diarrhea morbidity. In a large volume of studies examining the impact of sanitation on disease transmission, 21 of those studies found health improvements (median 22 percent reduction in diarrhea morbidity), with even rigorous studies showing much greater median reduction in diarrhea of 36 percent. Patients with diarrhea were less likely to have an improved latrine. In addition, the report further notes that it is not only water contaminated at source or during distribution that is an issue but water stored within the home where it may become contaminated, although this is arguably a matter of water quality management and domestic hygiene. Numerous epidemiological studies and outbreak investigations have also found an association between poor water quality and infectious diarrhea (Hunter et al. 2003).

16. A number of studies have attempted to examine the role of personal and domestic hygiene, although in many cases, some of the hygiene measures or interventions could also have an impact on sanitation and hygiene interventions. These ranged from 14 to 48 percent, with a median reduction of 33 percent. Curtis and Cairncross (2003) conducted a systematic review and analysis of the impact of hand-washing with soap on diarrhea morbidity. The results of the analysis suggested that hand-washing with soap could reduce diarrhea morbidity by 47 percent.

17. Each component of the project is therefore expected to have significant health benefits.

- *Expenditure incurred on treatment.* The incidences of diseases (cancer, acute diarrhea, hepatitis A and E, enteric fever, dengue, malaria) have been based on overall district-wise data available for Punjab from the State Health Department, Punjab. These have been interpolated district wise to arrive at the incidence of diseases in project villages. The reduction in expenditure on diagnosis or investigation and treatment (including medication and hospitalization charges) for above diseases is taken as the benefit. The expenditure per household on each of these diseases has been assumed based on normative estimates in other states. It is assumed that in the first two years there would not be any benefit from reduction in incidences of diseases followed by 15 percent for the 3rd year, increasing by 5 percent every year to maximum 50 percent in the 11th year. This is on account of specific focus on improving the quality of water supply in the project and emphasis on improved sanitation. The benefit accrued due to reduction in expenses incurred on treatment is arrived at based on the difference between expenses incurred without the project and with the project.

- *Disability Adjusted Life Year*. DALY is considered as a measure of the global burden of disease. DALYs combine information about morbidity and mortality in numbers of healthy years lost. DALY is a summary measure of population health that combines, in a single indicator, the years of life lost from premature death and years of life lived with disabilities. DALY can be considered as one lost year of 'healthy' life and the burden of disease (which is a measurement of the gap between current health status and an ideal

situation where everyone lives into old age free of disease and disability). DALY is considered as the sum of Years Lost Due to Disability (YLD) for incident cases of health conditions and Years Lost Due to Premature Mortality (YLL) in the population. The basic formula is:

DALY = YLD + YLL.

For the purposes of analysis, only the YLL figures are considered. Based on the WHO, the total YLL for India's population for 2012 is 402,917,213. The YLL for diarrhea, hepatitis B and C, malaria, and dengue are 7, 0.75, 0.08, 0.23, and 0.11 percent, respectively. For the economic analysis, it is assumed that with the implementation of the project, the YLL on account of the four diseases in the project population (derived in proportion to the India figures) would be reduced to 50 percent of the present levels. This is on account of the specific focus on improving the quality of water in the project and emphasis on improved sanitation, which is envisaged to have a significant benefit in terms of reduction of incidences of these diseases. It is also assumed that reduction in the YLL would be effective from the 6th year (to 10th year assumed to reduce by 25 percent and 50 percent reduction thereafter). The reduction in YLL is valued at the opportunity cost for the days lost due to disability.[10]

- *Indirect person days lost.* The reduction in frequency of diseases has a direct impact on the well-being of the household, leading to reduction in person days lost. The person days lost on account of a disease has an impact on the income foregone for the period. The number of person days lost for various diseases has been assumed based on discussions with health professionals: 3 days for diarrhea, 10 days for hepatitis, 3 days for enteric fever, 10 days for dengue, and 3 days for malaria. For the economic analysis, the reduction in indirect person days lost is valued at the opportunity cost. Opportunity cost of labor is calculated as per the wage rate declared in the Punjab State Gazette, outlined in earlier paragraphs.[11]

18. Beyond the quantifiable benefits due to improved water supply are many unquantifiable benefits, including those due to improved sanitation. For some of the benefits (for example, health benefits) one would require epidemiological data to trace the true impacts of improved access to water supply and sanitation. This analysis does not attempt to model the impacts of improved access to water supply and sanitation but draws on anecdotal and empirical evidence of other studies to demonstrate the potential benefits of sanitation. The main expected benefits, which cannot be solely attributed to investments in sanitation activities under the project, include reduction of the impact of waterborne diseases such as diarrhea, gastroenteritis, and dengue and improvements in comfort through the elimination of foul smells due to uncontrolled waste.

[10] The analysis has been carried out using the India YLL figures. The YLL figures for Punjab are expected to be in line with the average India YLL figures. To arrive at the benefits, only 4 diseases have been considered and not all diseases related to poor water supply and sanitation; that would also reduce on account of project interventions. Therefore, the benefits on account of reduction in YLL are a conservative estimate.

[11] To arrive at the benefits, only 5 diseases have been considered and not all diseases related to poor water and sanitation; that would also reduce on account of project interventions. Therefore, the benefits are a conservative estimate.

19. *Total benefits.* The following table presents the total and the breakup of the benefits under different heads.

Table 14. Benefits Breakup

Total Benefits (in US$, million)	2015–25	2025–35	2035–45	Total	Percentage
Opportunity cost of time saved - Water	436.1	745.1	760.8	1,941.9	57.9
Opportunity cost of time saved - Sanitation	306.4	489.2	489.2	1,284.8	38.3
Value of incremental water	9.1	15.8	16.1	40.9	1.2
Reduced medication	2.6	8.1	8.6	19.4	0.6
Opportunity cost of indirect person days lost due to diseases	0.6	1.9	1.9	4.4	0.1
YLL benefit on account of the project	25.7	33.8	2.7	62.1	1.9
Total benefit	**780.4**	**1,293.9**	**1,279.2**	**3,353.6**	**100.0**

Other Benefits- Not Quantified

20. Although the above table captures the benefits primarily in terms of time saved and select health benefits, the project is expected to bring in far greater impact on the general health, well-being, and livelihood for the rural population of Punjab besides social benefits, which has not been captured in quantitative terms. The project is expected to bring in significant transformation in the RWSS sector in the state and enhance the livability of villages and improved and comprehensive delivery of services. The focus on enhanced service delivery at the household level will benefit the vulnerable sections of the society (especially SCs who account for more than 30 percent of the population) and women who will have more time available for leisure, education, and livelihood activities. A significant proportion of the beneficiaries reside in the difficult terrains in the state, such as border areas and hilly regions. These beneficiaries are particularly vulnerable and from the poorer sections of the society. The sewerage schemes will reduce pollution in local water bodies (thereby increasing the possibility of having livelihood activities such as fishing) and improve sanitary conditions in the beneficiary villages. The households that will benefit in terms of having individual household toilets are essentially the poor and marginalized sections and mostly in difficult terrains in the state. Therefore, there are immense social benefits besides environmental benefits. Significant focus is being provided on water quality which is one of the emerging areas of concern in the state. Water quality—especially in districts where arsenic, iron, and even heavy metals have been found in traces—is proving to be a heavy financial and social burden for the government. The project aims to address such quality issues in a comprehensive manner. The social and health benefits associated with such interventions in water quality are immense (including possible reduction of growing incidences of cancer) and will be over and above the benefits quantified in the above table.

Project Cost

21. The tentative or estimated total project cost, excluding the community contribution is presented in the table below. This cost does not include the impact of inflation. The total project cost does not include the Operational Expenditure (Opex) in water and sanitation schemes which have been estimated separately. The Opex for water schemes has been assumed to be US$0.10 to US$0.30 per kiloliter (depending on the type of scheme) and the Opex for sanitation has been assumed to be 3 percent of the capital expenditure on Solid Liquid Waste Management (SLWM)

initiatives. This is based on inputs from trends of ongoing schemes of the DWSS. The Opex has been extrapolated up to the period 2045 for the purposes of the economic analysis.

Table 15. Summary of Total Project Cost*

Component	Estimated Costs Excluding Inflation (in US$, million)
Component 1: Transformation - improved livability of villages	316.5
Component 2: Inclusive water and sanitation services delivered at household level (for the women and poor)	481.7
Component 3: Improved water quality	90.2
Component 4: Institutional development and project management	43.9
Total	**932.3**

* Including Operational Expenditure

ECONOMIC RATE OF RETURN AND SENSITIVITY ANALYSIS

22. The ERR for the project and its various components has been worked out based on the above costs and benefits. The benefit-cost ratio has also been calculated as a part of the analysis.

23. The ERRs and benefit-cost ratio for the overall project are presented in the following table:

Table 16. ERR and Benefit-cost Ratio

State	ERR	Benefit-cost Ratio
Overall Project	24.0%	3.60

24. *ERR sensitivity - total project cost.* A sensitivity analysis has been carried out for various risk factors. These are summarized in the following table:

Table 17. Sensitivity Analysis - Total Project Cost

Criteria	ERR
Base Value	24.0%
Increase in costs	
10% increase in total cost	21.4%
20% increase in total cost	19.2%
50% increase in total cost	14.3%
Decrease in benefits	
10% decrease in benefits	21.1%
20% decrease in benefits	18.2%
40% decrease in benefits	12.3%
Combined increase in total cost and decrease in benefits	
Increase in costs and decrease in benefits by 5%	21.3%
Increase in cost and decrease in benefits by 10%	18.8%
Increase in cost and decrease in benefits by 30%	10.4%
Combined decrease in total cost and increase in benefits	
Decrease in cost and increase in benefits by 5%	27.1%
Decrease in cost and increase in benefits by 10%	30.6%
Decrease in cost and increase in benefits by 30%	51.7%

Criteria	ERR
Decrease in wage	
Decrease of 10%	21.2%
Decrease of 20%	18.3%
Decrease of 30%	15.4%

ANNEX 8: STRATEGY FOR HOUSEHOLD SANITATION – ACHIEVING ODF RURAL PUNJAB

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

1. Goal:

1.1 The goal of this component is to reduce open defecation and facilitate the achievement and sustenance of open defecation free (ODF) communities. An ODF community is one in which all human excreta is safely disposed and all persons use an improved toilet at all times. It is proposed to achieve this goal by October 2019, in line with the national *Swachh Bharat* Mission-Gramin (SBMG) goal. A GP is taken as a unit of implementation of the ODF goal. This is because open defecation is a private behavior that has public consequences. Therefore, even if a few individual households switch to using toilets in a community, overall risks to public health remain. Hence, a focus on behavior change, collective and not just individual, is important for safe sanitation to take effect and sustain over the long term. Gram Panchayat, due to their Constitutional mandate, are ideally placed to promote and sustain community-wide sanitation. A focus on GP as the unit of implementation is in line with the State Water Supply and Sanitation Policy (2014) which advocates for decentralized management.

2. Key Principles

- A single institutional home that implements rural sanitation as a behavior change campaign in a phased manner would be more effective than involving multiple departments to build toilets
- Need for awareness generation and mobilizing the community to take the lead in changing its sanitation status
- Need to promote multiple technology options so that a household can make an informed choice
- Need for capacity building in terms of awareness generation, technology options and program management at different levels
- Need for local government to accept responsibility for rural sanitation and give this effort sustainability over the long term
- Monitoring needs to focus on outcome in terms of reduced open defecation at individual and GP level and not toilet construction alone

3. Institutional Arrangements:

3.1 Building on the efforts to strengthen GPWSC led service delivery of water supply in PRWSSP-1, there need to be commensurate efforts to strengthen DWSS capacity to implement a participatory and decentralized approach to achieve community-wide ODF through Gram Panchayat and move away from the earlier approach of contractor assisted household toilet construction without any behavior change communication. The following institutional arrangements are proposed:

- Implementing the ODF program through DWSS would require a clear agreement of departmental roles and coordination arrangements between DWSS and RDPD, ***before start of implementation of this project***. Since the RDPD is also taking forward

construction of toilets for BPL households utilizing the financial assistance from NABARD, this needs to be reviewed and a common sector-wide approach implemented through DWSS.

- Dedicated units for rural sanitation will be set up at State and District levels, comprising subject matter experts in behavior change communication; planning and monitoring; capacity building; and sanitation technology. Within the DWSS Head Office, a State Sanitation unit will be created that is headed by a government official. The District Sanitation Cell will focus on rural sanitation exclusively, distinct from the IEC and HRD professionals engaged for water supply. The DSC will have an administrative reporting line to the Coordinating Executive Engineer at district level and be supported by the State Sanitation unit for overall coordination and capacity building.
- The DSC shall develop a core team of motivators for the ODF program. These motivators are expected to work in one or more GP, as per need and capacity. They can be engaged through a HR Support Agency. Alternatively, NGO may be engaged as Support Organization to facilitate appointment of motivators[12]. From the good performing motivators, the DSC can select a District Resource Group and Block Resource Group to provide handholding support to the GP in planning, implementing and monitoring its ODF goal. Selection of skilled motivators and Resource Group members through a transparent and competitive process is critical for the success of the program.
- The GP will play a fundamental role in achieving and sustaining the goal of reducing open defecation. It will be the forum for planning, monitoring and financial decisions. Handholding support to build the capacity of the GP to perform this role will be provided by the District/Block Resource Groups and motivators.

4. **Behavior Change Communication:**

4.1 BCC will play a central role in the ODF intervention. It will not be restricted to promotion of household toilets but would aim at long term behavior change in terms of sanitation and hygiene practices at personal, household and community level. Formative research on consumer behavior, preferences, motivation and barriers would be coordinated by the State Sanitation Cell. Based on this, a BCC strategy would be created including the key messages for different target groups related to key hygiene behaviors, channels for delivery of messages and methods to track effectiveness of these efforts. This would be supported by a detailed action plan at State and District levels. The State Sanitation Cell will be responsible for engaging reputed and high quality agencies to develop BCC strategy, plan and materials.

5. **Technology Options:**

5.1 In line with SBMG Guidelines, the household sanitation initiative for ODF Rural Punjab will be technology neutral. Also, experiences in the field have indicated household preference (and belief) for the Septic Tank model. It is also noted that in household perceptions, while the septic tank (or lined tank underground) is seen as protecting the nearby water source, there is little awareness of the danger (to public health) of effluent being let out into open drains. On the technology side, the key interventions proposed are:

[12] It is important to note that the role of the NGO would be to facilitate community mobilization and behavior change communication, the NGO will not have any role in toilet construction.

iii. Adaptations of these above technologies/construction for commonly encountered terrain conditions – slope, water-logged area, Black cotton soils, etc. – would need to be developed. *A comprehensive technology assessment needs to be carried out for the state to design options adapted for water logged, hilly areas, households with less space, affordability constraints, etc*.

iv. Simple models or IEC materials to use in field interactions with groups and households need to be developed.

5.2 The State will identify and set the principles for the construction and maintenance of sanitary toilets such that they are environmentally safe and sustainable by ensuring the proper confinement of feces. Beyond this, the households will be allowed to construct toilets with sub-structure and super structure as per their choice. Masons and field staff will be oriented on the dos and don'ts to be followed while constructing sanitary toilets. This will be supported by drawings and estimates for all popularly used (and acceptable) latrine technology options. These would also be assessed for suitability in terms of terrain, soil conditions and distance from water source. A simple matrix for different conditions with a how-to for practical use in field conditions would be developed for dissemination.

6. Fund Flow:

6.1 Funds for Individual Household Latrine (IHHL), based on identification of eligible beneficiaries, shall be routed from the State Sanitation Cell to the District Sanitation Cell to the GPWSC bank account[13]. In case GPWSC is not present, a SBMG account will be opened for the GP:

- Releases shall be made by the GPWSC to the bank account of the individual beneficiary (preferably using electronic fund transfer)
- Releases shall be made in up to two installments linked with progress of work and completion of the toilet. The final release shall be made only after a verification that: 1) toilet has been constructed as per pre-established Guidelines; and 2) toilet is functional and in use by all household members
- Releases shall be made by the GP/WSC.

6.2 A template for the review will be on the following lines:

Activity	**Responsibility**	**Oversight**
Identification of the household for IHHL	Based on application by the individual and as ratified by the GPWSC	Review of process and verification of identified beneficiary list by the Block Sanitation Team
Release of First Installment based on completion of sub-structure	Release of Rs 6000 by GPWSC to beneficiary bank account. This will be released only after joint review by GPWSC and Block Sanitation	Sample check (post review) of x% of the sample in each village by Independent Verification Agency (IVA) within two months of release

[13] Signatory to the GPWSC bank account will be the Sarpanch and the Secretary

	Team	
Release of Second and Final Installment based on completion of IHHL	Release of Rs 9000 by GPWSC. This is based on joint review by GPWSC and Block Sanitation Team	Sample check (post review) of y% (10 – 25%) of the sample in each village by IVA within three months of release

**Independent Verification Agency (IVA) will be hired by the Head Office of the DWSS*

6.3 The above activities will be considered as eligible for financing by the Bank only after:

- Mandatory staff is appointed, trained and equipped at state, district and block levels as detailed in the guidelines
- MIS is strengthened to capture the key outputs and outcome indicators related to sanitation and IVA engaged

7. **Monitoring:**

7.1 In addition to routine physical and financial progress that is tracked through the online SBMG MIS, indicators relating of usage of toilets at person level (rather than household level) and ODF GP achievement and sustainability will be tracked. An Independent Verification Agency (IVA) will be engaged for audit of reported progress in terms of toilet construction, usage and ODF. The IVA will undertake concurrent monitoring and evaluation of reported results in terms of outputs and outcomes.

8. **Incentives for PRIs:**

8.1 Financial and non-financial awards and incentives will be given to those Gram Panchayats, Blocks Panchayats and District Panchayats that have made outstanding progress in rural sanitation. Incentives will include priority in allocating government's development programs. 100% ODF will be considered a pre-condition for sewerage projects at GP level. Moreover, new awards will be instituted to recognize those PRIs that have made sustainable systems for maintaining the sanitation outcomes.

ANNEX 9: COMMUNICATIONS STRATEGY

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

1. Communications or IEC is cross-cutting and will continue to play a crucial role in this project. In the first phase, IEC-led project efforts to generate demand, encourage community participation and ownership, bring about behavioral change among end users, increase awareness, and sensitize stakeholders about the merits of a decentralized service delivery approach. This project will build on the IEC success of 2008–14 as well as focus on aspects that need to be strengthened in addition to addressing new challenges such as creating an ODF environment (sanitation) and introducing sewerage.

2. The key objective of IEC in this project to trigger positive behavioral change and help build sustainability. The communications strategy will focus on creating awareness and motivating stakeholders to take affirmative action in community participation, water conservation and adopting safe sanitation practices; generating demand for water supply, sewerage, and sanitation services; enabling behavioral change to achieve ODF status; and promoting personal accountability and responsibility. The target audiences will include all stakeholders including direct beneficiaries and influencers at the state, district and village level. It will pay special heed to gender and marginalized communities.

3. The IEC strategy will ensure strong convergence of IEC and behavior change initiatives with those from NRDWP and SBM-G and will be deployed at three levels. At state level, the focus will be on strategic issues such as message development and sustainability of services by the GPWSCs. At the district level, it will focus on providing advocacy on local issues and program development support. Village-level IEC will be aligned with awareness generation, behavioral change to achieve ODF and drive hygiene and will focus on project support aimed at sustainable operations and making best use of the assets created in the early project. Internal communications will include knowledge transfer, training, and capacity building.

4. The communications strategy will be insights- and research-driven for impactful outreach and advocacy and will be implemented through focused messaging, IEC events, and rich content. It will be based on core principles of alignment, continuity, improvement, integration, impact, and augmentation and will include the following components:

i. *IEC for project support.* All IEC activities will be aligned with the project's strategic objectives and focus on addressing the challenges identified. These include demand generation; water quality and water conservation; financial sustainability; inclusion; capacity building and knowledge exchange; and decentralization.
ii. *Continuing IEC work.* Interpersonal communication (IPC) and door-to-door campaigns; exposure visits; and activities like puppet shows have yielded encouraging results in PRWSSP. These activities have helped in increasing coverage, improving performance and sustainability of schemes. These activities also helped address challenges such as lack of awareness and interest, community conflicts, responsibility sharing, and people

participation, among others. These activities will be continued and strengthened in the project.

iii. *Improving IEC efficiencies.* To improve and strengthen IEC activities for increased impact, certain opportunities will be leveraged. Convergent communications will be strengthened and ways of working closely with relevant ministries and departments such as Woman and Child and Health will be explored and systems developed to pool in resources and make efficient use of mechanisms such as the ASHA and *Aanganwadi* network. IEC delivery and engagement mechanisms also will be strengthened. IEC material will be made appealing with material such as village newspaper/ wall paper (*Swachhta Lehar*), comic books, and traditional games like snakes and ladder. Non-GPWSC influencers in villages will be engaged with a view to develop IEC champions at the state, district, block, and village level. ICT will also be extensively used in the project for improving internal communications, capacity building, and community engagement and outreach strategy.

iv. *Goal-oriented and impactful IEC.* Efforts will be made to measure behavior change, community mobilization and impact. Other indicators for measurement will include seamless functioning of the GPWSC, increase in awareness for sewerage schemes, usage of toilets, demand for services, extent of water conservation, and exemplar and role model villages. All activities will be undertaken based on research and user insights and messages fine-tuned to address specific needs and concerns of people in specific districts/clusters. The messages will help address service delivery constraints and challenges such as inclusion and sustainability. For this, a consumer research is proposed to understand behavior trends, perceptions and concerns specifically with reference to challenges foreseen in the project.

v. *Focus on sewerage and sanitation.* Awareness levels on sewerage benefits and schemes will be enhanced among end users, the GPWSCs, and the IEC staff. Capacity building will focus on generating awareness for the sewerage schemes and IEC will focus on driving behavior change in sanitation, primarily latrine usage, and safe latrine construction among villagers. Messages, triggers, and tactics will be determined based on consumer research and message development workshops.

5. IEC for sanitation will have critical sanitation and hygiene focus areas including safe construction and usage of toilets; hand-washing with soap; and safe storage and handling of drinking water. It will help address the challenges of open defecation being a socially accepted traditional behavior; lack of awareness on the dangers of open defecation and linkages between open defecation and diseases; and mindsets regarding efficacy of technology. The communications strategy for sanitation in the project will focus on community mobilization and demand generation; convergence communication with ministries and government departments; positioning sanitation as an aspiration; BCC focused on awareness generation employing a range of triggers, drivers and messages based on consumer research findings and message development workshops; building peer pressure through regular monitoring; focus on schools and children to drive sanitation; building sanitation champions; and IEC capacity building. Innovative, simple and impactful IEC material such as games, school bags, notebooks, whistles, soaps, pop-up cards on technology options, and toilet brushes can be used.

6. IEC will support the project at every stage of the scheme cycle and be aligned with the project goals. During the pre-planning phase, the focus will be on generating awareness through

sensitization and education to generate demand, identifying IEC champions, and gauging perceptions. During the planning phase, the focus will be on encouraging community participation through mobilization, IEC goal setting based on challenges and perceptions, influencer and community engagement programs, and creation of IEC advocates. The implementation phase will be supported by IEC by driving community participation, empowerment, and inclusion. In the post-implementation phase, sustainability will be the focus through encouragement of collective responsibility and ownership. IEC impact will also be measured during this phase for any course corrections needed.

Table 18. Proposed IEC Activities

• *Muniyadi* • School rallies/competitions • Puppet shows, *Nukkad nataks* • Exposure visits • Important days, e.g. Girl Child Event, Women's Day, Environment Day, Hand washing Day, Independence Day, Children's Day • Community Festivals like *Teej* • Mobile VAS/Mobile voice campaigns • Citizen journalism and community radio • Grassroots comics campaigns • Project website revamping • Whatsapp and Google groups • A Project information library • *Swachh Punjab* – internal newsletter • Project Intranet • *Swachhta Lehar* – village newspaper • *Swachh Saathi* awards	• Project's Facebook page • School campaigns • Comic book campaigns • Mascot events • *Swachh Ghar* branding • Stickers and tattoo campaigns for children • Focus group discussions • Water quality testing • Wall writings • Display of transparency wall • *Swachh Gram* awards • Reality show • Standard operating procedure and toolkit • Surveys and audits to measure IEC impact • Goal-oriented IEC quarterly activity plans • Influencer and advocates engagement • Women champions program • Capacity building programs

Staffing

7. As an immediate requirement, a team of four full-time IEC personnel are required in each district or one for each division. At the state level, a team of four dedicated IEC personnel are required to handle district- and state-level coordination, internal communications, ICT and digital media, and IEC messaging and content generation. A team of external consultants for supporting content, monitoring and review, and major IEC campaigns should also be engaged periodically, as required.

ANNEX 10: APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

1. As part of the ICT strategy, a combination of open data and MIS upgrades are proposed, with mobile solutions and cloud-based services potentially developed by the private sector, to (i) help achieve project objectives; (ii) improve monitoring and supervision and general program management; (iii) provide tools for better analytics and decision-making; (iv) facilitate better information dissemination, education, and communications; and (v) deepen community engagement. It is also proposed to explore the use of sensor-based technologies to improve the monitoring and delivery of services.

MIS UPGRADE

2. The challenges associated with the current MIS are listed:

1. Focus on information, rather than action and decisions
2. Lack of adoption by users
3. Significant data challenges (collection, entry, access, use, dissemination)
4. No mobile support
5. No interoperability and convergence with other MIS systems

In this project, it is proposed to place the emphasis in the MIS on intelligence rather than information. The new MIS, which will be developed on top of the existing one (while retaining relevant existing functionality), should include the following functionalities.

3. **Better Data**

- Collect data directly from the field through mobiles and tablets, where applicable (instead of being manually entered at multiple points).
    - Removes reliance on data entry operators
    - Enables real-time use of granular data
- Include additional program data such as bid process data, O&M, finances, installation reports, and operation of water meters.
- Include 'outside' information sources from other MIS and open data sources (official or unofficial); potential sources include the Chief Minister's MIS, IMIS, National Informatics Centre (GOI), *Shikayat Nivaran Kendra* (SNK), NABARD, RIDF, and *Swacch Bharat Mission.*
- Follow standards that make it possible to compare data across systems and sources.
- Improve data quality.
    - Control access and edit rights (and create an audit trail—an issue at the moment).
    - Give primacy to data entered at source (ideally at the GP level).
    - Create flagging mechanisms to highlight suspicious data.
- Use and report real-time (or at least as current as possible) data.
- Create geo data of all water infrastructure assets.

4. **Smarter Analytics**

- Interface driven by tasks and decisions rather than information
    - Special focus on decisions that field engineers need to make
- Analytics based on data from within the MIS but also including external sources
- Decision support based on well-defined performance thresholds and early warning parameters
    - Start with units for already operational indicators around input, output, sustainability, and outcomes.

5. **Enhanced User Experience (Increased Adoption)**

- Design review to identify key usability challenges: on the web and through mobile/tablet
- New interface design, if necessary, to minimize the need for training/learning
- Online learning and support tools (and comparable offline capacity-building tools and resources, as appropriate)
- Greater connection/engagement with a large variety of stakeholders (many more of whom will have access to the system, either as contributors, evaluators, or actors on intelligence)

6. **Mobile**

- Responsive design to suit different mobile interfaces
- Support for both smartphones and SMS-based applications
- Leverage external mobile applications

7. **Convergence/Interoperability**

- Ensure that the MIS uses data from other MIS databases and shares data with them; potential sources include the chief minister's MIS, IMIS, NIC (GOI), SNK, NABARD, RIDF, and NBA.
- Develop API-driven interfaces with other relevant MIS databases.

8. **Open data**. While transparency is an important part of open data, use of open data can also help maximize results that help meet project objectives. Global experience shows that open data has very low additional costs and making the data available enables its reuse by other actors in business and civil society in additional, innovative ways for economic benefit, job creation, transparency, government efficiency, and increasing of citizen engagement in public service standards and improvement. By making data freely available and easily reusable, the program can help in several ways:

- Beneficiaries access information both directly and through third-party-provided services (is my reality, as a consumer of water services, reflected in official data).
- Government agencies get a comprehensive view of the program—on close to real-time basis in many cases—and monitor service delivery and effectiveness (open data makes it

possible to build more sophisticated MIS which can consume current data from multiple sources).

- Entrepreneurs create innovative solutions/applications/products and services driven by the availability of new data from multiple sources (the water sector is very vibrant in India).
- Third parties combine multiple data sources to create superior analytics and decision-support services for different types of audiences.

9. **First Wave Datasets**

- Eligibility and selection criteria for villages
- O&M costs for all SV schemes (electricity bill, staff cost, chemical, minor repairs, and routine maintenance)
- Operational performance of the Bank project but perhaps also related initiatives such as NABARD, RIDF, and NBA
    - Water supply coverage status
    - Service levels of water supply schemes
    - IHHL coverage
- SNK

10. Possible programmatic areas that open data can support are listed.

Community Engagement (and Demand Side Analysis)

11. The current program includes social development activities (referred to as HRD in the ongoing project) as a key mechanism to institutionalize participatory processes, transparency, and accountability in delivery of services. Open data should be an integral part of this process both on the supply and demand side. The project proposes to use open data for the following activities:

- Assessment of customer demand (key focus area in the current phase); this can shift planning away from supply side considerations
- Creating awareness before construction (a major area of emphasis)
- Developing technical capacity and tools to monitor construction (see http://dashboard.taarifa.org/#/dashboard for an example of a community driven water points and assets management dashboard.)
- Further improving the effectiveness of SNK

M&E

12. In its review, the GOP has highlighted the inability of the DWSS to keep pace with implementation and that monitoring suffered as a result. The mid-term report also identifies monitoring as a special area of weakness, both from the capacity perspective and from the tools/methodology perspective. It is proposed to use open data and ICT tools to help in the following ways:

- Improve interdepartmental and interdivisional coordination.

- Connect SNK with the MIS and make all grievance redressal data public. This can provide incentives for better service delivery, faster resolution of issues, and opportunities for the community to actively engage in the project.
- Provide data to citizens directly and help them participate in the monitoring process.

IEC

13. The IEC will converge across the NRDWP and NBA and focus on providing advocacy on local issues and linked to programs to be covered in that district. In general, the communication strategy will benefit greatly from a data-driven approach in advanced collection, dissemination, monitoring, reporting, and community engagement. Open data and ICT can

- help assess customer demand (key focus area in the current phase); this can shift planning; and
- help create tools that can change behaviors and attitudes toward issues such as open defecation.

Water Quality

14. The new project will support water quality monitoring and mitigation activities and can greatly benefit from new sensor technology and other smart infrastructure components. The data that is generated through these tools can also feed into the data-driven approaches outlined above.

ANNEX 11: CHANGE MANAGEMENT OF DWSS

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

1. The state of Punjab has adopted a new Rural Drinking Water and Sanitation Policy, 2014, which seeks to cover 100 percent of rural households with at least 70 lpcd of potable water through 24x7 piped and metered individual water supply connections, ensure safe sanitation facilities that do not contaminate the environment, and minimize risks of water-related diseases. This is to be achieved through this project, which seeks to create a broad base for the reform program by strengthening the capacity of the DWSS in achieving total coverage of the rural areas with water and sewerage services.

2. A study (2014) was commissioned to develop a roadmap toward reorienting the RWSS sector institutions for improved sector performance to implement the sector policy 2014. The roadmap includes changes in institutional and organization structure, institutional strengthening, and capacity-building measures and strategies for meeting the skill gap in sector institutions.

3. The study included an as-is assessment by analyzing key documents and data along with extensive interactions with stakeholders in the DWSS, GPWSC, DPMC, and others. The study included visits to 12 villages across 7 districts to understand the functioning of the institutions as well as to understand operational issues. Based on the findings from these activities, the plan for institutional realignment and capacity building was developed to move the department from a construction-focused institution to a service delivery-oriented institution.

The Future Direction of the Sector and the Challenges ahead

4. Punjab Rural Water Supply and Sanitation Policy, 2014 notified on May 16, 2014, aims to achieve sustainable development and management of available water resources to meet current and future needs for domestic uses, sanitation, and hygiene.

5. With 86.3 percent of villages being fully covered with water supply connections and 99.8 percent of connections providing service levels of more than 40 lpcd of water supply, Punjab is well-positioned to achieve the targets set by the policy. However, in this project, the state will have to address several new challenges which mainly include:

- *Managing larger investments*. PRWSSP involved funds worth INR 12.80 billion and this project will involve more than INR 20.00 billion of funds.

- *Shift from water supply to sanitation.* Asset creation for sewerage schemes will form a larger component in project compared to PRWSSP.

- *Increased emphasis on inclusivity.* Sanitation facilities lead to significant improvements in the lives of women and the poor.

6. Moreover, this project will reinforce the transition of the department from its traditional role focused on asset creation and management to that of an agency engaged in delivery of essential services to the rural population of Punjab.

7. The policy rightly emphasizes the need to strengthen the capacity of the DWSS and its staff to equip them to meet future challenges. Similar capacity-building measures are identified for the community as well. However, it is necessary to consider the views of other stake-holding departments like Rural Development and Panchayats, Health, Education, and Social Security who should be persuaded to adopt measures which facilitate the policy. Going forward, the policy will have to address the broader issues of water governance, environmental impact of large-scale management of sewerage effluents and sludge disposal and climate change strategy in coordination with departments like Irrigation and Environment.

Challenges Faced by the DWSS

8. The responsibility for providing adequate, safe drinking water and sanitation facilities to all the villages of Punjab is entrusted to the DWSS. The key functions of the department, the internal processes, the organization structure, the staffing in various positions, their roles and responsibilities as well as vacancy levels were analyzed to identify key challenges to be addressed.

i. **Organizational challenges**

- Fragmented interface between the DWSS and GOP, with the Principal Secretary coordinating with all the CEs as there is no single leader for the department.
- Non-engineering roles such as establishment and legal processes are undertaken by engineering staff.
- Inadequate succession planning has led to extensions after retirements, delays in promotions, and consequent impact on staff morale.
- Contractual staff have been hired with no clarity in continuation of such positions.

ii. **Operational challenges**

- *Varying work volumes*. The distribution of work across engineers varies widely, for example, number of villages handled by each EE ranges from 52 to 1,003 villages. The same applies to EEs in DPMCs in the earlier project as well.
- *Understaffing.* Shortage of technical manpower has led to additional charges being given to several EEs. In 2014, only 55 percent of DPMCs were staffed by EE (DPMCs) and the remaining were staffed by EE (Operations) on additional charge.
- *Coordination and skill gaps*. Inadequate coordination among the SPMC, DPMC, and Operations wing and insufficient skills among staff to handle challenges related to sanitation and sewerage could impact operations in the future.

iii. **Expanded investment scale related challenges**

- *Financial management.* There is no financial expertise available at any level other than that of the EE who is assisted by the Divisional Accounts Officer, deputed from the office of the Accountant General. The PRWSSP has provided for a finance controller (JCFA) at the SPMC and a finance officer with accountants at the DPMC level. However, these functionaries deal only with the IDA funds. Non-IDA finances are managed by an EE at the Patiala headquarters who is burdened with several other duties such as monitoring, and coordination. As new project is expected to manage much larger funds from diverse

sources, there is an urgent need to provide financial staff at the levels of EEs and CEs to ensure stronger accountability.

- *Monitoring and evaluation*. The department's accountability cannot be measured by achievements in infrastructure creation alone. It is necessary to design an M&E system with appropriate indicators which will focus on outcomes so that the department's accountability to all stakeholders including the government is more meaningfully measured.

iv. **Technical challenges**

- Keeping the sewerage system free of solids would require extensive engagement with the households by the GPWSC and the DWSS.
- System performance monitoring needs to be intensively undertaken by the GPWSC and the DWSS.
- Payment for O&M to the contractor is not linked with measurable and verifiable indicators.
- Additional investment and O&M systems would be required to include the backward and poorest households in a village.

Challenges at Community Level

9. Greater cooperation from departments like the DRDP and Health (National Health Mission) is necessary to effectively coordinate activities in the water and sanitation sector at the village level. Some of the challenges faced are listed:

i. **GPWSC standing committee of the GP**

- Currently there is no government notification for recognizing the GPWSCs as standing committees of the GPs.
- The composition would require to be changed in order to provide greater representation for women.

ii. **Asset transfer**

- No policy on transfer of assets created under program funds: IDA and NRDWP.
- DRDP notification would be required for taking over assets by the GP.

iii. **Disputes at the GP level**

- No mechanism for handing over records in case of change in leadership of the GP.
- Absence of a mechanism to sort out disputes.

Reorienting for Integrated Service Delivery

10. The concept of integrated service delivery seeks to ensure delivery of quality services to the citizens in a seamless and timely manner by integrating the delivery horizontally and vertically. Horizontal integration is achieved by working together with sister departments at the same level (for example, the DWSS and Rural Development Department), while vertical integration involves working with various levels of government (for example, the DWSS at the state level and the GP/GPWSC at the local government level).

11. The Punjab State Rural Water Supply and Sanitation Policy, 2014 is a bold attempt to move toward a model of integrated service delivery by seeking strategic coordination with other state departments and with local government structures. However, the goal of integrated service delivery requires fundamental changes as indicated here:

- *Institutional arrangements.* It is necessary to define the partnership through formal arrangements like government orders or notifications so that the message is clear to the functionaries of the departments at the lower levels.
- *Organizational structure.* The structure of the department would need to undergo changes so that it is in tune with the new strategy of integrated service delivery.
- *Communication strategies.* The message of integrated service delivery should be loud and clear to all stakeholders. One of the essential requirements for this is to develop the culture of sharing of information across levels and inviting feedback, which should be acted upon.
- *Skill sets and attitudes of the personnel*. The transition to a new model of service delivery is expected to raise the fear among some staff of compromising their specialist functions. There may be need for orientation for many staff to enable them to work in a social development environment.
- *Leadership quality*. Integrated service delivery demands a departure from a narrow technical and transactional leadership to a broader transformational leadership to bring about sustainable changes in an organization like the DWSS which has been used to working in silos.
- *Accountability mechanism.* It is necessary to establish a mechanism which measures accountability for outcomes. Two requirements for this are a clear definition of outcomes (for example, when is a scheme considered as commissioned) and a robust monitoring and evaluation system focused on outcomes.

Sector Reorganization Plan

12. In light of the above discussions, it is evident that the DWSS needs to undergo a transformational change from its traditional role focused on asset creation and management to that of an agency engaged in delivery of essential services to the rural population of Punjab. While the GPWSC would be responsible for planning, construction, operation, and management of all SV schemes, the DWSS would provide overall program management, including IEC and M&E activities, outcomes, and impacts; development and management of common infrastructure of MV schemes with improved financial and operational performance; planning and construction of community sanitation schemes with active participation of the GPs and households; and arranging social, technical, and management support to the GPs and GPWSCs for all intra-village RWSS schemes and services.

13. The proposed reorganization plan is focused on achieving the following:

- A unified structure for the department
- Equal emphasis to engineering and social functions
- Efficient use of resources
- Greater supervision and monitoring

14. A proposed revised organizational structure has been designed with several new roles and additional responsibilities for existing roles. These structures as well as associated roles and responsibilities have been elaborated in the report. The key features of this reorganization are listed:

- *Introducing the role of Head of Department.* It is proposed that the HoD would be a single point of contact for the GOP who would integrate territorial zones, give a uniform policy direction and enforce greater accountability across the department. The HoD's office is proposed to be in Mohali so as to be close to the Secretariat.
- *End-to-end responsibility for EEs.* It is proposed that the DPMC is combined with the Operations wing such that each EE will be responsible for all the activities undertaken in his/her division including service delivery. Additional EE posts are proposed such that each EE handles approximately 200 villages, thereby enabling greater supervision and monitoring.
- *Additional responsibilities for JEs.* It is proposed that a service delivery approach needs to consider the village as a basic unit and therefore JEs be redeployed such that each JE handles approximately 20 villages. This enables the JE to visit each village at least once a month, thereby reinforcing the customer centric approach of the DWSS as well as ensuring quality of technical support and increased engagement with the community.
- *Introduction of community coordinators.* The division of roles and responsibilities between the HR specialist and IEC specialist did not appear to work well in practice. Therefore, it is proposed that community coordinators (combining the IEC/HR specialists as well as block coordinators) be deployed for community mobilization work.
- *Function-wise units in the headquarters.* A social development unit, a technical unit, a quality unit, an administrative unit, and a training center are proposed at the headquarters. These units will direct reporting to the HoD. Such functional segregation also ensures that the CEs are involved only in work related to field operations.
- *Increased control and monitoring by CEs.* With the introduction of the HoD and the various functional units reporting to the HoD, the CEs' time would be freed up allowing them to supervise and monitor the activities of their respective zones more effectively. It is recommended that CE (North) establish an office in Ludhiana so as to oversee the activities in the zone more efficiently compared to operating from the Patiala headquarters.

Change Management of the DWSS

15. Successful transformation begins with having a clear vision. The DWSS has formulated such a vision in the sector policy 2014. The next stage is communicating the vision to the stakeholders and getting their buy-in. The role of transformational leadership is important in following up on the successful communication of the vision and striving for a gradual behavioral change in the employees.

16. Simultaneously, the human resources of the department have to be equipped with new skills and orientation to meet the challenges of the new strategy. Two different sets of skills are required to be imparted: technical skills in designing and implementing new technologies in sewerage and social development skills to work in partnership with the community. The latter

skill is best acquired jointly with the stakeholder community for a closer understanding of the scope and limits of the services that the department is delivering. Such a common understanding helps O&M management and promotes sustainability of the system.

17. The vision will require engineers of the department to become managers of change. This is proposed to be achieved through commitment to the organizational goals and attitudinal changes brought about through capacity development.

18. The change management of the department hinges on two critical factors: continued support from the change champion/s to facilitate and implement the changes that have been envisioned and consistent political support for the program to ensure that the momentum of the reform is not affected by partisan interests.

Capacity Development Plans

19. The department now has a clear mandate for change in the shape of the sector policy 2014. The structure of the organization is proposed to be reorganized to be in tune with the new strategy. The next issue to be considered is whether the department as an organization has the capacity and whether the individuals in the organization have the capacity to fulfil the mandate. Some of the broad areas identified, where organizational and individual capacity is limited and needs to be boosted are listed:

- *Strengthening in-house design capacity.* The scale of work of the department is going to increase enormously in the years to come, particularly in the area of sewerage. This calls for a dedicated design unit to be developed in the department which can not only prepare appropriate designs but also impart capacity to the staff in designing skills.
- *Capacity for stakeholder engagement.* The limited capacity for social engagement that the department has acquired is confined to the staff at the DPMC who mobilize the community at the initial stages. It is important during the new project for every employee of the department to acquire necessary capacity for stakeholder engagement to achieve the goal of integrated service delivery with stakeholder engagement ensured at all stages of the scheme.
- *Asset management.* There is inadequate clarity on the assets created during earlier (PRWSSP) of the project and no uniformity of treatment of assets created under different schemes. This has led to a situation of impending deterioration in the quality of assets. It is imperative for the department to formulate a proper Asset Management Policy and prepare an inventory of the assets created under the various programs for proper upkeep and management.
- *Monitoring of outcomes.* Sector policy 2014 requires that measurable outcomes are achieved in water supply, sanitation, and sewerage. This would require a change in the present M&E practices which largely measure inputs and outputs. In the context of the sector's services, outcome would mean changes in the people using the output. The department will have to evolve participatory M&E adopting practices such as the most significant change technique. In-house capacity has to be built to develop such a robust M&E system which can be used for decision-making and measuring outcomes of investment.

ANNEX 12: SECTOR BACKGROUND

INDIA: Punjab Rural Water and Sanitation Sector Improvement Project (P150520)

1. The state of Punjab is administratively divided into 22 districts, 82 *tehsils*, 146 blocks and 12,827 GPs.[14] There are 12,581 inhabited villages[15] comprising 15,370[16] habitations. As per the 2011 census, 63 percent of the state's population, that is, 17.3 million people live in the rural areas. The state has a considerable SC population of 31.9 percent (an increase from 28.9 percent in 2001) with almost 37 percent of the rural population comprising SCs and has had the highest growth rate (25.1 percent) of SC population in India during 2001–2011.

2. The state has taken significant leaps in the RWSS sector in the last decade in terms of coverage and service levels by adopting a SWAp approach under the first Bank-funded PRWSSP and providing the much needed thrust to the sector through institutional and policy reforms. However, there are persistent and new challenges in the sector such as the need for enhanced focus on service delivery, ground water quality, contamination of water source, and environmental sanitation. The GOP has finalized the new forward-looking state RWSS policy in February 2014 and has developed a Medium Term Sector Develop Plan (MTSP) for the period April 2015–March 2021 to address RWSS sector challenges and develop a decentralized RWSS regime. The overall sector status is summarized herein.

3. **Coverage and access to water supply is relatively high; however, household connections (piped water supply) are still moderate.** Punjab is one of the more progressive states in India and has better coverage as well as service levels of rural drinking water and sanitation services to its citizens in general. As per the IMIS (maintained by the MoDWS, GOI), around 82 percent of the habitations in the state are classified for water as Fully Covered (FC) and 18 percent Partially Covered (PC) in terms of water supply and the state is progressing toward nil Not Covered (NC) habitations, perhaps the first state in the country to achieve this. Further, as per the IMIS, almost 86 percent of the population has access to >=40 lpcd supply of water. The census 2011 reported moderate coverage of piped water supply to households in the state with only about 35 percent of the rural households having access to tap water within their premises (an improvement from 16% as per census 2001). However, a significant improvement is reported in the recent Third Sample Household Survey, wherein about 56.6%[17] rural households are using household tap connections attached to piped water supply scheme. The first PRWSS project has been a significant catalyst in this regard.

Table 19. Source of Drinking Water (Households)

	Total Rural households	Tap Water		Hand Pump	Tube well/ Bore hole	Other sources of water
		Treated	Untreated			
Total	3,315,632	839,656	317,542	1,120,831	927,470	110,133
%		35		34	28	3
Within the Premises	2,707,133	668,288	222,665	978,589	828,294	9,297
%		33.3		36.1	31	0.3

Source: Census 2011.

[14] IMIS, MoDWS, September 2014.
[15] *Source:* Economic Survey, 2013–14, Punjab; Punjab at a Glance.

[16] IMIS, MoDWS, September 2014. As per habitation survey conducted by the department in the year 2008, there are a total of 12,258 main habitations and 2,912 other habitations in Punjab (total of 15,170 habitations).
[17] Calculated based on weighted average taken over number of households as per Census 2011

4. **Coverage and access to household sanitation is also noteworthy.** As per the 2011 census, over 70 percent rural households in the state have toilet facilities within premises. This leaves about 30 percent of rural households without latrine facilities and almost 28 percent of total rural households defecate in the open. Nonetheless, there is an improvement from 2001 when 59 percent rural households had no latrines and only 37 percent rural households had latrines within their premises. Further, about 85 percent of the rural households have bathroom facilities of which almost 72 percent have covered bathrooms. The Third Household survey has reported further improvements with more than 80% IHHL coverage in the state.

5. **Environmental sanitation is a concern, but there are concerted efforts toward this direction.** In terms of environmental sanitation, it is noted that about 9 percent of households have access to closed drainage and 72 percent to open drainage while the remaining wastewater outlets are not connected to any drainage (Census 2011). Under the central government's NBA program (now SBM-G), SLWM has been taken up in 87 villages in the state. With support from the Bank-funded project, five pilot sewerage schemes were implemented and are performing well. Initially in the first program, five pilot sewerage schemes were implemented and are performing well. Subsequently, 98 villages have been covered with 97 sewer schemes under the first program. However, issues persist regarding O&M payments for these schemes. Thus, operational sustainability of these schemes needs to be addressed.

6. **The first Bank-assisted PRWSS project provided an impetus to sector reforms through a SWAp approach in the last six years.** The first Bank-assisted program has played a crucial role in development of institutional, financial, and technical capacity in over 3,000 villages in the state. By the end of the program (end of 2014), it is likely that over 4,000 villages will get covered. About U$122 million has been invested in the RWSS sector during the project period (2006–2014). The number of NC villages with piped water has come down to 146 from 4,261 in 2006 (remaining villages planned to be covered in the next six months) and the number of habitations in FC status have increased from 6,262 to 10,683, an increase of 41 percent, as shown in the table. The program has also demonstrated 24x7 water supply in 56 villages and full recovery of O&M charges in more than 900 villages. The GOP is currently constructing and operating sewerage schemes in about 90 villages.

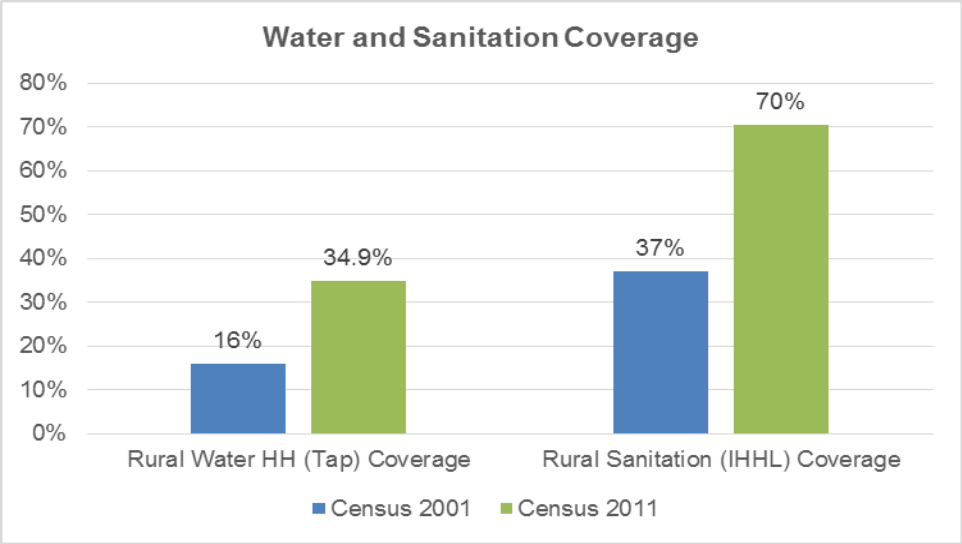
Table 20. First PRWSS Project Physical Achievements

Project Components	Target Villages	December 2014		Likely End of Project Achievement
		Completed	In Progress	
Water Supply (Total SWAp)	3,200	4068	0	4,068 (127%)
Water Supply (IDA)	1,200	1452	0	1,452 (121%)
Water Supply (non-IDA)	2000	2616	0	2616(130.6%)
Sewer Schemes	100	97	1	98 (98%)
Performance Improvement Water Schemes	200	582*	0	582 (291%)

* excluding villages provided with only water meters

7. **As a result, there has been considerable improvement in the RWSS sector coverage status over the past two census periods**, as shown in the figure.

Figure 4. Water and Sanitation Coverage in Punjab - Improvement Seen in a Decade



Source: Census, Government of India

Table 21. Coverage of Rural Habitation with Water Supply

Coverage of Rural Habitation with Water Supply (31-12-2014)								
Period	**Fully covered(FC)**		**Partially covered (PC)**		**Not covered (NC)**		**Total**	
	Habitation	**%**	**Habitation**	**%**	**Habitation**	**%**	**Total**	**%**
2003 Habitation Survey	4091	28.01	5256	35.99	5258	36.00	14605	100
Final coverage expected by March 2006	6262	42.88	4082	27.95	4261	29.17	14605	100
Coverage as on January 2014	10944	89.06	1290	10.50	55	0.45	12289	100

Source: SPMC

8. **The program has also demonstrated higher sustainability of piped water supply schemes.** The DWSS has been conducting sustainability assessment surveys for water supply schemes that are completed and are in operation for a period of at least 12 months. An exercise completed for 925 IDA schemes showed that 91 percent of the schemes obtained a Likely sustainability rating.

9. Punjab also has a reasonable household coverage in terms of IHHL and households having bath facilities. The following table presents a snapshot of the status of rural sanitation as per Census 2011. The recent third household survey shows further improvement in the status of IHHL coverage with about 80% of the households having IHHLs.

Table 22. Status of Rural Sanitation

<table>
<tr><th colspan="4">Status of Household Latrines and Bathing Facilities</th></tr>
<tr><td>Rural households having latrine within premises</td><td colspan="2">Households not having latrine within premises</td><td>Total rural households</td></tr>
<tr><td rowspan="3">2,333,985 (70%)</td><td colspan="2">981,647 (30%)</td><td rowspan="3">3,315,632</td></tr>
<tr><td>Open</td><td>Public latrine</td></tr>
<tr><td>95%</td><td>5%</td></tr>
</table>

Households having bathing facility within the premises		Households not having bathing facility within premises	
2,037,641 (85%)		15%	
Bathroom	Enclosure without roof		
72%	28%		
Environmental Sanitation (% Households)			
Waste water outlets connected to:			
Open drainage		Closed drainage	No drainage
72%		9%	19%

Source: Census 2011.

10. **Quality of water is emerging as an important issue in the state.** The state is witnessing a rise in water quality issues. In 13 districts of the state, the ground water is contaminated with heavy metals such as uranium and lead. Some districts are having high concentration of arsenic, fluoride, iron, and brackishness in ground water. Since almost 91 percent of the habitations have groundwater source based water supply and only about 9 percent habitations are have surface water based schemes, deteriorating groundwater quality poses severe health concerns. A study has recently been launched by the state for surface water based schemes in six of the most affected districts, the results of which are awaited. Meanwhile, DWSS analysis has shown uranium in 1,102 samples out of 7,233 collected in the Malwa region of Punjab from the tests conducted by Bhabha Atomic Research Centre (BARC) as per WHO standards. The magnitude of uranium contamination ranges from 0.20 to 366 micrograms per liter.

Table 23. Ground Water Contamination

Contaminants	Districts Affected (in Part)
Uranium	Fazilka, Firozepur, Moga, Sangrur, Tarn Taran, Barnala, Fatehgarh Sahib
Lead	Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Pathankot
Aluminum	Gurdaspur, Hoshiarpur, Kapurthala, Pathankot
Cadmium	Ludhiana
Selenium	Jalandhar, Tarn Taran
Manganese	Ludhiana

Source: IMIS.

11. The state has set up 22 water sources testing labs. During the last five years, about 285,000 water samples have been tested from PRWSSP schemes in government and other laboratories and using field test kits. To tackle the water contamination problem, the GOP has also installed 1,824 RO plants across 16 districts of Punjab while installation of 561 RO plants is under progress through NABARD funding and a proposal for installation of 1829 RO plants in 1971 habitations has been sent by the DWSS to the GOI for arrangement of funds under the NRDWP.

12. **Projects and schemes implemented in the state with over INR 18 billion invested in last five years.** The state has in the past implemented various centrally sponsored schemes/ programs for the development of the rural water sector in the state, namely, Minimum Needs Program (MNP) funded by the GOP, *Pradhan Mantri Gramodaya Yojna* Rural Water Supply Program (PMGY-RWSP), sub-mission program funded jointly by the GOI and GOP, loan assistance from NABARD, *Swajaldhara*-I, Sector Reform Projects (*Swajaldhara*-II). Currently, the NRDWP is under implementation. Investments in the sector over the last 5 years has been

to the tune of INR 18,561 million ranging from INR 3,850 million to INR 4,377 million in the last three years. The Bank has been the largest source of funding in the last 3 years. Nearly INR 110 million has been invested in the last three years in the sanitation sector to improve health, hygiene, and environment conditions. Of the total available funds under TSC/NBA (now restructured as SBM), about 20 percent of the funds have been utilized in the last two financial years.

13. **The state has tapped various sources for financing RWSS schemes.** The GOI programs such as the NRDWP and its predecessor programs have been a significant funding source for water supply schemes in Punjab. The total number of schemes supported through the same are around 4,699 (3,541 SV schemes and 1,158 MV schemes) as of October 2014. Out of these 2,821 schemes are tube well based and 1601 are hand-pump based. NABARD has been a major funding source since 2001–2002 for setting up rural water supply schemes and has supported 2,360 schemes (1,035 SV schemes and 1,325 MV schemes). All NABARD-supported schemes have been designed at 70 lpcd supply levels. Under the Bank-assisted first PRWSS program (2007-2014), as per the MIS of the DWSS, 1,373 schemes have been commissioned on this project covering over 1,400 villages. A relatively smaller number of water supply schemes (147) have been constructed with 12th and 13th Finance Commission funds.

14. The component-wise expenditure under the first World Bank program is presented in the following table.

Table 24. Component-wise Expenditure of the PRWSSP from February 2007 to January 12, 2015

Sl. No.	Financial Year	Component			Total	Gap Funds	Total (including Gap Fund)
		A	B	C			
1	2	3	4	5	6 = 3+4+5	7	8 = 6+7
1.	2006–07	2.29	0	0	2.29	0	2.29
2.	2007–08	78.91	25.12	858.89	962.92	0	962.92
3.	2008–09	356.23	107.18	1,711.51	2,174.92	47.25	2,222.17
4.	2009–10	761.64	199.27	6,124.89	7,085.80	322.23	7,408.03
5.	2010–11	714.16	279.27	10,162.57	11,156.00	330.00	11,486.00
6.	2011–12	843.55	191.34	9,513.47	10,548.36	615.98	11,164.34
7.	2012–13	840.79	223.55	19,228.89	20,293.23	606.77	20,900.00
8.	2013–14	764.20	326.21	17,635.69	18,726.10	1,574.39	20,300.49
9	2014-15	942.26	76.91	1,602.94	17,044.11	105.15	17149.22
	Total	5304.03	1428.85	66,838.85	87,993.73	3601.77	91595.46

Source: DWSS MIS.

15. **Varied service level of water supply schemes; over 6,500 habitations covered with 70 lpcd:** Most of the water supply schemes before the year 1999 were designed with a service level of 40 lpcd. However, rural water supply schemes implemented with NABARD assistance after the year 1999 were all designed with a service level of 70 lpcd. Few schemes were designed with a service level of 135 lpcd to cater to the need of running traditional sewerage system in the village. At present, as per the DWSS MIS, 4,690 habitations have a service level of 40 lpcd, 6,519 habitations get 70 lpcd, and 10 habitations are served with 135 lpcd schemes. It is noteworthy that 24x7 water supply has been achieved in 90 villages. However, data on

existing service levels (especially in the tail-end villages of MV schemes), needs to be looked at in order to determine the actual status of services and areas of improvement.

16. **The first PRWSS program demonstrated that small investments in performance improvement of existing schemes lead to much better service levels.** About INR 1 million investments per scheme lead to better outcomes in about 300 villages covered for improving the performance of existing water supply schemes to achieve better service levels.

17. **User charges and cost recovery.** Tariff for the majority of water supply schemes ranges from INR 55 to INR 100 per month, while other schemes also charge less than INR 55 and more than INR 100. The tariff collected by the DWSS in the schemes operated by the department is presently INR 75 per household. Only about 35 percent of the O&M expenditure has been recovered through the revenue collected in these schemes. In the schemes handed over to the GPWSC, the committee arrives at the tariff based on its costs and the number of households. It has been reported that in some of these schemes the cost recovery is quite high (almost 100 percent and even higher in many cases), demonstrating higher sustainability. However, cost recovery hovers around 60 percent in schemes implemented through the reforms approach in the past.

18. Capital cost contribution. In the PRWSS I, the concept of community contribution toward capital cost of the scheme was introduced. As per the original concept of the PRWSS I, users would finance at least 10 percent of capital cost (subject to upper limit of INR 1500 for normal villages and INR 750 for difficult areas such as Kandi, water logged, and borders. This was subsequently revised downwards to INR 800 per household in normal areas and INR 400 per household in identified difficult areas. SC households are required to contribute 50 percent of the specified limits. The charges were reduced to encourage user participation, resulting in increased numbers of private connections in various schemes implemented through the reforms approach.

19. Key institutions and role of GPs. The GOP's DWSS is the responsible institution for managing water supply activities in rural Punjab. The DWSS has also been entrusted with the TSC/NBA (now restructured as the SBM). Under the SWAp mode, the responsibility of designing new schemes and providing technical support to the GPWSCs for designing and implementation of common facilities in an MV scheme lies with the department whereas implementation of new SV schemes as well as intra-village works of MV schemes lies with the GPWSC. However, after the completion of the schemes, the GPWSCs are required to take full responsibility for the O&M. The state has also established the SWSM and District Water and Sanitation Committees (DWSC) to guide the RWSS sector development. The Rural Development Department of the State is also mandated to help in implementing the state government's programs and schemes for rural sanitation. Vide its notification no. 13/49/2003-5B & R-II/149 dated 13-01-2004, the GOP had decided to transfer SV water supply schemes to the GPs. However, on ground, the percentage of schemes actually handed over to the GPs (that is, where GPs are carrying out O&M activities) are still only around 28 percent (3,360 schemes).

20. Sector performance and future focus areas. There have been notable successes and innovations in Punjab's RWSS sector such as 24x7 metered water supply, small RO plants to

address quality issues, IEC-related work, and establishment and operation of a centralized complaint redressal system, SNK, thus moving from a 'construction' mode to 'service delivery mode'. While the state has taken a significant leap in the RWSS domain, many challenges have also emerged in the sector. As many as 13 districts are known to be affected by quality issues due to contamination of the existing water sources with heavy metals, salinity, and fluoride. The current supply levels also need to be improvised to 70 lpcd for schemes that do not have this level of supply (covering about 5,000 habitations). Key challenges in the sector include coverage of piped water supply and more so in difficult areas such as water-logged areas and border districts, over-extraction, and depletion of ground water sources, resulting in lack of sustainable sources, water quality monitoring and treatment issues, operational performance and efficiency of schemes, scheme sustainability due to O&M issues and ageing and dysfunctional assets, and high costs of bringing in water from faraway sources where quality ground water is not available or not sustainable. Environmental sanitation and village cleanliness are areas to be addressed (especially where provision of land remains a concern). There are very few ODF villages in Punjab, about 30 percent of the houses do not have toilets and more than 70 percent of households discharge sullage in open drains. The offtake of funds available under the central program (NBA) is very low. While there have been attempts to implement sewer systems in about 100 villages, around 35 have been implemented so far. In order for the villages to be cleaner, there is a need to improve household waste management as well as SLWM in villages. Institutional capacity also needs to be further strengthened to create a sustainable and dynamic institutional mechanism for the RWSS. It has been noted that the GPs are sometimes reluctant to take over the schemes implemented by the DWSS citing various reasons such as requirement of repair and maintenance and capacity issues. It is therefore imperative that a mechanism be developed to empower the GPs and ensure repairs of schemes and effective O&M.

21. Need for improving institutional capacity and interdepartmental coordination. Strengthening of institutions would be required at all levels to ensure a robust RWSS sector in the state. At the PRI level, the GPWSCs need to be strengthened and sustained. There is therefore a need to strengthen these institutions and define roles for sanitation activities. In terms of technical capabilities, sanitation-related skills also need to be strengthened within the Technical Departments (DWSS). Similarly, social, IEC/BCC, and communications related skills need to be strengthened by adequate staffing. Skills for dealing with private operators and undertaking bidding activities also need to be strengthened at all levels, especially in the districts and GPs. Water and sanitation activities involve various departments (DWSS, Rural Development and Panchayat, Water Resources, Education, and Health). Sanitation schemes and projects are spread across the DWSS and the Rural Development Department. Thus, there is a requirement of interdepartmental coordination and convergence to bring about the maximum impact of public investments.

22. Need for a better M&E system for overall sector performance. It has been observed that while the MoDWS has established a system of monitoring funds under the national programs for the RWSS, namely, the NRDWP and NBA, there is no consolidated system at the state level for monitoring the entire sector status and performance. A system for collating all information regarding the RWSS sector needs to be developed at the state level for better monitoring and decision-making for sector development.