



1. Project Data

Project ID

P119085

Project Name

IN: National Ganga River Basin Project

Country

India

Practice Area(Lead)

Water

L/C/TF Number(s)

IBRD-80650,IDA-49550

Closing Date (Original)

31-Dec-2019

Total Project Cost (USD)

514,233,533.46

Bank Approval Date

31-May-2011

Closing Date (Actual)

30-Dec-2021

IBRD/IDA (USD)
Grants (USD)

Original Commitment

1,000,000,000.00

0.00

Revised Commitment

533,825,259.18

0.00

Actual

514,233,533.46

0.00

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2. Project Objectives and Components

a. Objectives

The project development objective (PDO) was to assist the National Ganga River Basin Authority (NGRBA) in: (a) building capacity in its nascent operational-level institutions to enable them to manage the long-term Ganga clean-up and conservation program; and (b) implementing a diverse set of investments for purposes of reducing point-source pollution loads in a sustainable manner at priority locations on the Ganga. (Financing Agreement Schedule 1, dated June 14,2011 and Project Appraisal Document para. 38, dated May 4, 2011).



The PDO remained unchanged during the implementation of the Project.

For the ICRR, the PDO is parsed as follows:

Objective 1: To assist the NGRBA in building capacity in its nascent operational-level institutions to enable them to manage the long-term Ganga clean-up and conservation program.

Objective 2: To assist the NGRBA in implementing a diverse set of investments for purposes of reducing point-source pollution loads in a sustainable manner at priority locations on the Ganga.

Split Evaluation: Although the original PDO was not changed during project implementation, changes were made to some of the PDO indicators and Intermediate Results Indicators during project restructurings to address shortcomings in the Results Framework as designed at appraisal. The changes resulted in dropping and/or revision of some of the original PDO indicators and addition of new PDO indicators. Targets were revised downwards during some of the later restructurings reflecting a reduction in ambition. Consequently, a split evaluation is undertaken for the ICRR.

b. Were the project objectives/key associated outcome targets revised during implementation?
Yes

Did the Board approve the revised objectives/key associated outcome targets?
Yes

Date of Board Approval
25-Jun-2015

c. Will a split evaluation be undertaken?
Yes

d. Components
(Reference PAD paras. 41 to 45 and ICR paras. 10 to 11).

The project components at appraisal are indicated below. Changes in the components during implementation are discussed under Restructurings below.

Component 1: Institutional Development (estimated cost at appraisal US\$200 million; actual cost at completion US\$10 million).

Subcomponent 1.1: NGRBA Operationalization and Program Management: This sub-component aimed to support the NGRBA's nascent operational institutions through the following main activities: (a) Institutional Support to the Project Management Group (PMG) and the State Project Management Groups (SPMGs); (b) Enhancing Ganga Knowledge Resources; and (c) Communications and Outreach.

Subcomponent 1.2: Technical Assistance for Urban Local Bodies (ULB) Service Providers: This sub-component aimed to support ULBs, local-level water and wastewater service providers, and other relevant



agencies through provision of information and planning systems, training, equipment, and technical assistance for improving revenues and cost-recovery.

Subcomponent 1.3: Technical Assistance for Environmental Regulators: This sub-component aimed to support capacity-building of the Central and State Pollution Control Boards with a focus on improving information systems, staff skills, laboratory accreditation, and infrastructure facilities. Key activities included: (a) upgrading the Water Quality Monitoring System (WQMS); (ii) comprehensive inventory of pollution sources; and (c) strengthening environmental compliance monitoring.

Component 2: Priority Infrastructure Investments: (estimated cost at appraisal US\$1,356 million; actual cost at completion US\$1,116 million)

This component aimed to finance infrastructure investments to reduce pollution loads in priority locations. The investments were intended to exemplify high standards of preparation and implementation, operational sustainability, encouraging public participation, and demonstrating innovative pilot projects. Instead of focusing on pre-identified investments, the investments to be supported were to be selected under an investment framework approach using specific selection criteria. The investments were expected to be diverse and to include wastewater collection and treatment; industrial pollution control; solid waste management; and river front management. The framework approach was expected to allow the investments to be selected on an ongoing dynamic basis while adhering to the guidelines of the NGRBA Program Framework.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost: At appraisal, the total project cost was estimated at US\$1,556 million. There are discrepancies in the ICR in regard to reporting the actual cost at project completion. The ICR Data Sheet reports the actual cost as US\$673.58 million whereas Annex 3 reports it as US\$1,126 million. In both cases, the reported actual cost is substantially lower than the estimated cost at appraisal. The reduction in project cost was due to a combination of factors: (i) overestimation of the amount of investments at appraisal (a Framework approach was used instead of pre-identified investments); (ii) effects of exchange rate variations between the USD and the INR; and (iii) a decision by the Government of India (GoI) and the World Bank to finance a Second National Ganga River Basin Project (SNGRBP) to follow the NGRBP. Some of the planned investments and activities under NGRBP were agreed to be included in the SNGRBP. The SNGRBP was approved in 2020 and is under implementation. The SNGRBP includes a provision for an amount of US\$535 million allocated to investments carried over from the NGRBP.

Financing: At appraisal, the total World Bank financing for the Project was US\$1,000 million consisting of an IDA credit of US\$199 million and an IBRD loan of US\$801 million. At completion, the actual amount disbursed was US\$514.23 million including US\$179.4 million under the IDA credit and US\$334.8 million under the IBRD loan. Under the IBRD loan, US\$400 million and US\$60.7 million were cancelled respectively under the fifth and sixth restructurings in 2019 and 2021. At closing, unutilized balances were cancelled - US\$19.6 million from the IDA credit and US\$5.5 million from the IBRD loan.

Borrower Contribution: At appraisal, the Borrower's contribution was estimated at US\$556 million. At completion, the actual contribution was US\$159.4 million. (ICR Data Sheet). The reduction in the Borrower's contribution was due to the decision to transfer some of the planned investments to the SNGRBP.



Dates: The Project was approved in May 2011. The planned effectiveness date was August 1, 2011 and the actual effectiveness date was August 18, 2011. The original planned closing date was December 31, 2019. It was extended once by 24 months to December 30, 2021 to allow for completion of activities delayed by the impacts of the COVID pandemic in 2019-2021.

Mid-Term Review (MTR): The planned date for the MTR was August 2015. The MTR was carried out in July 2015.

Restructurings: (Reference ICR paras. 12 to 27): The Project underwent six Level 2 restructurings over the course of its implementation as follows:

First Restructuring (June 2015 - disbursed amount US\$62.85 million): Changes were made to some PDO indicators (PDOIs) and Intermediate Results Indicators (IRIs) to align the Results Framework (RF) with the PDO and improve M&E (Monitoring & Evaluation) design which had weaknesses at appraisal. (ICR para.22).

- PDO Indicators: The indicator "percentage of targeted locations on the Ganga that observe improvements in river water quality" was dropped on the consideration that investments to reduce point-source pollution are necessary but not sufficient to improve water quality and because such improvements cannot be attributed solely to project investments. The indicator "capacity rating of NGRBA institutions" was revised to "new program institutions are set up and functioning effectively" to simplify measurement of the related outcome and focus on the key bottleneck to implementation - low staffing at the National Mission for Clean Ganga (NMCG) and State Program Management Groups (SPMGs) especially in key leadership and program management positions. The ICR states that these changes did not affect the scope or ambition of the PDO. A core indicator "direct project beneficiaries" was added. (ICR para. 22).
- Intermediate Results Indicators: 16 out of the original 19 IRIs were dropped or revised and replaced by comparable indicators to track the same output/outcome. Some of these indicators underwent further changes at the fifth and sixth restructurings. (ICR para. 16 and Annex 7).
- Other changes: These included some changes in implementation arrangements and the implementation schedule.

Second Restructuring (December 2016 - disbursed amount US\$69.13 million): Changes included:

- Subcomponent 1.1 was expanded to include a new activity to help NMCG develop the Hybrid Annuity Model of Public-Private Partnership (HAM-PPP) to strengthen the focus on sustainability of infrastructure. (ICR para. 15).
- Changes in financing plan: These were made to align the financing arrangements under the Project with the Govt's newly launched National Ganga Program (NGP) by (a) converting the Project to 100 percent financing by the Central Government (from the earlier 70:30 Central - State Government sharing arrangement, and (b) increase the Bank's reimbursement of the Centre's share from 89 percent to 100 percent.
- Revisions of some costs and reallocations between categories.

Third Restructuring (June 2017 - disbursed amount US\$69.29 million): Changes were made between eligible expenditure categories to enable utilization of the IDA credit before utilizing the IBRD loan.



Fourth Restructuring (August 2019 - disbursed amount US\$292.42 million): Changes included:

- Cancellation of US\$400 million from the IBRD loan: This was based on NMCG's assessment of timelines for the ongoing and planned investments and on revised disbursement arrangements. The ICR states (para. 25) this change did not impact the ambition of the Project because the revised financing envelope (a) did not reduce the number of investments or the PDO targets and (b) made the World Bank support commensurate with the investment plan under Component 2 (which had earlier followed a framework approach since appraisal).

Fifth Restructuring (October 2019 - disbursed amount US\$292.42 million): Changes included:

- The Results Framework (RF) was revised to align indicators and targets with the GoI's investment priorities under the NGP including enhanced focus on domestic wastewater management and increased ambition.
- PDO indicators: The target for the PDO indicator "volume of untreated wastewater prevented from entering the Ganga due to Project interventions" was increased from 270 million liters per day (MLD) to 420 MLD. Three new PDOs were added as follows: (i) "households connected to network sanitation systems under the Project"; (ii) "amount of Biological Oxygen Demand (BOD) pollution load abated by sewage treatment plants built or rehabilitated under the Project"; and (iii) Sanitation operators with O&M (Operations & Maintenance) management plan and related staff capacity building program approved and under implementation".
- Intermediate Results Indicators: All IRIs related to industrial pollution control were dropped to reflect NMCG's focus on domestic sewage management as the top priority. IRIs related to solid waste management (SWM) were dropped because the NMCG did not require World Bank financing or technical assistance to implement the limited river surface cleaning and SWM activities under the NGP. (ICR para. 26).

Sixth Restructuring (July 2021 - disbursed amount US\$471.66 million): Changes included:

- PDO Indicators: The targets revised at the fifth restructuring in October 2019 were reduced as follows: (i) "amount of BOD pollution load abated by sewage treatment plants built or rehabilitated under the Project" from 21,500 metric tons per year (mtpy) to 16,500 mtpy; (ii) "households connected to network sanitation systems under the Project" from 475,310 household to 325,000 households; (iii) "direct project beneficiaries" from 4 million to 3.57 million. The ICR states that the reductions were in response to implementation delays due to the COVID-19 pandemic related lockdown and supply chain disruptions. Despite these reductions, the targets remained higher than those set at appraisal. (ICR para. 27).
- Cancellation of US\$60.7 million from the IBRD loan: This was to reflect the effect of exchange rate variations between the USD and the INR. (ICR para. 27).



3. Relevance of Objectives

Rationale

(Reference PAD paras. 1 to 33 and ICR paras. 1 to 7 and 28 to 30).

Country and Sectoral Context: At appraisal in 2011, the Indian economy had a sustained record of robust growth over the preceding two decades. However, this was accompanied by a degrading environment and growing scarcity of natural resources due to rapid population growth, unplanned urbanization, extensive industrialization, expansion and intensification of agriculture, and deforestation. To address the situation, the Government of India (GoI) had taken steps, including stringent environmental legislation and better enforcement; afforestation programs; and investments to improve water quality. In parallel, civil society had converged as a strong constituency for environmental conservation. The Ganga River Basin (GRB) was the most populous river basin in the world and accounted for 25 percent of India's water resources. The five states of the Ganga mainstream in India - Uttarakhand, Uttar Pradesh (UP), Bihar, Jharkhand, and West Bengal - were home to 50 percent of the country's poor. Sustenance and growth in the GRB relied on harnessing the Ganga's productive potential. The Ganga also had, and continues to have, immense religious significance, and it attracts millions to pray and bathe in its waters. Despite this, the Ganga was severely polluted; untreated municipal sewage accounted for 80 percent of the organic pollution load, with most of the rest coming from industrial pollution. Only a third of sewage generated in mainstream towns and cities was treated. Key gaps included inadequate wastewater infrastructure; weak capacity of the local bodies; lack of solid waste management; inadequate instream flows due to over-abstraction for agriculture and other uses; and weak environmental regulation. To address the situation, a Ganga Action Plan (GAP) was launched in 1985 that focused on developing urban wastewater infrastructure. The GAP was widely perceived as unsuccessful due to insufficient investment; underutilization of treatment capacity; limited interest of the relevant local bodies in river clean-up; long implementation delays; low capacity for operations and maintenance (O&M) of facilities; and poor communications and stakeholder participation. Drawing on these lessons from the GAP, the GoI in 2009 established the National Ganga River Basin Authority (NGRBA) as a collaborative Centre-State institution to lead its new vision for conservation of the Ganga. This included a multi-sectoral, basin-level approach; creation of strong and dedicated operational level institutions; establishment of an enhanced knowledge base; provision of substantial financial resources; and effective communications and public participation. The NGRBA Program includes three phases: (i) establishing operational institutions and mechanisms and implementing priority investments; (ii) scaling up the investments to eliminate untreated wastewater discharge into the Ganga by 2020; and (iii) taking other necessary steps to definitively clean up the Ganga over a few decades. The Program was to be managed by a Program Management Group (PMG) at the Centre and State Program Management Groups (SPMGs) at the state level. The Ministry of Environment and Forests (MoEF) was designated as the nodal agency. The National Ganga River Basin Project (NGRBP) was prepared in response to a request in 2009 from the GoI to the World Bank to provide upstream support to the NGRBA and help develop the NGRBA Program Framework; build capacity in the PMG and SPMGs; and finance a small set of infrastructure investments to establish good practice precedents. (ICR paras. 1 to 7).

Alignment with National Priorities: The Project Development Objective (PDO) was aligned with, and remains aligned with, the national priorities at the time of appraisal as well as the priorities at the present time. The Project was prepared to support the GoI's high-priority Namami Gange Program (NGP) that was approved in 2009. The first phase (NGP-1) of the Program covered the period 2009 to 2021. The second phase (NGP - 2) covers the period 2021 to 2026. The PDO is consistent with the GoI's priorities laid out in its three-year action agenda under the FY 2017 to 2019 Plan. The PDO is also aligned with the vision of the



National Fecal Sludge and Septage Management Policy (NFSSMP) and the National Urban Sanitation Policy (NUSP) which has as its objective "making all Indian cities and towns totally sanitized, healthy, and livable". (ICR para. 28).

Alignment with the WBG's Country Partnership Strategy: The PDO was aligned with, and remains aligned with, the World Bank Group (WBG) Country Partnership Strategy (CPS) at the time of appraisal and that currently in effect. The PDO is consistent with the currently prevailing CPS for FY18-22 which includes under its Focus Area One (Promoting Resource Efficient Growth) Objective 1.2 "making cities livable and sustainable through, among other things, investments that improve access to urban wastewater services". The PDO is also consistent with the CPS strategy to "engage a federal India" by recognizing the respective roles of national, state, and local levels, and engaging each by identifying the right entry points. In the CPS, the investment program to be supported by the World Bank includes several state-level projects related to water resources management and urban improvement. In 2020, the World Bank and the GoI approved the Second National Ganga River Basin Project (SNGRBP). The PDO of the SNGRBP is to reduce point source pollution from targeted urban areas of the Ganga River Basin (GRB) and to strengthen the framework for GRB management. The PDO is aligned with the NGRBP, and selected investments from NGRBP were carried over to the SNGRBP and are under implementation. (ICR para. 29).

Prior Bank Experience: The World Bank has been involved in India's water and sanitation sector over several years, including financing of investment projects as well as sector work. At the time of appraisal, the World Bank had been supporting a number of GRB and other states through multiple projects and synergies were anticipated with the NGRBP. Prior to the NGRBP, the World Bank supported projects in India were largely related to water resources management, water supply and sanitation. While the World Bank had financed river basin improvement projects in some other countries including Brazil and China, the NGRBP was the first river basin management related project it supported in India.

Relevance of Project Development Objectives: Given the context described above, the PDO was consistent, and remained consistent, with the priorities in the national programs and the WBG Country Assistance Strategies. While the PDO formulation itself was pitched at the activity level of the results chain, the project design with its clear and logical theory of change (ToC) shows that the Project aimed at delivering relevant development results at outcome level. The identified outcome indicators are also a clear indication that the project design was pitched at an appropriately high level of the results chain taking into account the country's development needs, implementation capacities, and the multi-year nature of the National Ganga Program which required a phased approach.

Rating

High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1 Objective



To assist the NGRBA in building capacity in its nascent operational-level institutions to enable them to manage the long-term Ganga clean-up and conservation program.

Rationale

Theory of Change: The ICR provides a diagrammatic presentation of the theory of change (TOC) and results chain from activities to outcomes. The overall TOC was that, prior to the NGRBP, efforts to significantly improve the severe pollution issues affecting the Ganga River were limited by inadequate institutional capacity and insufficient financial resources to carry out the required investments. To improve the situation, it was necessary to design and implement actions within a river basin framework with the involvement of appropriately equipped and funded national-level and state-level agencies. The NGBRP would provide inputs through financing of technical assistance and investments. In regard to Objective 1, technical assistance inputs would include (i) capacity building in PMG and SPMGs; (ii) support to the Ganga Knowledge Centre (GKC) for improving communications and public engagement; (iii) support to Urban Local Bodies (ULBs) and sanitation operators for improving operations and maintenance (O&M) activities; and (iv) support to environmental regulators to build capacity and improve monitoring systems. The principal resulting outputs would include: (i) strengthened and adequately staffed implementing agencies; (ii) basin-wide communications program; (iii) improved knowledge management in GKC; (iv) improved communications aimed at increasing household connections to sewerage networks; (v) increased capacity in the ULBs to carry out required O&M activities; and (vi) preparation and implementation of a capacity building plan for regulators; and (vii) increase in water quality monitoring stations (WQMS) using real-time data. These outputs would contribute to intermediate outcomes including: (i) improved performance in the agencies concerned - PMG, SPMGs, GKC, and regulators; (ii) improved monitoring of the pollution in the Ganga; (iii) increase in ULB contributions to O&M activities.

The PDO outcome would be that the concerned agencies are able to successfully manage the long-term Ganga clean-up and conservation programs.

The causal links and results chain in the TOC in regard to Objective 1 were generally clear. To measure the achievement of Objective 1, one PDO indicator and four Intermediate Results Indicators (IRIs) were used. The original design of the indicators had significant weaknesses in terms of measurability which constrained assessment of the results and outcomes.

Key Assumptions were: (i) the priorities set by the Gol and the concerned state governments at appraisal would continue; and (ii) the implementation agencies would successfully internalize the capacity strengthening activities provided under the Project.

Intermediate Results Indicators: (as reported in PAD Annex 1 Results Framework).

- Percentage of planned professional staff positions filled in NGRBA institutions at central and state levels (baseline 5%; original target 100%; actual 74%; target substantially achieved).
- PMG's capacity rating (on a scale of 1 to 10): (baseline 0; original target 9; actual - results not measured; target not achieved).
- SPMGs' capacity rating (on a scale of 1 to 10): (baseline; original target 9; actual - results not measured; target not achieved).
- ULB's capacity rating (on a scale of 1 to 10): (baseline 0; original target 7; actual - results not reported; target not achieved).



PDO Indicators: (as reported in PAD Annex 1 Results Framework).

- Average rating of NGRBA-related institutions (on a scale of 1 to 10): (baseline 0; original target 8; actual - results not measured; target not achieved).

Outcomes: Due to limitations in the measurability of the PDO indicator and most of the Intermediate Results Indicators, the indicators were not measured and reported. In the absence of relevant information regarding achievements, the ICRR rates the efficacy of Objective 1 as Modest.

Rating

Modest

OBJECTIVE 1 REVISION 1

Revised Objective

To assist the NGRBA in building capacity in its nascent operational-level institutions to enable them to manage the long-term Ganga clean-up and conservation program.

Revised Rationale

At the project restructuring in June 2015, although the original PDO remained unchanged, changes were made to some of the PDO indicators.

Theory of Change: The TOC was provided under Objective 1 above and essentially applies to the revised Objective 1 as well. Changes made during the restructuring were to revise some of the indicators to ensure measurability.

Outputs and Intermediate Results Indicators: (as reported in the ICR Annex 1 - Results Framework and paras. 13 to 16).

Key Outputs included the following:

- 74 percent of sanctioned positions were filled, with 138 full-time professionals employed across NMCG and SPMGs.
- 60 water quality monitoring stations were receiving real-time data, covering up to 17 water quality parameters.
- 79 percent of all contracts under the Project had been completed or reached physical completion of over 70 percent by project closing. Contracts to be completed were carried over to the SNGRBP or funded by Gol from its own funds.

Intermediate Results Indicators: Achievements were as follows:

- Percentage of planned professional staff positions filled in NMCG central and State-level institutions (baseline 5%; original target 100%; actual 74%; target substantially achieved).
- Capacity building plan for regulators approved and under implementation (baseline - no; original target - no; actual - yes; target achieved).



- Number of water quality monitoring stations generating real-time data (baseline 0; original target 40; actual 60; target exceeded).
- Grievance Redressal System in place at the national level, in each State, and at sites of each sub-project (baseline 0; original target 6; actual 6; target achieved).
- Number of ULBs with an approved plan for covering the O&M costs of the sanitation service beyond the project period (baseline 0; original target 4; actual 0; target not achieved).
- Number of cities where community outreach campaigns are being implemented to promote household connections to sewer networks (baseline 0; original target 4; actual 9; target exceeded).
- Share of grievances addressed within 30 days from receipt (baseline 0; original target 80%; actual 100%; target exceeded).

PDO Indicators: (as reported in the ICR Annex 1 - Results Framework and paras. 13 to 14).

- New program institutions are set up and are effectively functioning (baseline 0; target 6; actual 5, target almost achieved).
- Sanitation operators with O&M management plan and related staff capacity (baseline 0; target 4; actual 5; target exceeded).

Outcomes: The target for one PDO indicator was exceeded and for the second PDO indicator it was almost achieved. Targets for most IR indicators were achieved or exceeded. Technical assistance and related support provided under the Project, along with changes introduced by the GoI, helped strengthen the implementation capacity of NMCG and most SMCGs and overcome the weaknesses that contributed to relatively poor performance at the start of the Project (the Project's Development Objective and Implementation Progress ratings were maintained at Moderately Unsatisfactory between 2012 to mid-2019). At project closing, NMCG and four of the five SMCGs were assessed to be functioning effectively despite the fact that, on average, the staffing targets had been achieved up to 74 percent against the target of 100 percent. The exception was for the State of Bihar where less than 50 percent of the sanctioned positions had been filled at project closing. The impact of this was reflected in the State's relatively weak performance in key program management areas. (ICR para. 38). In addition, the targets set for capacity strengthening for the ULBs were not achieved. Based on the foregoing, the ICRR rates the efficacy of Objective 1 as Substantial with some shortcomings.

Revised Rating
Substantial

OBJECTIVE 2

Objective

To assist the NGRBA in implementing a diverse set of investments for purposes of reducing point-source pollution loads in a sustainable manner at priority locations on the Ganga.

Rationale



Theory of Change: The ICR provides a diagrammatic presentation of the theory of change (TOC) and results chain from activities to outcomes. The overall TOC was that, prior to the NGRBP, efforts to significantly improve the severe pollution issues affecting the Ganga River were limited by inadequate institutional capacity and insufficient financial resources to carry out the required investments. To improve the situation, it was necessary to design and implement actions within a river basin framework with the involvement of appropriately equipped and funded national-level and state-level agencies. The NGBRP would provide inputs through financing of technical assistance and investments. The ToC and results chain in regard to technical assistance were provided above under Objective 1. In regard to Objective 2, investment financing inputs would include support for: (i) identification and appraisal of investments in line with the approved NGRBA Framework; and (ii) financing of investments, including pilot investments to promote innovation. The resulting outputs would include: (i) long-term contracts awarded with built-in O&M costs and responsibilities; (ii) treatment plants constructed and/or rehabilitated; (iii) network sewerage coverage increased; (iv) improved solid waste management; and (v) improved river front management. The intermediate outcomes would include: (i) increase in wastewater treatment capacity and utilization; (ii) benefits from river front management; and (iii) solid waste prevented or removed from rivers.

The causal links and results chain in the TOC in regard to Objective 2 were generally clear. To measure the achievement of Objective 2, two PDO indicators and 15 Intermediate Results Indicators (IRIs) were used.

Key Assumptions were: (i) the priorities set by the GoI and the concerned state governments at appraisal would continue; (ii) the implementation agencies would successfully internalize the capacity strengthening activities provided under the Project; and (iii) there would be adequate response from private sector investors to participate in the Design Build Operate and Transfer (DBOT) and Hybrid Annuity Model - Public Private Partnership (HAM-PPP) arrangements envisaged in the project design.

Intermediate Results Indicators (as reported in the PAD Annex 3 - Results Framework).

- Treatment capacity created (in million liters per day): (baseline 0; original target 450 mld; actual 344 mld; target substantially achieved).
- Treatment capacity utilization (%); (baseline 0%; original target 60%; actual - results not reported; target not achieved).
- Cumulative actual ULB contributions for O&M as a percentage of agreed ULB contributions: (baseline 0%; original target 40%; actual - results not reported; target not achieved).
- Percentage of investments approved with dedicated stakeholder engagement: (baseline 0%; original target 100%; actual - results not reported; target not achieved).
- Nine indicators relating to industrial wastewater pollution control; solid waste management; and river front management: (actual results not reported - targets not achieved).

PDO Indicators: (as reported in the PAD Annex 3 - Results Framework).

- Volume of untreated wastewater prevented from entering the Ganga - in million liters per day: (baseline 0; original target 270 mld; actual 404 mld; target exceeded).
- Improvements in river water quality at target locations with significant investments: %; original target 50%; actual - results not reported; target not achieved).



Outcomes: While the target for one PDO indicator was substantially exceeded, that for the second PDO indicator was not achieved. Targets for most of the Intermediate Results Indicators were not achieved. The ICRR rates the efficacy of Objective 2 as Modest.

Rating

Modest

OBJECTIVE 2 REVISION 1

Revised Objective

To assist the NGRBA in implementing a diverse set of investments for purposes of reducing point-source pollution loads in a sustainable manner at priority locations on the Ganga.

Revised Rationale

At the project restructuring in June 2015, although the original PDO remained unchanged, changes were made to some of the PDO indicators.

Theory of Change: The TOC was provided under Objective 2 above and essentially applies to the revised Objective 2 as well.

Outputs and Intermediate Results Indicators (as reported in the ICR Annex 1 - Results Framework and paras. 48 to 55).

Key Outputs included the following:

- 404 MGD of wastewater were prevented from flowing into the Ganga through the Project investments.
- 17,450 metric tons per year of BOD pollution load abated overall, including 71 percent of BOD pollution from point-sources at priority locations abated under the Project.
- 317,647 house service connections were installed in 12 towns.
- 2,632 km of sewerage network was laid across 18 towns.
- 344 MGD of treatment capacity was created and/or restored by the Project.
- 1 river front development (RFD) was completed.
- 9 cities/towns adopted the one-city one-operator model.
- 95% of the investments were through the DBOT or HAM PPP contracts with 10 years or more of O&M coverage embedded.

Intermediate Results Indicators: Achievements were as follows:

- Wastewater treatment capacity created - in million liters per day (baseline 0 mlpd; target 450 mlpd; actual 344 mlpd; target substantially achieved)
- Number of cities/towns following the one-city one-operator model (baseline 0; target 7; actual 5; target substantially achieved).
- Infrastructure investments by value with 10 years or more of O&M included in contracts (baseline 0; target 100%; actual 95%; target almost achieved).



PDO Indicators:

- Number of direct project beneficiaries: (baseline 0; original target 3.20 million; actual 3.74 million; target exceeded).
- Volume of untreated wastewater prevented from entering the Ganga due to project interventions - in million liters per day (baseline 0; original target 270 MLD; actual 404 MLD; target substantially exceeded).

Outcomes: The targets in regard to the two PDO indicators were exceeded or substantially exceeded. Targets in regard to most Intermediate Results indicators were achieved or substantially achieved. While the higher-level outcome targets were achieved, the intention of helping the GoI implement a diverse set of investments was not realized due to a decision by the GoI to focus primarily on wastewater treatment and sewerage network related investments under the NGRBP. Consequently, the ICRR rates efficacy of Objective 2 as Substantial with some shortcomings.

Revised Rating

Substantial

OBJECTIVE 2 REVISION 2

Revised Objective

To assist the NGRBA in implementing a diverse set of investments for purposes of reducing point-source pollution loads in a sustainable manner at priority locations on the Ganga.

Revised Rationale

At the project restructuring in October 2019, although the original PDO remained unchanged, further changes were made to some of the PDO indicators.

Theory of Change: The TOC was provided under Objective 2 above and essentially applies to the Objective 2 Revision 2 as well.

Outputs and Intermediate Results Indicators (as reported in the ICR Annex 1 - Results Framework and paras. 48 to 55).

Key Outputs included the following:

- 404 MGD of wastewater were prevented from flowing into the Ganga through the Project investments.
- 17,450 metric tons per year of BOD pollution load abated overall, including 71 percent of BOD pollution from point-sources at priority locations abated under the Project.
- 317,647 house service connections were installed in 12 towns.
- 2,632 km of sewerage network was laid across 18 towns.
- 344 MGD of treatment capacity was created and/or restored by the Project.
- 1 river front development (RFD) was completed.
- 9 cities/towns adopted the one-city one-operator model.



- 95% of the investments were through the DBOT or HAM PPP contracts with 10 years or more of O&M coverage embedded.

Intermediate Results Indicators: Achievements were as follows:

- Number of investments funded under the Project showing physical completion of 70% or more: (baseline 0%; target 100%; actual 78.80%; target substantially achieved).
- Share of BOD pollution load from point-source in priority locations abated under the Project (baseline 0%; target 69%; actual 71%; target exceeded).
- Wastewater treatment capacity created - in million liters per day (baseline 0 mlpd; target 450 mlpd; actual 344 mlpd; target substantially achieved).
- Number of cities/towns following the one-city one-operator model (baseline 0; target 7; actual 5; target substantially achieved).
- Infrastructure investments by value with 10 years or more of O&M included in contracts (baseline 0; target 100%; actual 95%; target almost achieved).
- Length of sewerage network laid under the Project (baseline 0 km; target 3,570 km; actual 2,632 km; target substantially achieved).

PDO Indicators:

- Number of direct project beneficiaries: (baseline 0; target 3.20 million; actual 3.74 million; target exceeded).
- Volume of untreated wastewater prevented from entering the Ganga due to project interventions" - in million liters per day (baseline 0; target 270 MLD; actual 404 MLD; target substantially exceeded).
- Number of households connected to network sanitation systems under the Project: (baseline 0; target 475,310; actual 317,647; target underachieved).

Outcomes: The targets in regard to two of the three PDO indicators were exceeded while that for the third was underachieved. Targets in regard to most Intermediate Results indicators were substantially achieved. While the higher-level outcome targets were achieved, the Project's intention of helping the GoI implement a diverse set of investments was not achieved due to a decision by the GoI to focus primarily on wastewater treatment and sewerage network related investments under the NGRBP. Consequently, the ICRR rates efficacy of Objective 2 as Substantial with some shortcomings.

Revised Rating
Substantial

OBJECTIVE 2 REVISION 3

Revised Objective

To assist the NGRBA in implementing a diverse set of investments for purposes of reducing point-source pollution loads in a sustainable manner at priority locations on the Ganga

Revised Rationale



At the project restructuring in July 2021, although the original PDO remained unchanged, further changes were made to some of the PDO indicator targets which reduced the ambition of the Project.

Theory of Change: The TOC was provided under Objective 2 above and essentially applies to the Objective 2 Revision 3 as well.

Outputs and Intermediate Results Indicators (as reported in the ICR Annex 1 - Results Framework and paras. 48 to 55).

Key Outputs included the following:

- 404 MGD of wastewater were prevented from flowing into the Ganga through the Project investments.
- 17,450 metric tons per year of BOD pollution load abated overall, including 71 percent of BOD pollution from point-sources at priority locations abated under the Project.
- 317,647 house service connections were installed in 12 towns.
- 2,632 km of sewerage network was laid across 18 towns.
- 344 MGD of treatment capacity was created and/or restored by the Project.
- 1 river front development (RFD) was completed.
- 9 cities/towns adopted the one-city one-operator model.
- 95% of the investments were through the DBOT or HAM PPP contracts with 10 years or more of O&M coverage embedded.

Intermediate Results Indicators: Achievements were as follows:

- Number of investments funded under the Project showing physical completion of 70% or more: (baseline 0%; original target 100%; revised target 78.80%; target almost achieved).
- Share of BOD pollution load from point-source in priority locations abated under the Project (baseline 0%; original target 69%; revised target 70%; actual 71%; target exceeded).
- Wastewater treatment capacity created - in million liters per day (baseline 0 mlpd; target 450 mlpd; actual 344 mlpd; target substantially achieved).
- Number of cities/towns following the one-city one-operator model (baseline 0; original target 7; revised target 5; actual 5; target achieved).
- Infrastructure investments by value with 10 years or more of O&M included in contracts (baseline 0; target 100%; actual 95%; target almost achieved).
- Length of sewerage network laid under the Project (baseline 0 km; original target 3,570 km; revised target 2,700 km; actual 2,632 km; target almost achieved).
- Percentage of targeted river front management investments completed: (baseline 0%; target 100%; actual 100%; target achieved).

PDO Indicators:

- Number of direct project beneficiaries: (baseline 0; original target 3.20 million; revised target 3.57 million; actual 3.74 million; target exceeded).
- Volume of untreated wastewater prevented from entering the Ganga due to project interventions" - in million liters per day (baseline 0; original target 270 MLD; revised target 386 MLD; actual 404 MLD; target exceeded).



- Amount of BOD pollution load abated by sewage treatment plants built or rehabilitated under the Project - in metric tons per year: (baseline 0; target 16,500 mtpy; actual 17,40 mtpy; target exceeded).
- Number of households connected to network sanitation systems under the Project: (baseline 0; original target 475,310; revised target 325,000; actual 317,647; target almost achieved).

Outcomes: The targets in regard to three of the four PDO indicators were exceeded and that for the fourth was almost achieved. Targets in regard to most Intermediate Results indicators were substantially achieved. While the higher-level outcome targets were achieved, the Project's intention of helping the GoI implement a diverse set of investments was not achieved due to a decision by the GoI to focus primarily on wastewater treatment and sewerage network related investments under the NGRBP. Consequently, the ICRR rates efficacy of Objective 2 as Substantial with some shortcomings.

Revised Rating
Substantial

OVERALL EFFICACY

Rationale

The overall efficacy is assessed as Modest based on underlying efficacy ratings of Modest for Objective 1 and Objective 2.

Overall Efficacy Rating
Modest

Primary Reason
Insufficient evidence

OVERALL EFFICACY REVISION 1

Overall Efficacy Revision 1 Rationale

Under Revision 1, the overall efficacy is assessed as Substantial based on underlying efficacy ratings of Substantial for Objective 1 and Objective 2.

Overall Efficacy Revision 1 Rating
Substantial

OVERALL EFFICACY REVISION 2



Overall Efficacy Revision 2 Rationale

Under Revision 2, the overall efficacy is assessed as Substantial based on underlying efficacy ratings of Substantial for Objective 1 and Objective 2.

Overall Efficacy Revision 2 Rating

Substantial

OVERALL EFFICACY REVISION 3

Overall Efficacy Revision 3 Rationale

Under Revision 3, the overall efficacy is assessed as Substantial based on underlying efficacy ratings of Substantial for Objective 1 and Objective 2.

Overall Efficacy Revision 3 Rating

Substantial

5. Efficiency

(Reference ICR paras. 57 to 62 and Annex 4)

Economic Efficiency

At appraisal: The economic analysis at appraisal included: (i) a program-level analysis of basin-wide benefits from improvement in water quality which resulted in a benefit to cost ratio (BCR) of 2.1 to 6.2 for ambient BOD reduction in the Ganga of 60 percent to 80 percent and (ii) an investment-level cost benefit analysis (CBA) based on representative investments. These included (a) generic sewage treatment plants (STPs) with Economic Internal Rates of Return (EIRRs) between 13 percent to 32 percent; (b) specific investments for STPs including greenfield investments (indicating EIRRs of between 6 percent to 16 percent) and for upgrading of existing STPs (indicating EIRRs of between 82 percent to 100 percent); and (c) new industrial treatment plants (indicating EIRRs between 13 percent to 39 percent). An overall EIRR was not provided because the investments were not identified at appraisal. However, it was stated that EIRRs of over 20 percent were not unusual in such projects. (ICR para. 57).

Post-Completion: Since the key outcome (improved river quality) from which benefit streams are derived was assessed to be beyond the scope of individual Project investments, the ICR adopted a different methodology. The ICR indicates it uses more direct health and environment benefits from urban wastewater infrastructure investments that are not linked to downstream river water quality improvements. The methodology used was developed by the United Nations Economic Program (UNEP) and has been used for similar projects, including for the SNGRBP. The ICR indicates that the economic analysis for the SNGRBP is used as a reference due to similarities in the PDO and nature and locations of investments (the SNGRBP had an EIRR of 35 percent and a BCR of 3.3 at a 10 percent discount rate). The Project financed 32 investments which were at different stages of



progress at project closing. The post-completion analysis has been carried out on an incremental basis (the difference between the with-project and without-project scenarios) for a period of 30 years from start of operations. Quantitative estimation of project benefits is carried out for the impact of improved wastewater treatment complying with national effluent standards and improvements in urban sanitation and hygiene. Shadow prices of undesirable environmental impacts were taken from UNEP reports. The shadow price of carbon was included as net greenhouse gas (GHG) emission reductions are expected. Benefits not included in the estimation of the EIRR include benefits from biogas digestion; reduced risk of groundwater contamination; improved health of river ecologies; and non-consumption user and non-user benefits in the program-level analysis at appraisal. The average EIRR across all investments was estimated at 35.21 percent with a BCR of 6.22 and a Net Present Value (NPV) of INR140.80 billion at a discount rate of 10 percent. The ICR indicates this is comparable with the overall EIRR estimated for the SNGRBP. Considering only the investments that had reached 100 percent physical completion at project closing, the average EIRR was estimated at 45.19 percent with a range of 12.35 percent to 125.19 percent for individual investments.

Rating: Based on the foregoing, the ICRR rates the Project's economic efficiency as Substantial.

Implementation Efficiency

Project Cost: The project cost at completion was substantially lower than the estimate at appraisal. Against the appraisal estimate of US\$1,556 million, the actual cost at completion was US\$1,126 million. The substantially lower cost was the result of a combination of factors: (i) overestimation of the project costs at appraisal where the investment costs were based on a Framework approach instead of on pre-identified specific investments; (ii) the impact of exchange rate changes between the INR and the USD; and (iii) the decision by the GoI and the World Bank in 2019 to carry over some investments (including some already in progress) to the SNGRBP. (The estimated project cost of the SNGRBP includes a provision of US\$535 million for investments and activities carried over from NGRBP - Annex 3 of the PAD for the SNGRBP). Against the allocation of US\$200 million under the Project for Component 1 (Institutional Strengthening and Project Management), the actual cost was US\$10 million. Despite these substantial reductions in the planned expenditures, it should be noted that the Project met its PDO and planned outcomes (as discussed earlier in Section 4).

Project Duration: The implementation period estimated at appraisal was 103 months (8.5- years). The actual implementation period was 127 months (10.5 years). Despite substantial delays in the earlier years of implementation (reflected in a Moderately Unsatisfactory rating for Implementation Progress and Development Objectives in the period 2013 to mid-2019), the pace of implementation picked up thereafter. The original closing date (December 31, 2019) was extended by 24 months to December 4, 2021 to allow for completion of activities and allow for the impacts of the COVID pandemic starting 2019. Overall, the Project was able to meet its PDO and outcome targets by project closing in 2021.

Rating: Based on the foregoing, the ICRR rates implementation efficiency as Substantial on the margin.

Overall Rating of Efficiency: Based on the ratings of Substantial for economic efficiency and Substantial on the margin for implementation efficiency, the ICRR rates the Project's overall efficiency as Substantial.

Efficiency Rating

Substantial



a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

A split evaluation has been carried out for assessing the Project's outcome.

Assessment of Project Outcome

Indicator	Before Restructuring	After 2015 Restructuring	After 2019 Restructuring	After 2021 Restructuring
Relevance	High	High	High	High
Efficacy	Modest	Substantial	Substantial	Substantial
Objective 1	Modest	Not rated	Not rated	Not rated
Objective 2	Modest	Not rated	Not rated	Not rated
Revised Objective 1	Not rated	Substantial	Substantial	Substantial
Revised Objective 2	Not rated	Substantial	Substantial	Substantial
Efficiency	Substantial	Substantial	Substantial	Substantial
Outcome Rating	Moderately Unsatisfactory	Satisfactory	Satisfactory	Satisfactory
Outcome Value	3	5	5	5
Disbursement	US\$62.85 million	US\$ 229.67 million	US\$ 179.24 million	US\$42.57 million
Disbursement percentage	12%	45%	35%	8%
Weight value	0.36	2.25	1.75	0.40
Total Weight	0.36+2.25+1.40+0.40=4.76 (rounded to 5)			
Overall Outcome Rating	Satisfactory			



Rating of Outcome: Based on the split evaluation, the ICRR rates the Project's outcome as **Satisfactory**.

a. Outcome Rating
Satisfactory

7. Risk to Development Outcome

Technical and Operational Risks: These are rated Moderate. Most of the project investments were carried out under DBOT or HAM PPP arrangements with in-built provisions for covering O&M costs for a period of 10 years after start of operations. After that, coverage of O&M costs would depend upon timely and adequate availability of funds for meeting O&M needs. The States concerned have the responsibility for ensuring adequate funding. There is a risk that changing budgetary constraints and policy considerations (affecting tariffs) may affect the availability of the required funds.

Institutional Risks: These are rated Moderate. The key institutions responsible for overseeing and implementing the NGP are dependent on budgetary funding from the Centre and State Governments. At present, both the Central and State governments are giving priority to supporting these institutions, including ensuring adequate levels of professional staffing. There is a risk that changing circumstances and budgetary constraints could in future affect the availability of the necessary resources for these institutions to carry out their responsibilities.

8. Assessment of Bank Performance

a. Quality-at-Entry

(Reference ICR paras. 99 to 102).

The Bank commissioned adequate multi-disciplinary resources to undertake the preparation of the Project. Design of the Project was based on considerable underlying research and analysis, including lessons learned from the earlier experience in India under the Ganga Action Plan. The preparation process itself was highly consultative at all levels - Centre, State, and local. However, as acknowledged in the ICR (para. 99), there were significant weaknesses in the quality at entry. There were significant weaknesses in the design of some of the PDO indicators and Intermediate Results Indicators including in regard to measurability. Project costs, including those for Component 1 (institutional strengthening) were substantially overestimated (e.g., for Component 1, an allocation of US\$200 million against an actual cost of US\$10 million). The main implementing agencies (NMCG and SCMGs) were not sufficiently functional, and Environmental Assessments (EAs) were not finalized, consequently, the assessed capacity was overestimated. The Bank's assessment of readiness for implementation was



overambitious. A number of institutional development activities were assessed as 'ready to go' and it was also assessed that a number of identified infrastructure investments would be 'ready in a few months'. These claims proved to be inconsistent with the realities on the ground that the NMCG and SPMGs had not yet been set up as functional organizations. The quality of a number of Detailed Project Reports (DPRs) related to the identified investments were found to be inadequate and did not meet the standards set up under the NGRBPA Investment Framework. In summary, the ICR states (para. 99) that the readiness assessment overestimated the absorptive capacity of the implementing agencies and underestimated the complexity and novel nature of the NGRBA Program Framework. The significant shortcomings in the quality at entry contributed to the continuing delays in project implementation during the first half of the implementation period.

Quality-at-Entry Rating Moderately Unsatisfactory

b. Quality of supervision

During project implementation, the Bank supervision team remained focused on development and was proactive in identifying emerging or anticipated issues and seeking solutions with the counterparts. The Bank was responsive to the client's requests for restructurings and worked flexibly with the counterparts to modify the Results Framework, components, disbursement categories, financing arrangements, and the total financing envelope. The Bank provided substantial support in the implementation of the NGRBA Framework, including assistance for problem-solving and ways to improve efficiency in the application of the Framework. This included extensive comments on the DPRs to help the NMCG and SPMGs to ensure compliance with the NGRBA Framework. The Task Team also mobilized resources to help develop innovative ideas into actionable programs and agendas. This included the Bank team's collaboration with the International Finance Corporation (IFC) to help develop the HAM-PPP (Hybrid Annual Model - Public Private Partnership) which was employed in several of the investment subprojects. The model helped provide adequate financing for O&M activities which was one of the major deficiencies in functioning of the treatment plants. During the project implementation period, the Bank undertook a total of 17 implementation support missions (ISMs) in addition to supplementary safeguards and fiduciary visits as needed. Aide Memoires were generally comprehensive, and action focused. Implementation status and results reports (ISRs) were candid (the Project ratings for Implementation Progress and Development Objectives were maintained at Moderately Unsatisfactory during the period 2012 to 2019) and were filed in a timely manner.

Quality of Supervision Rating Satisfactory

Overall Bank Performance Rating Moderately Satisfactory

9. M&E Design, Implementation, & Utilization



a. M&E Design

(Reference ICR paras. 80 to 83).

As acknowledged in the ICR (para. 80), the M&E system design at appraisal had shortcomings with regard to the Results Framework, target setting and data collection. By Project closing, only one of the three original indicators and three out of the original 19 intermediate results indicators remained (discussed earlier in Section 2 under Restructurings). During project implementation, substantial changes were required to be made in the indicators. While some of these reflected the changing composition of the investment program at the request of the GoI (e.g., limiting the focus primarily to wastewater treatment investments and dropping industrial pollution control and solid waste management; adding of household sewer connections), other changes had to be made because the indicators were either inadequately designed or unrealistic in their ambition. These shortcomings had to be addressed during project implementation.

b. M&E Implementation

During implementation, several modifications were made to the M&E system and Results Framework to address the shortcomings in the original design. The ICR acknowledges (para. 82) that M&E implementation up to the time of the MTR (in July 2015) was negligible as M&E staff positions at NMCG and SPMGs remained vacant, and the Project's implementation progress itself was limited. While M&E staffing at NMCG improved after the MTR, inadequate M&E capacity and staffing continued in some of the SPMGs. Following the launch of the NGP, and the turnaround in implementation, the M&E system operation improved. This included an improvement in progress reporting with NMCG starting to publish Monthly Progress Reports that provided cumulative progress on investments and institutional activities within which the Project-funded activities were clearly marked.

c. M&E Utilization

Data from the M&E system started informing Project management decisions and advice from the Bank primarily only in the last three years of project implementation (2018 to 2021). The improved M&E system was utilized by the Bank and NMCG to agree on changes to the Results Framework in 2019, including decisions on how much of the financing should be cancelled and the selection of investments to be carried over to the SNGRBP. The ICR indicates (para. 83) that the M&E system provided sufficient information for the preparation of the ICR.

Overall Rating of M&E Quality: While there were significant weaknesses in the M&E system as designed, and improvements in the M&E system were relatively slow in coming during the implementation period, the system was substantially strengthened to the point that it started providing adequate information in the last three years of project implementation, supporting decision-making during this period. The ICRR rates the overall M&E quality as Substantial on the margin.

M&E Quality Rating

Substantial



10. Other Issues

a. Safeguards

(Reference ICR paras. 85 to 90).

The Project was designated Category A - Full Assessment. The Project triggered the following safeguards: Environmental Assessment (EA) - OP 4.01; Involuntary Resettlement (IR) - OP 4.12; Indigenous Peoples (IP) OP 4.10; Physical Cultural Resources (PCR) - OP 4.11; and Projects on International Waterways (PIW) - OP 7.50.

Environmental: An Environmental and Social Assessment (ESA) was prepared. An Environmental and Social Management Framework (ESMF) was prepared because the exact locations of the investments were not known. During implementation, Environmental Management Plans (EMPs), Social Management Plans (SMPs); and Resettlement Action Plans (RAPs) for high-impact investments were prepared by third parties and disclosed. Environmental and Social Due Diligence Reports (ESDDR) were prepared. However, the ICR reports (para. 86) that E&S compliance was slow and turbulent leading to prolonged preparation delays in the first seven years of implementation. The ICR indicates that NMCG, affected by staffing issues, did not submit quarterly reports and no annual E&S audits were conducted. The situation improved after 2019. The ICR confirms that in the last two years of the Project the NMCG and SPMGs had adequate staffing; there were well established governance systems at SPMGs with reliable support from NMCG; and the systems were adequate to support EAs for E&S safeguards implementation. Two independent audits were undertaken which confirmed that by 2020 there was overall compliance with the environmental requirements in the NRGBA Framework. (ICR paras. 85 and 86).

Social: A Resettlement Policy and Land Acquisition Framework (RPLAF) was included in the ESMF and utilized during the Project. Most investments involved transfers of government-owned land required which required that No Objection Certificates (NOC) were obtained from the relevant departments. However, delays in obtaining the NOCs were common. Where private land was needed, the Project prioritized direct purchase agreements. The ICR indicates that, while the process was more efficient than land acquisition, issues encountered were prolonged price negotiations, contested ownership rights, and complications in payment disbursements. Land acquisition was utilized where unavoidable for which RAPs and Abbreviated RAPs (ARAPs) prepared and disclosed. At closing, all RAPs had been fully implemented and only one ARAP was pending to compensate three Project-affected people. All Project Affected Families (PAFs) were eventually compensated and provided training for restoration of income. (ICR para. 87). In addition, two other safeguards were triggered. OP 4.10 was triggered because of the presence of scheduled tribes in some areas. A Tribal Management Framework (TMF) was prepared. The Project investments did not have any impacts on tribal settlements. OP 7.50 on International Waterways was triggered and other riparian countries (China, Nepal and Bangladesh) were notified. No objections were raised. OP 4.11 on Physical Cultural Resources (PCR) was triggered because of possible impacts on cultural properties along the Ganga. No issues arose during implementation. There were issues however in regard to Occupational and Health Safety (OHS). Three workers died at Project sites. Analysis indicated that the accidents were the result of gaps in site management and OHS practices. The Bank Aide Memoires recorded unsatisfactory performance on these aspects during the Component 2 implementation period. In the aftermath of the incidents, procedures for incident reporting were followed, an OHS audit was undertaken, and next-of-kin were duly compensated.



The ICR (para. 90) states that, at Project closing, the E&S (Environmental & Social) safeguards performance was Moderately Satisfactory.

b. Fiduciary Compliance

(Reference ICR paras. 91 to 98).

Procurement: Procurement risk at appraisal was assessed as High. The Procurement Plan included only Component 1 (Institutional Strengthening) because the investments under Component 2 had not yet been identified. While a Procurement Manual was prepared, aligned with the Bank's procurement guidelines, most readiness checks were deferred to the implementation period, EAs had not been prepared, and the implementing agencies were not operational. Delays during investment preparation were driven by lack of staffing and capacity. Delays during the bidding stage were caused by multiple bid validity extensions and delays in contract signing after the Bank's no objection was provided. There were three instances including (i) violation of bank guidelines leading to declaration of misprocurement; (ii) leakage of confidential information during bid evaluation; and (iii) inadequate preliminary bid evaluation reports issued by EAs which had to be revised to ensure compliance. Despite these issues, the Project successfully completed procurement and award of 32 investment contracts (compared to the PAD's estimate of 10 to 20). While procurement efficiency was low through most of the Project's life, it improved in line with other institutional improvements under the GoI's high-priority NGP. The overall performance for procurement was rated Moderately Satisfactory at project closing. (ICR para. 91 to 94).

Financial Management: The risk rating at appraisal was Substantial. A Financial Management Manual was developed for the NGRBA Program which complied with the Bank's fiduciary requirements. However, compliance was an issue over most of the implementation period, largely as a result of inadequate staffing in the implementing agencies. Delays in submission of interim audit reports were chronic and revisions were often required due to unreported or misreported expenditures. External audits identified 'questionable expenses' in some years. While those for earlier years were re-certified and settled during the post-closing grace period, those for FY20-21 (for an amount of US\$28.7 million) were expected to be re-certified during the audit for FY21-22 which is expected by the end of June 2023. Despite these issues, controls were put in place which were successful in flagging discrepancies. The ICR indicates that the FM performance was Moderately Satisfactory. (ICR para. 95 to 98).

c. Unintended impacts (Positive or Negative)

The ICR does not indicate any significant unintended impacts.

d. Other

(Reference ICR paras. 64 to 66).



Gender: The Project was not gender-tagged. Female beneficiaries accounted for about 40% (1.5 million out of 3.74 million) of the total beneficiaries.

Mobilizing Private Sector Financing: The Project helped the NMCG develop the HAM-PPP model which has become the model of choice for wastewater treatment investments under the NGP. The model's transaction structure has increased the confidence of private sector investors as reflected in the increase in the number of bids for STP investments financed under both Bank-financed and NGP-financed investments under the NGP. (ICR para. 65).

Poverty Reduction and Prosperity Sharing: The Ganga basin is home to about 520 million persons including two-thirds of the country's poor. The Project supported investments improved sanitation access in densely populated urban centers and helped extend coverage to low-income areas, thus contributing to increasing equitable access.

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

12. Lessons

(Reference ICR paras. 107 to 112).

The ICR lists a number of lessons derived from the Project experience which have relevance for similar projects carried out in comparable environments. From these, IEG derives the following lessons:

- 1. A mismatch between the ambition of the Project and the absorptive capacity of the client can be detrimental to implementation.** The Project was initially conceived as the first project in the long-term program for rejuvenation of the Ganga. However, in response to the Gol's wishes, the Project's ambition was substantially increased, and the result was that the expanded Project was oversized in relation to the absorptive capacity of the client. A lesson learned is that a Series of Projects/Multiphase Programmatic Approach could be better suited to the absorptive capacity of the client and to help ensure improved implementation with satisfactory results.
- 2. Support of higher-level political champions may facilitate building momentum for change, but achieving development outcomes requires an appropriate administrative architecture and operational/field level champions.** In the case of the Project, project implementation in the earlier years was adversely affected by the limited capacity and mandate of the nodal ministry initially



assigned the responsibility for project oversight. Switching of the nodal ministry responsible to one adequately equipped and empowered to meet the needs of the Project was a critical step in improving project implementation.

3. Creation and strengthening of new institutions takes time and a steady and iterative increase in staffing, mandate, authority, and experience from learning-by-doing. There were prolonged delays in implementation in the earlier years of project implementation. But with progressive increases in staffing, authority, and experience, the implementing agencies (NMCG and most of the SPMGs) were able to function effectively in the later years of project implementation. Project design needs to take into account adequately the time and resources required for the institutions to become effective and the associated implications for implementation.

4. The HAM-PPP model, jointly developed by the World Bank and IFC, is an important contractual innovation for the wastewater sector by helping tackle the challenge of adequate O&M operations and contributing to enhanced operational sustainability. The experience under the Project indicates that the model works and is scalable and replicable. It has the potential to be used in other parts of India and countries with comparable environments.

13. Assessment Recommended?

Yes

Please Explain

The NGRBP was the Bank's first river-basin level project in India that supported interventions whose impacts have economic, social and political considerations. A follow-on project (SNGRBP) is currently under implementation. An assessment of the NGRBP could provide relevant information and insights that could be fed into the implementation of the SNGRBP.

14. Comments on Quality of ICR

The ICR is well-written, candid, and generally follows the OPCS guidelines except in regard to length and it does not undertake a split evaluation as discussed below. It provides an adequate theory of change in regard to the causal links and the results chain. The reporting is outcome focused. The analysis is generally evidence based but constrained to some extent by some weaknesses in the Project's M&E system. The ICR provides lessons from the Project's experience that have broader relevance for similar projects executed in comparable environments. Although the project had restructurings under which the targets for some of the PDO indicators and Intermediate Results Indicators were reduced (indicating a reduction in the ambition or revised ambition of the Project), the ICR did not include a split evaluation. However, this did not ultimately affect the outcome of the Project (which was rated Satisfactory in the ICR as well as the ICRR). The length of the ICR (at 31 pages) exceeded the recommended length of 15 pages for ICRs. The ICR had some inconsistencies in reporting the



actual cost at Project closing - the Data Sheet indicates a total cost of US\$673.23 million while Annex 3 indicates an actual cost of US\$1,126 million.

a. Quality of ICR Rating
Substantial