Document of
The World Bank

Report No: Report No: ICR00003082

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-57296)

ON A

GLOBAL ENVIRONMENTAL FACILITY TRUST FUND

GRANT

IN THE AMOUNT OF US$ 5.0 MILLION

TO THE

REPUBLIC OF THE PHILIPPINES

FOR A

GEF MANILA THIRD SEWERAGE TREATMENT PROJECT

November 4, 2014

GWADR
EACPF
East Asia and Pacific

CURRENCY EQUIVALENTS

(Exchange Rate Effective November 28, 2006)

Currency Unit = Philippine Peso1.00 = US$ 0.020
US$ 1.00 = Peso 51.00

(Exchange Rate Effective May 31, 2014)

Currency Unit = Philippine Peso
1.00 = US$ 0.023
US$ 1.00 = Peso 43.83

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
BOD	Biochemical Oxygen Demand
BOD5	Dissolved oxygen consumed in five days by biological processes breaking down organic matter.
CAS	Country Assistance Strategy
CWA	Clean Water Act
DAO	DENR Administrative Order
DENR	Department of Environment and Natural Resources
DOH	Department of Health
DPWH	Department of Public Works and Highways
EIA	Environmental Impact Assessment
EMB	Environmental Management Bureau
EMP	Environmental Management Plan
EUF	Environment User Fee
FASPO	Foreign Assisted and Special Projects Office, DENR
FM	Financial Management
GEF	Global Environmental Facility
GEO	Global Environmental Objective
GOP	Government of the Republic of Philippines
IBRD	International Bank for Reconstruction and Development
JSSTP	Joint Septage and Sewage Treatment Plant
LGU	Local Government Unit
LISCOP	Laguna de Bay Institutional Strengthening and Community Participation
LLDA	Laguna Lake Development Authority
M&E	Monitoring and Evaluation
MBCO	Manila Bay Coordinating Office
MM	Metropolitan Manila
MMDA	Metropolitan Manila Development Agency
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSSP	Manila Second Sewerage Project
MTSP	Manila Third Sewerage Project
MWCI	Manila Water Company Inc.
MWSI	Maynilad Water Services, Inc
MWSS	Metropolitan Waterworks and Sewerage System
NCR	National Capital Region
OSEC	Office of the Secretary
PASS	Public Assessment on Sewerage and Sanitation Services
PAWS	Public Assessment of Water Services
PCC	Project Coordinating Committee
PCR	Project Completion Report
PDO	Project Development objective
PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
PIC	Partnership Information Centre

PMO	Project Management Office		Sanitation Master Plan
PRRC	Pasig River Rehabilitation Commission	STP	Sewage Treatment Plant
		TA	Technical Assistance
RO	Regulatory Office	TOR	Terms of Reference
SDP	Sector Development Program	TWG	Technical Working Group
SpTP	Septage Treatment Plant	WQMA	Water Quality Management Area
SSMP	MWSS updated Sewerage and		

Vice President: Axel van Trotsenburg
Country Director: Motoo Konishi
Practice Manager: Ousmane Dione
Project Team Leader: Maya Villaluz
ICR Team Leader: Claire Grisaffi

REPUBLIC OF THE PHILIPPINES

GEF Manila Third Sewage Treatment Project

CONTENTS

A. Basic Information			
Country:	Philippines	Project Name:	PH-GEF-Manila Third Sewerage Project
Project ID:	P089082	L/C/TF Number(s):	TF-57296
ICR Date:		ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	
Original Total Commitment:	US$ 5.00M	Disbursed Amount:	US$ 4.97M
Revised Amount:	US$ 5.00M		
Environmental Category: B		**Global Focal Area: I**	
Implementing Agencies: DENR, MWSS, LLDA			
Cofinanciers and Other External Partners: Maynilad Water Services Inc. (MWSI) provided co-financing of US$3.35M			

B. Key Dates				
Process	**Date**	**Process**	**Original Date**	**Revised / Actual Date(s)**
Concept Review:	08/10/2005	Effectiveness:		08/16/2007
Appraisal:	09/06/2006	Restructuring(s):		11/27/2012
Approval:	06/26/2007	Mid-term Review:	12/15/2010	12/13/2010
		Closing:	11/30/2012	05/31/2014

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Moderately Unsatisfactory
Risk to Development Outcome:	Substantial
Bank Performance:	Moderately Unsatisfactory
Borrower Performance:	Moderately Unsatisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	**Ratings**	**Borrower**	**Ratings**
Quality at Entry:	Moderately Unsatisfactory	Government:	Moderately Unsatisfactory
Quality of Supervision:	Moderately	Implementing	Moderately

	Unsatisfactory	Agency/Agencies:	Unsatisfactory
Overall Bank Performance:	Moderately Unsatisfactory	**Overall Borrower Performance:**	Moderately Unsatisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating**
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Unsatisfactory		

D. Sector and Theme Codes

	Original	**Actual**
Sector Code (as % of total Bank financing)		
Wastewater Treatment and Disposal	56	56
Central government administration	37	37
Sub-national government administration	7	7
Theme Code (as % of total Bank financing)		
Environmental policies and institutions	25	25
Pollution management and environmental health	25	25
Water resource management	24	24
Other public sector governance	13	13
Other Private Sector Development	13	13

E. Bank Staff

Positions	**At ICR**	**At Approval**
Vice President:	Axel van Trotsenburg	
Country Director:	Motoo Konishi	Joachim von Amsberg
Practice Manager:	Ousmane Dione	Keshav Varma
Project Team Leader:	Maya Gabriela Q. Villaluz	Luiz Claudio Martins Tavares
ICR Team Leader:	Claire Grisaffi	
ICR Primary Author:		

F. Results Framework Analysis

Global Environment Objectives (GEO) and Key Indicators(as approved)
The GEF project development objectives are to assist the GOP in the Project Areas in: (a) identifying essential adjustments to administrative, institutional, and regulatory practices and existing legislations in order to attract private investments in the Recipient's wastewater sector; (b) promoting innovative, simple and effective wastewater treatment techniques; and (c) increasing the effectiveness of the agencies responsible for water pollution control through improved coordination.

Revised Global Environment Objectives (as approved by original approving authority) and Key Indicators and reasons/justifications

(a) GEO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1: Coverage of sewage service in MWSS jurisdiction (% of population)				
Value (quantitative or qualitative)	12	20	18	12
Comments (incl.% achievement)	Target not achieved. Outside of the scope or control of the project.			
Date	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Indicator 2: Coverage of sanitation services in MWSS jurisdiction (% of population)				
Value (quantitative or qualitative)	24	57	100	38
Comments (incl.% achievement)	38% of target met. Outside of the scope or control of the project and therefore quantifying attribution to the project is difficult.			
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Indicator 3: Reduction of pollution reaching Manila Bay; 000 metric tonnes of BOD5/year				
Value (quantitative or qualitative)	0	9	9	2
Comments (incl.% achievement)	22% of target met. Outside of the scope or control of the project and therefore quantifying attribution to the project is difficult. No direct measurement available for this figure, value is estimated by MWSS.			
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Component 1 - Partnership strengthening among the Government agencies responsible for water pollution control				

Indicator 1: Agencies responsible for water pollution control signing a Memorandum of Understanding (MOU) (cumulative #)				
Value (quantitative or qualitative)	0	7	-	7
Comments (incl.% achievement)			No change	100% Target achieved
Date achieved	06/26/2007	01/31/2013	11/27/2012	01/31/2013
Indicator 2: Other stakeholders signing on to this MOU (cumulative #)				
Value (quantitative or qualitative)	0	17	14	14
Comments (incl.% achievement)				100% Target achieved
Date achieved	06/26/2007	11/30/2012	11/27/2012	01/31/2013
Indicator 3: Bi-annual Partnership meetings (cumulative #)				
Value (quantitative or qualitative)	0	10	-	19
Comments (incl.% achievement)			No change	Target exceeded.
Date achieved	06/26/2007	11/30/2012	11/27/2012	01/31/2013
Indicator 4: Water quality monitoring areas established				
Value (quantitative or qualitative)	0	-	3	1
Comments (incl.% achievement)			Introduced at restructuring	33% of target completed
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Indicator 5: Numbers of policy issuance (administrative orders) on sewerage and sanitation related matters issued by national authorities				
Value (quantitative or qualitative)	0	8	-	4
Comments (incl.% achievement)			No change	50% of target met Notifications on three WQMAs and the Sanitation Ordinance issued in draft by DILG. Following completion three more Administrative orders were issued on policy documents developed under the project.
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Indicator 6: Publication of annual Metropolitan Manila (MM) Water Quality Monitor (cumulative #)				
Value (quantitative or	0	3	2	0

qualitative)				
Comments (incl.% achievement)				Target not met
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Indicator 7: Testing of Public Assessment of Water Services with sewerage and sanitation parameters				
Value (quantitative or qualitative)	0	1000	1000	1000
Comments (incl.% achievement)		Cumulative number of barangays – 20 hh per barangay	Unit changed from number of barangays – to number of households	Target met
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Component 2 - Planning and policy development				
Indicator 1: Sewerage and sanitation master plan with new criteria updated				
Value (quantitative or qualitative)	0	1	-	0
Comments (incl.% achievement)			No change	Master Plan is updated, but not yet approved. Estimated 80% complete
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Component 3 - Innovative financing				
Indicator 1: Number of investment proposals using innovative financing mechanism for sewerage and sanitation in Metropolitan Manila				
Value (quantitative or qualitative)	0	2	-	3
Comments (incl.% achievement)			Changed from number of Contracts using innovative financing mechanism to number of proposals.	Target exceeded.
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Component 4 - Use of Market-based Incentives				
Indicator 1: Number of establishments covered by the environment user fee (cumulative #)				
Value (quantitative or qualitative)	1000	1800	2400	2922
Comments (incl.% achievement)				Target exceeded. Difficult to attribute to the project.
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014

Indicator 2: Parameters covered by the environment user fee (cumulative #)				
Value (quantitative or qualitative)	1	3	-	1
Comments (incl.% achievement)			No change	Target not met. Policy recommendations drafted. One additional indicator (TSS) was introduced under another project.
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Indicator 3: Biochemical Oxygen Demand (BOD) discharged from all regulated sources (metric tonnes per year)				
Value (quantitative or qualitative)	1500	1215	4682	4104
Comments (incl.% achievement)	Baseline revised to **5202** in 2010		Target reduction of 10% from 2010 baseline	Target reduction exceeded. Difficult to attribute to the project
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Component 5 - Rate rebasing				
Indicator 1: Coverage of sewerage service in Manila Water Company, Incorporated (MWCI) concession area as result of 2008 rate rebasing adjustment (as % of water connections)				
Value (quantitative or qualitative)	10	30	18	12
Comments (incl.% achievement)	Baseline revised to **8%** in 2010		Recipient revised from MWCI to MWSI	40% of target increase reached. Attribution to rate rebasing is difficult
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Indicator 2: Coverage of sanitation service in MWCI concession area as result of 2008 rate rebasing adjustment (as % of water connections)				
Value (quantitative or qualitative)	5	70	68	47
Comments (incl.% achievement)			Recipient revised from MWCI to MWSI	66% of target increase reached. Attribution to rate rebasing is difficult
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014
Component 6 - Joint sewage and septage treatment plant (JSSTP)				
Indicator 1: Reduction of costs per m3 of septage collection, treatment and disposal using joint treatment as compared to separate septage treatment (%)				
Value (quantitative or qualitative)	0	20	-	20
Comments (incl.% achievement)			No change	Target reached.
Date achieved	06/26/2007	11/30/2012	11/27/2012	05/31/2014

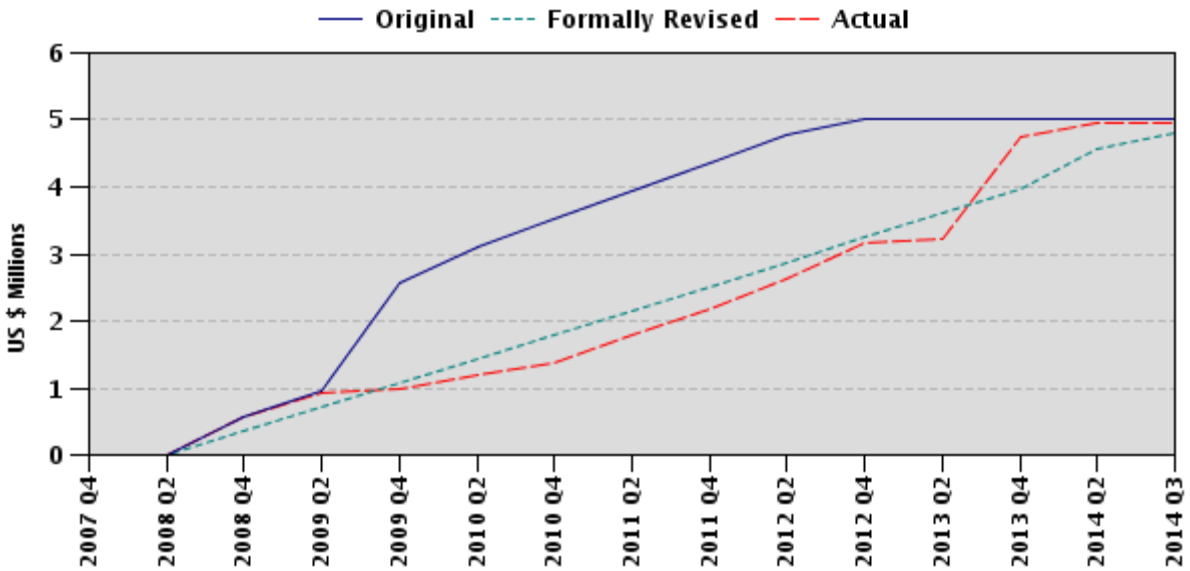
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	GEO	IP	Actual Disbursements (US$ millions)
1	06/27/2008	Satisfactory	Satisfactory	0.56
2	06/03/2009	Satisfactory	Moderately Satisfactory	1.00
3	05/20/2010	Satisfactory	Moderately Satisfactory	1.32
4	04/05/2011	Satisfactory	Moderately Satisfactory	1.99
5	02/25/2012	Satisfactory	Moderately Satisfactory	2.83
6	04/22/2013	Moderately Satisfactory	Moderately Satisfactory	3.49
7	12/29/2013	Moderately Unsatisfactory	Moderately Satisfactory	4.97
8	05/09/2014	Moderately Unsatisfactory	Moderately Unsatisfactory	4.97

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in US$ millions	Reason for Restructuring & Key Changes Made
		DO	IP		
11/27/2012	No	S	MS	3.24	(a) Extension of Grant Closing Date by 18 months to May 31, 2014, to enable financing equipment for the JSSTP. (b) Amendment of Indicators to reflect realistic baseline conditions and achievable targets. (c) Addition of one indicator for establishment of WQMAs (d) Correction of Name of Recipient Agency for rate rebasing

I. Disbursement Profile


Original
Formally Revised
Actual
US $ Millions
6
5
4
3
2
1
0
2007 Q4
2008 Q2
2008 Q4
2009 Q2
2009 Q4
2010 Q2
2010 Q4
2011 Q2
2011 Q4
2012 Q2
2012 Q4
2013 Q2
2013 Q4
2014 Q2
2014 Q3

1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. Metropolitan Manila (MM), the capital of the Philippines is located in the hydraulically complex Pasig River - Laguna de Bay - Manila Bay watershed. Manila Bay is an important economic zone, producing 35-40% of the national GDP. All MM waterways are heavily polluted and the key watercourses, the Marikina and Pasig Rivers, are biologically dead. Up to 75% of pollution is caused by domestic sewage, with the rest originating from industry. Within MM less than 15% of residents are connected to a sewerage system, and most of the wastewater from sewerage and septage is discharged without treatment.

2. The water pollution control sector is complex and fragmented; many government agencies are involved, including: Department of Environment and Natural Resources (DENR), Metropolitan Waterworks and Sewerage System (MWSS) - and its two concessionaires, Manila Water Company Inc. (MWCI) and Maynilad Water Services Inc. (MWSI) - Department of Health (DOH), Laguna Lake Development Authority (LLDA), Pasig River Rehabilitation Commission (PRRC), and local government units (LGUs). The Government of the Philippines (GOP) has taken steps to address the problems in the sector, including policy changes and investment. The GOP enacted the Clean Water Act 2004 (CWA-2004)[1] which aims to protect the country's water bodies from pollution from land-based sources and provides for a comprehensive strategy to prevent and minimize pollution through a multi-sectoral approach. DENR is the primary government agency responsible for the implementation and enforcement of this Act; the responsibility for environmental sanitation, specifically domestic wastewater was a new extension to its mandate.

3. The World Bank has been involved in wastewater sector development in MM for many years, primarily through a series of investment projects under the leadership of MWSS. The GEF project was developed to provide technical assistance (TA) to the Manila Third Sewerage Project P079661 (MTSP) financed by an IBRD loan of US$64 million (approved by the Board in 2005 and closed 2012) and implemented by MWSS. The GEF project was also initially envisaged to be implemented by MWSS and preparation started at around the same time. However the scope of activities required in identifying and targeting hot spots and water quality monitoring meant that it was ultimately within the mandate of DENR. At the time of appraisal, despite their assigned mandate, DENR did not have any experience in domestic wastewater management projects, had no dedicated sanitation department and did not consider domestic wastewater as a high priority. The level of ownership within DENR and enthusiasm to take on this new role in domestic wastewater was relatively limited. On the contrary MWSS has an established role in implementing wastewater management projects, but no mandate in overall water quality management and monitoring. There was therefore a level of tension over the potentially competing and overlapping responsibilities and mandates. The discussions between the implementing agencies took almost two years before the GEF project eventually started in 2007.

[1] Key relevant aspects of this Act are; (a) the requirement for DENR to designate water quality management areas and establish multi-sectoral governing boards to manage water quality issues within their jurisdiction; (b) the requirement for all owners or operators of facilities that discharge wastewater to get a permit to discharge from the DENR or the Laguna Lake Development Authority; and (c) the development of Fiscal and non-fiscal incentives for LGUs, water districts, enterprise, private entities and individuals who undertake outstanding and innovative projects in water quality management

4. This project was financed by the Strategic Partnership Investment Fund for Pollution Reduction in the Large Marine Ecosystems of East Asia (the Fund), under the GEF's Contaminant-Based Operational Program No 10. The objectives of the project were consistent with the World Bank, 2001 Global Environment Strategy and the 2005 EAP Environment Strategy.

1.2 Original Global Environment Objectives (GEO) and Key Indicators

5. The GEO is to assist the GOP in the Project Areas in:

a. identifying essential adjustments to administrative, institutional, and regulatory practices and existing legislations in order to attract private investments in the Recipient's wastewater sector;
b. promoting innovative, simple and effective wastewater treatment techniques; and
c. increasing the effectiveness of the agencies responsible for water pollution control through improved coordination.

6. Key original GEO indicators are as follows:

a. Coverage of sewage service in MWSS jurisdiction (% population); increase from 12 to 20
b. Coverage of sanitation service in MWSS jurisdiction (% population); increase from 24 to 57
c. Pollution reaching Manila Bay (1,000 metric tons of BOD5/year); reduction of 9

1.3 Revised GEO (as approved by original approving authority) and Key Indicators, and reasons/justification

7. There were no changes to the GEO. Following the midterm review the baseline and the targets for the key indicators were revised as follows:

a. Coverage of sewage service in MWSS jurisdiction (% population); increase from 8 to 18
b. Coverage of sanitation service in MWSS jurisdiction (% population); increase from 24 to 100
c. Reduction of pollution reaching Manila Bay (1,000 metric tons of BOD5/year); no change

8. Changes were made to the baseline and target values for the intermediate indicators as described in the project data sheet. One additional indicator was added; establishment of Water Quality Management Areas (WQMAs). Both the GEO and the intermediate indicators were revised with the aim to reflect realistic baseline conditions and achievable targets.

1.4 Main Beneficiaries

9. The project activities will have a direct impact on around 19 thousand people, including the following beneficiary groups:

a. 18,500 people within Quezon City, whose wastewater will be treated in the Joint Septage and Sewerage Treatment Plant (JSSTP), benefiting from improved sewerage and septage services.
b. 14 LGUs who have been supported through an MoU with DENR to develop action plans to improve wastewater management
c. 60 staff from; DENR, MWSS, MWCI, MWSI, DPWH, DILG, MMDA, PPRC and 11 LGUs who have been trained on data management systems and Geographic Information Systems
d. 160 staff from DENR, LLDA, DoH, MWSS and concessionaires, MMDA, PRRC and nine LGUs (including Barangay officials) who benefitted from workshops on community organizing for sanitation and sewerage improvement and water quality monitoring
e. LLDA who benefitted from technical assistance market based instruments, including (i) extending and restructuring the Environmental User Fee (EUF) and (ii) innovative financing models for investments into environmental sanitation
f. DENR who benefitted from technical assistance to develop draft policies on sanitation and

sewage management. In addition, Makati and Quezon LGUs which benefitted from the draft policy on septage management to develop Ordinances

g. MWSS, and DENR, who benefitted from technical assistance to draft updates to the Sewerage and Sanitation Master Plan (SSMP), pilot the Public Assessment on Sewerage and Sanitation Services (PASS) and improve the rate rebasing process

10. Indirect beneficiaries are extensive and include (a) Low income-class communities around the JSSTP who benefit from improved quality of effluent and reduced odor; (b) National and local institutions benefitting from support to the implementation of the CWA-2004; (c) Large sections of MM who are expected to benefit from improved water quality in the long term; and (d) National and local agencies as well as MM communities that will benefit from the future implementation of the policies.

1.5 Original Components

11. The seven GEF project components are described below. Component 1-6 combine to identify impediments to cooperation among sector agencies and to investments in sewerage and sanitation. Component 7 supports project management, monitoring, evaluation and dissemination.

1. Partnership strengthening among the Government agencies responsible for water pollution control ($1.00M)
2. Planning and policy development ($0.5M), including Updating the 2013 MM SSMP. Developing or updating relevant policy instruments
3. Innovative financing ($0.5M): Development and testing of financing options and identification of incentives for private sector participation
4. Use of Market-based Incentives ($0.1M)
5. Support to MWSS Rate rebasing ($0.6M)
6. Joint sewage and septage treatment plant (JSSTP) ($4.7 million - $1.3 million financed by GEF, remainder from the Counterpart funds)
7. Project Management ($1.0 Million) support to DENR

1.6 Revised Components

12. During restructuring one activity was added to Component 1; establishment of three WQMAs.

1.7 Other significant changes

a. The end of the project was extended from November 30, 2012 to May 31, 2014. This 18 month extension was required to ensure that the joint septage and sewage treatment plant (JSSTP) to be fully operational before the grant closing date. There was no increase to the project budget as a result of this extension.

b. The name of the Technical Assistance (TA) recipient agency for rate rebasing was changed from Manila Water Company Inc. (MWCI) to Maynilad Water Services Inc. (MWSI). MWCI had completed rate rebasing negotiations before the Grant was approved.

2. Key Factors Affecting Implementation and Outcomes

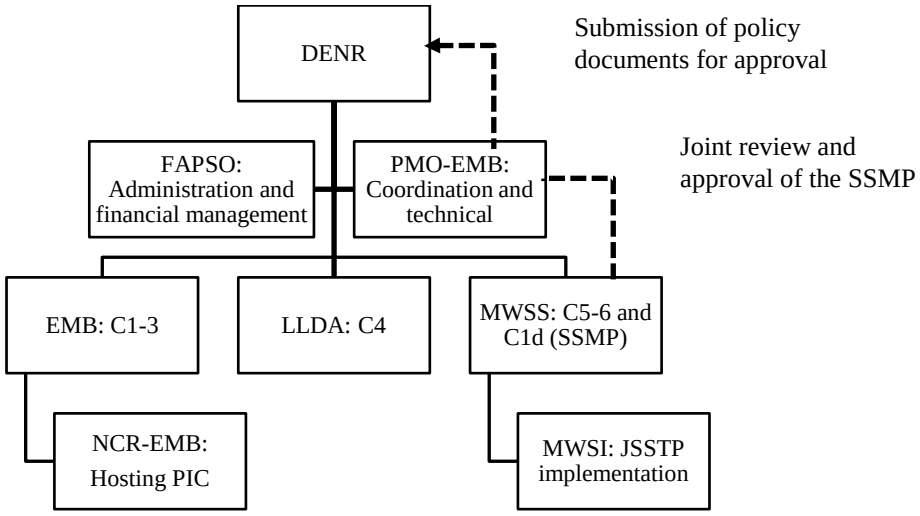
2.1 Project Preparation, Design and Quality at Entry

13. **Application of Lessons Learned**. The GEF project preparation was supported by analysis and experience gained through the previous Manila Sewerage Projects. The project made efforts to identify and incorporate lessons learned. One of the issues highlighted was the need to engage all stakeholders, including civil society, in order to catalyze large-scale structural change

in the sector. The project incorporated a strong focus on building partnerships between different agencies in order to increase efficiency and impact. In addition, the project took on board the lessons learnt during the 2002-03 rebasing exercise when the Government had insufficient information to prioritize environmental issues during its negotiations with concessionaires.

14. **Stakeholder Participation**. Stakeholder participation during preparation was good. All participating agencies were involved in consultation and their concerns were incorporated into the project which led to a much broader project scope. While this process increased ownership by the different stakeholders it also contributed to the complexity of the project. Several public consultations were done during the Environmental Assessment, including meetings with local residents, communities, local government representatives, and analysis of public opinion.

15. **Implementation arrangements**: A number of agencies were responsible for project implementation, reflecting the complexity of the water pollution control sector and the different responsibilities and mandate of each agency. Components 1-3 were led by DENR's Environmental Management Bureau (EMB). Component 4 was implemented by the Laguna Lake Development Authority (LLDA). Components 5 and 6, and also part d of Component 1, were carried out by Metropolitan Waterworks and Sewerage System (MWSS). Coordination of these agencies and day-to-day management of the project was carried out by the Project Management Office (PMO) within DENR. General administration (including procurement, financial management, selection and contract management of consulting services), and progress reporting, was provided by the Foreign Assisted and Special Projects Office (FASPO), also within DENR. The Pasig River Rehabilitation Commission (PRRC) and the Manila Bay Coordinating Office (MBCO) were involved in the activities to harmonize water quality monitoring.



16. The institutional and technical capacities of DENR and MWSS were reviewed during preparation and found to be largely adequate. Some capacity building needs were identified and conducted during project implementation.

17. A detailed study of the capacity of LGUs to improve environmental sanitation was not completed. LGUs were known to have relatively low capacity in the domestic wastewater sector and not to see it as a priority area for budget allocation; these constraints were the drivers for engaging the LGUs in the project as important stakeholders.

18. **Risks and their mitigation**. The majority of the risks identified during preparation did

materialize during project implementation, and led to delays including; (a) procurement delays due to low capacity, (b) the risk of low investment from the concessionaires (c) the difficulties of reaching efficient working partnerships among the major agencies; and (d) potential administrative bottlenecks given the numerous participating agencies. There were no new risks found during implementation and in this sense the identification of risks was very accurate. However the '**modest**' risk level identified during preparation did not fully reflect the fact that DENR had previously done little work on regulation of domestic wastewater, had limited capacity in the sub sector, regarded domestic waste as a relatively low priority and had no direct mandate in sanitation infrastructure provision. For example both (a) the risk of low investment from the concessionaires; and (b) difficulties in partnering among the major agencies; should have been set at 'high', rather than 'modest'. Mitigation measures were integrated into the design of the project – for example through partnership development, but were not sufficient to address the difficult context. Additional measures should have been taken, such as reducing the scope and simplifying the GEO to include a single aim. With hindsight, despite the small size of the project, given the complex design and ambitious scope the risk level should have been assessed as '**substantial'**.

19. **Assessment of overall design.** The project was relevant and responded to the needs and priorities of DENR and MWSS. It directly supports the implementation of CWA-2004 and also contributed to the Country Assistance Strategy's (CAS 2006-2008) focus on efficient provision of basic services and the importance of good environmental management to support growth. The preparation met Bank fiduciary, social and environmental safeguard policies, including public disclosure of all required documents.

20. The project design attempted to reflect the realities of the water pollution control sector and such is highly complex, with seven components covering a diverse range of technical areas and three implementing agencies. Locating the PMO under the supervision of both FASPO and EMB introduced additional reporting and approval steps in the project management. Combining the implementation of sewage treatment works under the auspices of the environmental regulatory authority, DENR, introduced additional complexities and, as described above, there was an inherent tension in the project due to the new mandate of DENR and the existing role of MWSS. In addition during project preparation there were limited attempts to provide systematic support which might have made partnership development more successful, for example the project did not complete an assessment of each agency to determine how their organization and procedures might help or hinder partnership development. The design of the monitoring framework reflected the complexity and ambition of the project; with GEO indicators projecting ambitious MM wide improvements in sanitation and sewerage.

21. There was no formal Quality at Entry review for the project. Due to the high level of complexity in the design, and under estimation of the risk, this ICR concludes that Quality at Entry was Moderately Unsatisfactory.

2.2 Implementation

22. **Overall Implementation** was rated as consistently Moderately Satisfactory in Implementation Status Reports (ISRs). Although the project has completed the majority of the planned outputs, and disbursed the full grant allocation, only 8 of the 15 intermediate indicators and none of the GEO indicators, have been achieved. In the final ISR the Implementation Progress was therefore downgraded. The project implementation faced a number of challenges as summarized below;

a. Rapid staff turnover of all PMO members, for example the Project Manager changed four

times during implementation. This high turnover was due in part to a requirement that the Project Manager be at Director Level which aimed to increase the profile of the project, but instead led to reduced management support as Directors had few incentives to stay with the project. The technical staff assigned to the project were only assigned part time and were therefore also working on their regular tasks which made it difficult for them to focus in accomplishing their project assignments on a timely basis. This turnover has led to loss of institutional memory, poor information management, weakened coordination and slowed the momentum behind implementation. The most tangible impact of this is in the delivery of the SSMP; which was drafted and consulted upon, but not finalized under the project;

b. Lack of resources to provide sustained follow up, particularly with LGUs. LGUs are often under resourced and sanitation and sewerage is typically a low priority. The 3 year election cycle for LGUs also made developing long term partnerships difficult;
c. Delays in procurement. Implementation of TA started in earnest 2-3 years after approval due to difficulties in finding qualified consultants. The first bidding process for the Joint Sewage and Septage Treatment Plant (JSSTP) failed due to the low quality of submissions – leading to the main project delay and need for a grant extension;
d. Difficulties in contract management; the rate rebasing contract was based on person-weeks, rather than outputs which meant that work was completed by Government agencies; the consultant drafting the policies moved away from the Philippines and transferred this task to a sub-contractor without a full handover of documents;
e. Working across a number of implementing agencies and LGUs and with supervision from both EMB and FASPO within DENR delayed implementation. For example, during construction of the JSSTP the project team found a number of points where the different procedures of DENR and MWSS contradicted each other or had different requirements; the team had to develop shared procedures (including reconciling billing procedures and health and safety procedures) during implementation.

23. The roots of these problem stem from project design as (i) the project was attempting to advocate for an increased priority to be given to domestic wastewater by DENR, from within the organization, and (ii) Partnering between organizations is widely recognized to take additional resources, including substantial political will, and the PMO was not adequately resourced for the task. However it should also be noted that a number of good practices were developed during project implementation to support partnership development, for example;

a. The implementing agencies developed TWGs for each component to review the procurement and deliverables of all consultants and civil works. The head of each TWG also served as the focal point for that component. These TWGs were made up of permanent staff which supported internal capacity building even with the overall reliance on consultants for implementation;
b. In the initial stages of the project the main focus was on consultation and training with LGUs to develop the base for implementing CWA-2004. The large number of LGUs engaged with DENR through MoUs (14 in total) proved difficult to support in practice. Introducing the establishment of WQMAs, a provision under the CWA-2004, during the project restructuring facilitated LGU engagement.
c. Frequent Partnership meetings were used for cross agency coordination and to resolve problems in implementation. These meetings resolved many of the issues faced during the construction of the JSSTP, for example working times and haulage in crowded urban spaces, and are partly credited with ensuring that the construction was completed on schedule.
d. The draft reports and policy instruments have undergone extensive stakeholder consultations and the project has supported public release of water quality data.

24. **Mid Term review and restructuring**. During the mid-term review, when the

restructuring process was started, the project was rated as Moderately Satisfactory. The team noted at the mid-term review that the GEO indicator targets were impossible to achieve by project closure and were not consistent with the MWSS business plan. The main aims of the restructuring were to: (a) Amend Indicators to reflect realistic baseline conditions and realistic and less ambitious, achievable targets; (b) Corrected name of Recipient Agency for rate rebasing. (c) Extend the Grant closing date to enable financing equipment for the JSSTP and support the process proofing.

25. The restructuring was approved in November 2012 and met aims (b) and (c). Aim (a) was also partially met; the baseline was amended and targets for *intermediate* indicators were revised to be more realistic. An additional intermediate indicator to complete the establishment of three WQMAs was introduced to support an integrated approach to water quality management in the catchment. These WQMAs were also used to facilitate the engagement of LGUs in this project which has proved to be an effective approach. However, at the GEO indicator level targets for sanitation and sewerage coverage and BOD loading were either unchanged or made more ambitious. At the mid-term review the Bank team advised the Client that they should reduce the ambition of the project, given the challenges faced. However the Client felt strongly that the activities included were essential and that the contribution of the project to wider impacts in terms of improved sanitation should be measured. The restructuring did not consider changing the implementation arrangements as the work under DENR, LLDA and MWSS were already well advanced.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

26. The GEO indicators were chosen to reflect the links with the IBRD financed investment projects and to keep all actors focused on the long term aim of the partnerships. This important objective has unfortunately impacted negatively on the evaluation of the project as the GEO indicators are well beyond the scope of the project activities and the implementation timeline and have therefore not been met. The monitoring completed by the PMO and participating agencies has focused largely upon the intermediate indicators, which are specific, achievable and relevant for the scale and period of the grant. Regular reports have been completed capturing progress on outputs and the intermediate indicators. MWSS has provided regular updates on the sewerage and sanitation coverage in MM. It has not been possible to measure the "before and after" BOD load for the whole of Manila Bay so the numbers presented were based on good engineering assessment. LLDA have provided regular updates on the pollution rates in Laguna Lake and the institutions monitored. In general reporting has been consistent, although there has not been extensive monitoring of the impact of outputs and indicators once they had been achieved, so this last link in the project cycle is not always clear, as described later in the ICR.

2.4 Safeguard and Fiduciary Compliance

27. **Safeguards.** The project complied with Environmental and Social policies and procedures. The project was determined as a Category B project with OP/BP 4.01 Environmental Assessment triggered, due to the construction of the JSSTP, and a partial environmental assessment required. No other policies are triggered as there is no resettlement, the work is within an existing site used for wastewater storage/treatment and there are no indigenous groups. The project overall had positive environment and social benefits; the new construction has improved the local environment through reduced odor and improved effluent quality and new techniques of wastewater reuse are also being piloted as described later in the ICR. The quality of the treated effluent from this facility now meets the required standards improving the local environment. Given the scale of the pollution in MM the impacts on the greater Manila Bay and Laguna Lake

areas may be difficult to establish.

28. The JSSTP is located in a dense urban area. The site was previously the location of an Imhoff tank; effectively a large septic tank, refilled by desludging trucks. The site footprint was unchanged and therefore impacts were minimized; there were no land acquisition issues and no increase in disturbance due to desludging trucks. The property is owned by the Quezon City government and its continuing use was secured through Usufruct Agreement between the Quezon City government and MWSS. Using an intensive community relations approach the support of the neighborhood was achieved, through collaborating with Barangay leaders, regular community awareness and education programs, hiring local people as laborers and effective traffic management. The original Imhoff tank was constructed in 1955 and had long exceeded its design life. Due to the highly polluted effluent from this tank MWSI has been paying penalties regularly for at least the last six years.

29. The environmental impact of the civil works for the JSSTP was analyzed using the Philippines environmental assessment process (largely compatible with World Bank OP 4.01). The MWSI submitted an Environmental Management Plan (EMP) to DENR, and the World Bank, in 2006 and was granted a Certificate of Non Coverage (CNC No. 0610-16-011). The scope of the environmental monitoring program carried out by MWSI was comprehensive. Overall the project showed good compliance; third party monitoring of environmental parameters were carried out during different phases of construction and provided the basis for mitigation actions, all documentation was in place, good industry health and safety practices were utilized and there were zero lost man hours during construction. An environmental report was completed as part of the construction completion report which cited the compliance requirements that were accomplished during the construction, commissioning and operation phases of the project.

30. The social and environmental safeguard supervision missions were carried out as part of the project implementation support missions. There were no significant findings recorded. All other work under the project was Technical Assistance aiming to improve domestic wastewater management and did not trigger any safeguard policies.

31. **Procurement.** Generally procurement has improved over the project implementation period following a number of delays in the early years of the project. In addition to the issues noted above, the following challenges were faced:

a. It was often difficult to find staff with the required qualifications and expertise; a number of contracts had to be re-advertised. In one case, for the Water Quality Monitor, the procurement process was ultimately cancelled due to repeated delays.
b. The finalization of some deliverables proved difficult as contracts were by person-months, rather than outputs; these include the study for the Rate Re-basing process and for the seven policies, where Consultants moved off the project before submitting final documents. These deliverables were therefore finalized by the Client under counterpart funding.
c. For the SSMP the consultant firm changed individual consultants without completing the required assessment to ensure they met or exceeded the specified qualifications
d. During construction of the JSSTP, procurement was managed by both DENR and MWSS. The lengthy process of obtaining approvals delayed payments to the contractor.

32. **Financial management**. Financial Management (FM) performance was generally rated as Moderately Satisfactory and FM risk rated moderate to substantial throughout the life of the project. The project has substantially complied with the financial covenants which include the submission of the quarterly Interim Financial Reports (IFR) and the annual audited project financial statements. The IFRs were submitted regularly and were acceptable to the Bank and

there were no issues arising from their review. Only one IFR was received on time and at least half of the IFRs were more than 30 days late. Similarly, despite delays every year, annual project Financial Statements have been submitted and the opinions of the auditor were always acceptable to the Bank. Out of the six audit reports submitted, three have unqualified audit opinions and three have qualified audit opinions. Reasons for qualifications include (a) failure to conduct physical inventory-taking casting doubt on the existence, validity and accuracy of the Property, Plant and Equipment (PPE) balances, (b) unreliable cash balance resulting from the unreconciled difference between the general ledger and subsidiary ledger, (c) overstatement of Consultancy Services and Bank Charges, and understatement of Cash in Bank resulting from the double recording of payment to Consultant, and (d) erroneous recording of taxes withheld on payment to Consultant causing overstatement in the Prior Years' Adjustment and understatement of the account Due to Bureau of Internal Revenue. Appropriate actions had since been taken by the project to resolve the issues raised by the auditor. During implementation, there were also delays incurred by the project while waiting for government approvals. Savings made in some components, including the JSSTP and the PASS, have been reallocated effectively to finance other components. However overall management of fund flows has been challenging, partly due to the separation of administrative oversight (FASPO) and technical management (EMB). Over the last two years the fluctuation of exchange rates has impacted the project (at appraisal the exchange rate was 51PhP/US$, now reduced to 43PhP/US$). The project ran short of funding by about US$451,322 due to continuous depreciation of US Dollars against the Peso. GOP has responded positively by financing or incorporating activities into Agencies' future work plans.

2.5 Post-completion Operation/Next Phase

33. **Overall.** The continued implementation of CWA-2004 and the 2008 Supreme Court Mandamus[2] are the drivers supporting the outputs of this project. DENR will be supported through the Manila Bay Integrated Water Quality Management Project (MB-IWQM) to develop monitoring and evaluation systems for Manila Bay and establish the mechanisms for management of the Manila Bay Catchment. In addition the ongoing IBRD financed MM Wastewater Management Project, effective since 2012, will continue to support investments into wastewater treatment in priority environmental areas. Specific support for different outputs post completion is described below:

a. The JSSTP is transferred to MWSI in August 2014. The operation and maintenance (O&M) manual has been completed and MWSI staff are working in parallel with the contractor to ensure a smooth transition. The O&M of the plant will be financed using established systems;
b. DENR is supporting the formation of the Governing Board for the WQMA (San Juan River System) designated under Component 2. DENR will complete the designation of the additional two WQMA (NMTT and Las Pinas) developed under the project;
c. The integration of the PASS into the existing Public Assessment on Water Services (PAWS - developed in 2000) is fully supported by MWSS- Regulatory Office (MWSS-RO);
d. EMB National Capital Region (NCR) has committed to both hosting the Partnership Information Centre (PIC) website and also setting up a physical space to support access to information. The PIC website has continued to be updated following project closure;
e. The restructuring of the EUF and the additional parameters is awaiting review by the LLDA board, but are expected to be formally adopted;
f. All draft policies have been consulted on internally were endorsed by the Inter-agency

[2] The 2008 Supreme Court Mandamus ordered Government agencies to work together to restore to and maintain Manila Bay water quality at Class SB (safe for swimming).

Technical Working Group, reviewed at the Director level and submitted by the PMO to EMB-DENR on May 30, 2014 for endorsement and recommendation to other national government agencies for issuance. Sections of these policies are already in use.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

34. *Rating: High*. The relevance of the aims and scope of the project continues to be high. Pollution from industrial and domestic wastewater is leading to the significant degradation of the ecosystem in MM; fecal coliform levels in Manila Bay and Pasig River still greatly exceed the DENR standards leading to problems of eutrophication. The 2008 Supreme Court Mandamus underlines the relevance and also gave increased impetus to implementation. The activities under this project were reported to the Supreme Court as part of the main interventions in response to the Mandamus. However the project provides only a fraction of the solution; a massive investment (approximately US$5 billion) into wastewater management is required in order to return Manila Bay to a good status. The alignment with CWA-2004 is demonstrated through the continued investment in elements of the project, described in Section 2.5. The relevance of the project was underlined during the joint Asian Development Bank (ADB) and World Bank run conference on wastewater management in January 2014 where a number of Water Districts and other actors highlighted the support needed in order to meet the requirements of CWA-2004. The project aligns with the objective in the Philippines Development Strategy 2011-2016 (NEDA) to improve environmental quality for a cleaner and healthier environment. The project is highly relevant to the World Bank Philippines Country Assistance Strategy 2010-2013 and its commitment to invest in water quality management.

3.2 Achievement of Global Environmental Objectives

Overall Rating: Moderately Unsatisfactory.

35. Overall the project did not manage to achieve the indicators for the Global Environmental Objectives. Coverage of sewage service in MWSS jurisdiction did not markedly increase during the project period. Coverage of sanitation services in the MWSS jurisdiction increased by 14% over the last 7 years (compared to the target of 76%) and the reduction in pollution reaching Manila Bay is estimated as 2000 metric tons of BOD5/year (compared to a target of 9000). Attribution of these changes to this project is very difficult.

36. Despite not meeting these high level indicators the project did make some progress towards achieving the GEO. In total 8 of the 15 intermediate indicators were fully achieved, 3 intermediate indicators were partially achieved and the majority of the planned outputs were completed satisfactorily. This progress is described in the following section, broken down by the three major elements of the GEO. Details of the outputs under each component are provided in Annex 2 and further information on the intermediate indicators is given in Section F of the Datasheet. The rating of Moderately Unsatisfactory takes account of the large amount of work, completed across a wide range of sectors, in a difficult context.

Identifying essential adjustments to administrative, institutional, and regulatory practices and existing legislations in order to attract private investments in the Recipient's wastewater sector (US$ 1.95 million)

Rating: Moderately Unsatisfactory

37. This component of the GEO was supported through three main areas of Technical

Assistance; (i) rate rebasing, planning and survey support to MWSS and Concessionaires (ii) policy support to private sector investment and (iii) innovative approaches to financing using market-based instruments; environmental user fees and investment proposals.

38. The main outputs and outcomes of the project are described below. Four of the eight related indicators have been achieved or exceeded. Achievement of the indicators is as follows:

a. Testing of Public Assessment of Water Services with sewerage and sanitation parameters: 1000 households, 100% of target met
b. Sewerage and sanitation master plan with new criteria updated: Master Plan is updated, but not yet approved, target not met
c. Number of investment proposals using innovative financing mechanism for sewerage and sanitation in Metropolitan Manila: 3, 133% of target achieved
d. Number of establishments covered by the environment user fee: 2922, 122% of target exceeded - difficult to attribute to the project
e. Parameters covered by the environment user fee: No change from baseline, 0% of target achieved
f. Biochemical Oxygen Demand (BOD) discharged from all regulated sources: Reduced by 1098 metric tonnes per year, target exceeded, difficult to attribute to the project
g. Coverage of sewerage service in Manila Water Company, Incorporated (MWCI) concession area as result of 2008 rate rebasing adjustment: 12% of water connections, 40% of target increase reached, attribution to rate rebasing is difficult
h. Coverage of sanitation service in MWCI concession area as result of 2008 rate rebasing adjustment: 47% of water connections - 66% of target increase reached, attribution to rate rebasing is difficult

39. **Support to MWSS and Concessionaires**

a. MWSS and MWSI were supported to complete rate rebasing (renegotiating the tariff within the MWSS service area) during 2008. The tariff restructuring removed the sewer connection costs and sewerage fee and replaced them with an increased environmental fee which is mandatory for all households. This environmental fee covers desludging services and sewer connections; meaning that these are effectively seen as 'free' services. This new tariff structure is expected to increase uptake of these services. Over the project period in the MWSI concession area coverage of sanitation services increased from 5 to 47% and coverage of sewerage service increased from 8% to 12%, however it is difficult to attribute this specifically to the project. MWSS-RO noted that the TA provided during the 2008 rate rebasing resulted in a much greater involvement of the corporate office during the 2013 rate rebasing exercise and, linked to this, in 2014 MWSS ordered a reduction in water rates in Metro Manila for the first time since services were privatized in 1997.
b. The draft 2005 MWSS Sewerage and Sanitation Master Plan (SSMP) was largely updated under the project to respond to the Supreme Court Mandamus, clarify the strategy and ensure consistency with the business plans of the two private concessionaires. At project closure some elements of the SSMP were still under discussion and there was not yet a final consensus on the scope, for example the inclusion of solid waste. These challenges were partly due to the implementing arrangements (EMB was responsible for the procurement of the SSMP consultant and MWSS for the supervision of deliverables) and also due to the much wider consultation with other Government stakeholders than previously. Therefore, although this indicator was not achieved, the development process is thought to have had some positive impacts in terms of bringing different actors into the discussion on water and sanitation services in MM.
c. The Public Assessment of Sewerage and Sanitation Services (PASS) was developed under the project and a pilot survey was completed in 1,000 households within MM. The PASS

collects data from customers on the perceived performance of the MWSS concessionaires, including local issues on quality of service, politeness and responsiveness of staff and so on. The suitability of the PASS to rate performance of the services provided (and thereby increase accountability and inform operation and investment decisions) was demonstrated through the pilot survey. At the time of writing both the PAWS and PASS had been temporarily suspended due to lack of funding, therefore the immediate impact of this activity has been limited. These surveys are expected to restart within the next few years.

40. **Policy support to private sector investment.** Two key policy areas to increase private sector investment were identified through extensive consultation; making septage manage compulsory and increasing minimum standards for industrial pre-treatment. The following policies were then drafted under the project; (a) Septage Management Ordinance; (b) Guidelines for the Adoption of New Design Parameters for Septic Tanks; (c) National Registry of Desludgers or Entities Engaged in Septage Management; (d) Pre-Treatment Standards for Wastewater Effluents Discharged by Commercial and Industrial Wastewater Sources to Publicly-owned Sewer Systems. The draft policies are expected to put into place a stronger framework for private sector investment; both by supporting a consistent framework for septage management which facilitates both public and private investment from septage collection to treatment and disposal and by promoting private investment in pre-treatment. There has already been some impact from this policy development as the draft Ordinance template for mandatory septic tank desludging was issued by DILG and adapted by Makati and Quezon City - these initial ordinances are expected to serve as a model for adoption by other LGUs. The four policy documents were submitted for endorsement from EMB-DENR in May 2014; two policy documents for septic tanks and desludging have been endorsed by EMB-DENR and adopted by the LGUs through an administrative order. The remaining two policy documents are going through the technical review process and are expected to be endorsed in 2015.

41. **Innovative approaches to financing using market-based instruments**;

a. LLDA manages industrial effluent into Laguna Bay through imposing an Environmental User Fee (EUF). A study was completed examining options to enhance the effectiveness of the existing EUF framework and assess the ways in which the systems for LLDA and DENR could be harmonized. The technical study has been submitted to the LLDA Board and feedback from LLDA on the process and deliverables has been very positive. During the life of the project there has been an increase in coverage of the EUF from 1000 establishments to 2992 and a reduction in BOD from 5202 to 4104 from establishments monitored by LLDA; exceeding the intermediate indicator targets. These indicators include the combined impacts of the Laguna de Bay Institutional Strengthening and Community Participation (LISCOP) project and the GEF project. The major contribution of the GEF project has been through awareness raising activities and stakeholder engagement. For example the project supported partnership strengthening between LLDA and LGUs, which then triggered additional actions including (i) an MoA that requires all businesses to have an LLDA permit in order to get an LGU business permit and (ii) LGUs opening up their business permit database for LLDA to verify who has a permit and which businesses are not compliant.
b. A long list of potential investments was identified within LLDA's catchment area. Sanitation investment proposals using innovative approaches to financing were prepared with three prospective borrowers and submitted to several financial institutions for consideration and possible financing. Currently Quezon City LGU is in the process of site selection and Los Baños Water District is awaiting LGU ordinance before proceeding. San Jose Water District ultimately decided not to move forward with private sector financing.

Promoting innovative, simple and effective wastewater treatment techniques (US$4.70 million - US$1.30 million financed by GEF, remainder from the Counterpart funds)
Rating: Highly Satisfactory

42. This component exceeded the indicator for the reduction of costs per cubic metre of septage collection, treatment and disposal using joint treatment as compared to separate septage treatment. The JSSTP has achieved a 40% reduction of costs per cubic meter of septage collection, treatment and disposal using joint treatment as compared to separate septage treatment (compared to a target of 20%).

43. The JSSTP combines and treats sewage from the piped network and sludge collected by truck from septic tanks. It therefore gives greater flexibility in areas where both systems are in use and offers cost savings over separate treatment of sewage and septage. The JSSTP is only the second of its type in the Philippines and the first to use a Sequencing Batch Reactor, thereby having a much smaller footprint.

44. The selection and construction of the JSSTP has been highly satisfactory and includes examples of good practice already being replicated elsewhere. During the process proving the contractor identified a number of cost-saving measures including reducing aeration time to save energy and more effective coagulants reducing chemical use. Promotion of the JSSTP has been active and involved site visits and presentations for Water Districts (WD) and civil society groups. A number of WDs have already requested further information and support in applying this technology. MWSI has identified the following elements within the JSSTP which they are replicating elsewhere; (a) Technology Selection Study to improve quality of design and build contracts; (b) Wastewater reuse; using activated carbon filters to allow wastewater to be reused on site for flushing toilets and washing cars; (c) SCADA system for remote monitoring and control; and (d) Automatic receipt system to record and document septage delivery.

Increasing the effectiveness of the agencies responsible for water pollution control through improved coordination (US$ 1.75 million)
Rating: Moderately Unsatisfactory

45. This component of the GEO included three main areas of work; (i) partnership building (ii) harmonizing water quality monitoring and increasing access to data; and (iii) policy support for a coordinated response. Outcomes and outputs are described below. Three of the six indicators have been met or exceeded. Progress on the indicators is given below:

a. Agencies responsible for water pollution control signing a Memorandum of Understanding (MOU): 7, 100% of target achieved
b. Other stakeholders signing on to this MOU: 17, 121% of target achieved
c. Bi-annual Partnership meetings: 19, 190% of target achieved
d. Numbers of policy issuance (administrative orders) on sewerage and sanitation related matters issued by national authorities: Four, 50% of target achieved
e. Publication of annual Metropolitan Manila (MM) Water Quality Monitor: Zero, 0% of target met
f. Water quality monitoring areas established: One, 33% of target achieved

46. **Partnership building.** One of the main aims of the project, and also the main risk mitigation measure, was partnership building between the implementing agencies. A number of activities supporting the partnership building process were completed under this project, including (i) a total of 19 bi-annual partnership meetings (ii) MoUs signed between DENR and

six Agencies responsible for water pollution control and (ii) MoUs signed between DENR and 14 LGUs. These MoUs laid out agreed responsibilities on water pollution control and were supported by workshops where action plans for sewage and sanitation were developed aiming to motivate LGUs to invest in sanitation. A Water Quality Management Area has been designated and Governing Board appointed (San Juan WQMA); two additional WQMA have been identified and base lines developed. Notifications have been issued on these three WQMAs.

47. It has been noted during interviews for the ICR that all agencies now recognize the need to work in partnership to achieve improvements in water pollution control and also give higher priority to consultation with other actors. For example, both LLDA and EMB-DENR reported that it was increasingly easy to access data and get inputs/feedback from other partner agencies due to closer working relationships. In addition the San Juan River System WQMA (integrating 7 of the 14 LGUs targeted) is currently setting up its Governing Board and has enthusiastic support from businesses, service providers and LGUs. The WQMA appears to be a successful model for partnership for water pollution control – bringing together a wide range of stakeholders around common issues. The level of support seen for the San Juan WQMA illustrates the potential of this framework for partnership development. In comparison, the use of MoUs with individual LGUs was not found to be effective as the PMO did not have the resources for continued follow up with each LGU on the action plans developed and the initial momentum for change was not sustained.

48. **Harmonizing water quality monitoring and increasing access to data**. A key positive impact of the ongoing policy dialogue with the government has been the release of the water quality data on the Open Data Initiative of the Office of the President. The project has also supported DENR to provide water quality data to MWSS which helped them to guide their investments to areas with highest pollution load. The impact is illustrated through the ongoing World Bank financed MM Wastewater Management Project which targets pollution hotspots.

49. Integrated water quality monitoring guidelines have been developed and issued to stakeholders and the recommendations have been incorporated into the development of the draft policy for Procedural Guidelines for Harmonized Water Quality Monitoring in NCR. The policy was submitted to EMB-DENR for endorsement and is currently going through the technical review process; it is expected to be endorsed in 2015. The implementation of the guidelines has been supported by training in water quality monitoring, including provision of demonstration kits. The budget to roll out the full implementation of these guidelines is currently being reviewed by EMB.

50. A Partnership Information Centre (PIC), aiming to provide a shared space for all agencies to access data, has been developed and launched. A wide range of training was completed to support different agencies to improve data management and link to this system. Some implementing agencies are submitting data for inclusion into the on line database under the PIC, including the PASS survey data. The PIC website is also linked to the MBCO water quality database and has supported MBCO to respond to the Supreme Court Mandamus as referenced earlier. At the time of writing, the PIC did not yet have a dedicated physical space and the website is still hosted by the Consultant. The objectives of the PIC have been partially met – further investment is required by EMB to ensure that this becomes a fully functional service that promotes and facilitates data sharing.

51. **Policy support for a coordinated response**. Two key policy areas to increase coordination were identified through extensive consultation; water quality monitoring and management of waste. Water quality monitoring is described above, in addition the following

policies were drafted; (a) Industry- Specific Effluent Standards for Sewerage and Septage Treatment Facilities Operated by Public Water Utilities, and (b) Joint DENR-DOH Administrative Order on Bio-solids. The two draft policy documents are expected to put into place standard approaches to harmonize responses on water quality management. The policies would for example increase the limit for Biological Oxygen Demand (from 50 to 100mg BOD/liter), for sewage treatment plants, making treatment more cost effective. The policy documents were submitted for endorsement from EMB-DENR. The Industry Specific Effluent Standards has passed the second review by the policy technical working group and is expected to be endorsed in early 2015. The Joint DENR-DOH Administrative Order was endorsed by EMB-DENR and has been adopted by the Department of Health through a Department Order issued in October 2014.

3.3 Efficiency
Rating: Modest

52. During project preparation an incremental cost analysis was completed for the GEF project. The analysis predicted that the grant would catalyze a significantly higher additional investment during the period 2005 - 2025 through replication of the technology demonstrated under the project, and infusion of new investment in pollution control from private sector investors using the project's financial innovations. During the period 2007-2014 the concessionaires have increased investment into the sector, however it is difficult to attribute this directly to the GEF project as the investments were not linked to replication of the JSSTP or implementation of the financial instruments developed.

53. The economic rate of return (ERR) of the JSSTP is estimated to be 15% with benefits comprising of environmental benefits, health benefits, savings from non-payment of discharge fees to LLDA, and benefits from water re-use. This reduces to an ERR of 10% with either a 20% increase in assumed O&M costs or a 20% reduction in assumed health benefits. The ERR reduces to 12% with a 20% reduction in inflow. An additional benefit, which was not estimated due to incomplete data but which would increase this economic rate of return, is the cost saving from reduced distances for septage collection. Calculation details are included in Annex 3.

54. The key value added of the GEF financing was to support the introduction of an innovative technology (the JSSTP) which led to a 20% reduction in O&M costs and introduced many aspects which are now being replicated as noted above. The project is expected to lead to future efficiency through further knowledge sharing and replication; the guidelines developed under the project for the establishment of WQMAs are now being applied elsewhere, improved data sharing will enable MWSS and the MM concessionaires to target investments to pollution hotspots, increasing environmental efficiency. The draft policies, once in place, are expected to lead to an improved framework for investments into septage management and pre-treatment. The future efficiency improvements from the PASS can be inferred from the use of the PAWS to target service improvements – including increasing monitoring in some areas and resolving local problems of poor water quality.

3.4 Justification of Overall Outcome Rating
55. *Rating: Moderately Unsatisfactory*. This overall rating is determined from the combination of the high relevance, moderately unsatisfactory achievement of the GEO and a modest level of efficiency. The project has developed technical assistance which will form the basis of many essential adjustments to administrative, institutional and regulatory practices; including policies on septage management, changes which would expand and restructure the EUF,

and support to MWSS in their management of the two private concessionaires in MM. Simple wastewater treatment technology has been supported through the completion of the JSSTP and extensive promotion of this technology. Coordination between the different agencies has been supported and there are some examples of increased effectiveness. However, some important elements were not finalized and most TA has only been endorsed at the level of the Technical Working Groups and PMO. Budget allocations and higher level endorsement which will enable the TA to be translated into real impacts are not yet secured in most cases.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

56. The impacts of the project on poverty, gender aspects and social development would be realized in the future through increased coverage of sewerage and sanitation services. Sanitation improvements would have a greater impact on women as the main care givers and domestic support. This was reflected in the PASS where the vast majority of respondents were women. The rate rebasing is considered to have a positive impact as the increase of the environmental fee supports wastewater management services to all households, whether connected to the sewerage system or not. The Policy on the National Registry of the De-Sludgers or Entities Engaged in Septage Management also aims to legitimize the informal desludgers through the policy and therefore have an impact on poverty alleviation. Meetings were held with a number of representatives; these discussions and the recognition that a valuable service is being provided is thought to have opened the gates for smaller desludgers to be engaged by concessionaires.

(b) Institutional Change/Strengthening

57. In addition to the points outlined above the project has contributed to the increased awareness of the importance of sewage and sanitation within DENR through active stakeholder engagement within Government Agencies. This is evidenced by the increased resources provided to the sector; for example during the recent restructuring DENR introduced new units specializing in sewage and sanitation and increased staffing levels, including the new post of Sanitary engineer, at a time when many other sectors were being downsized. The persistent policy dialogue with DENR in building the water quality monitoring database using the PIC has contributed to the release of water quality data as part of the GOP's Open Data initiative. The water quality dashboard is available on www.data.gov.ph as one of the 6 featured dashboards. It represents the only dashboard focused on environmental issues. This data sharing has been seen as a catalyst for increased transparency and discussion about water quality issues.

(c) Other Unintended Outcomes and Impacts (positive or negative)

58. The technical assistance helped to catalyze a twinning program, financed by the Government of Spain, on innovative financing mechanisms in support to the scaling up of investments on sewage and sanitation services. As part of this a study tour was undertaken in March 2013 by DENR FASPO, EMB and LLDA officials and staff involved in the GEF project.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

59. Stakeholder workshops for implementing agencies were completed as part of the Client's PCR and details are given in Annex 6.

4. Assessment of Risk to Development Outcome

60. *Rating: Substantial.* As described in Section 2.5 the JSSTP, WQMA, restructured EUF and PIC have well established plans for follow up and future support. These elements are believed to be mainstreamed and will support sewage and sanitation expansion. The draft policies

relating to septage management and water quality monitoring have gained momentum and have follow on support from the sanitation units now formed within DENR. In addition the Joint DENR-DOH Administrative Order on Biosolids has been adopted and the review of the Industrial Effluent Standards has completed the second round. The remaining policy endorsement is pending however all policy documents are expected to be endorsed within 2015. The time required is highly uncertain; however there are some recent positive steps, including progress in endorsing related policy documents such as the General Effluent Standards (GES) which are expected to be endorsed before the end of 2014. The updated SSMP will need additional work, before it can be an effective tool and meetings are ongoing with the support of MWSS in order to finalize the document.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

61. *Rating: Moderately Unsatisfactory*. During project preparation the Bank task team ensured that all safeguards and Bank procedures were complied with and supported extensive consultation with partner agencies. However sufficient attention was not paid to the complexities of the outdated policies, overlapping agency mandates and institutional arrangements and lack of national support to sanitation and sewerage. In addition wide consultation led to scope creep and a high level of complexity in project design. The Bank team should have pushed for the project to be simpler and more focused. The risks from the complexity of the project and the ambitious results framework were not mitigated by a properly supported PMO and a comprehensive assessment of the ability of the government agencies to partner effectively.

(b) Quality of Supervision

62. *Rating: Moderately Unsatisfactory*. Overall all implementing agencies noted that the Bank team were very supportive and provided clear recommendations on how to improve performance. The Financial Management and Procurement teams provided training and ongoing support. The Bank team took an active role in supporting coordination and communication between the different implementing agencies. During the life of the project four different Task Team Leaders were assigned to the role, which caused some disruption.

63. Enhanced candor in the ISRs could have led to increased project support and improved outcomes. The ISRs were too optimistic in their ratings; despite a significant delay in progress, ratings were often higher than what could have been concluded from the project performance. Realistic ratings would have focused management attention and increased problem solving support, especially in the first half of the project. The project restructuring did not go far enough to address the problems clearly identified before the mid-term review. The opportunity to significantly revise the GEO indicators re-orientate the project and potentially revise the implementing arrangements was not fully taken

(c) Justification of Rating for Overall Bank Performance

64. *Rating: Moderately Unsatisfactory*. Many of the problems faced under the project were due to the complex design and implementing arrangements. The rating given reflects the lack of evidence of action taken to address the issues faced. There was also a high turn-over rate of the World Bank task team leaders given the ongoing reorganization of the sectors in the East Asia Region.

5.2 Borrower Performance

(a) Government Performance

65. *Rating: Moderately Unsatisfactory*. GOP ensured that counterpart funds were provided in a timely fashion. This included financing the PMO during the last months of the project in order to ensure that the project was closed successfully. However high level interventions from overseeing agencies to resolve implementation issues and improve coordination were limited. Problems found stemming from conflicting aims and unaligned processes are very typical in developing new partnering arrangements and often need additional management support to be resolved.

(b) Implementing Agency or Agencies Performance

66. *Rating: Moderately Unsatisfactory*. DENR has committed to moving the sewerage and sanitation agenda forward and has integrated a number of deliverables into the future work program. The high turnover of the PMO and complex design of the project has made coordination difficult. In addition insufficient resources were allocated to the PMO during project design; both the project manager and the assistant project manager were only allocated part time to the PMO and the team was slowly downsized during project implementation, for example the role of the Project management specialist was removed in 2010. The weak PMO, and specifically the loss of institutional memory, was identified by many project participants as limiting the momentum and progress of the project. Although MWSS and DENR were very successful working together on the construction of the JSSTP, there were difficulties in managing the consultant for the SSMP.

(c) Justification of Rating for Overall Borrower Performance

67. *Rating: Moderately Unsatisfactory*. The Borrower complied with the fiduciary and safeguards policies of the Bank and implemented many aspects of the program despite the complicated implementing arrangement. As outlined in the sections above there has been a change in the perception of the importance of domestic wastewater within GOP. This shift needs to be translated into practical outputs, including implementing the project outputs or supporting the implementation of policy changes.

6. Lessons Learned

68. As in many projects, the problems faced were caused due an overly ambitious design and limited restructuring. Additional actions should have been taken during preparation to reduce project complexity and ambition in order to reduce risks; implementing arrangements should have been kept as simple as possible, the project should have focused on fewer activities with partnership built into the process – as illustrated by the WQMA - and components 3 and 4 could have been merged. More generally time invested in preparatory work, both to ensure the design is optimized and to more procurement forward as far as possible, is critical to avoid significant delays after approval. The results framework should have been based upon data available from existing monitoring systems, rather than on assumed improvements to be developed during the lifetime of the project and the GEO indicators should have been within the scope and timeframe of the project. .

69. Time and resources, including strong leadership, are needed to build partnerships, both within DENR and also with other agencies. Active and credible champions are needed to effect institutional and policy change in traditionally low priority areas such as septage and sanitation and a properly supported PMO is critical to project success. Assessments of mandates, functions and processes, in national and local agencies - a fit for partnering assessment - should have been be completed during the design of the project and actions to build institutional capacity to partner effectively identified

70. Financial incentives and increased awareness can bring results; for example the feedback from LLDA that expanding the pollutants covered under the Environmental User Fee (through LISCOP) and the awareness raising (through GEF MTSP) has led to reduction of pollution

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

71. As described in the Project Completion Report (PCR), in Annex 7, the Borrower and implementing agencies have rated the project considerably higher than the Implementation Completion Report; Satisfactory to Highly Satisfactory as compared to Moderately unsatisfactory. There is overall agreement in terms of deliverables completed. The main area of difference is in terms of the approach used for project evaluation. The PCR rated the project in terms of outputs, rather than in terms of the project results framework, results attributable to the project and likely future impact.

(b) Cofinanciers

72. Not applicable

(c) Other partners and stakeholders

73. No issues raised.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in US$ Million equivalent)

Components	Appraisal Estimate (US$ millions)	Actual/Latest Estimate (US$ millions)	Percentage of Appraisal
Goods	1.500	1.577	105%
Consultants Services	3.200	3.117	97%
Incremental Operating Costs	0.300	0.280	93%
Total Baseline Cost	5.000	4.974	99%
Physical Contingencies	-	-	-
Price Contingencies	-	-	-
Total Project Costs	5.000	4.974	99%
Front-end fee PPF	-	-	-
Front-end fee IBRD	-	-	-
Total Financing Required	5.000	4.974	99%

Category	**Amount of the Grant Allocated (Expressed in US Dollars)**	**%of Expenditures to be Financed (inclusive of Taxes)**
(1) Goods	1,500,000	100%
(2) Consultants' services training, and workshops	3,200,000	100%
(3) Incremental Operating Costs	300,000	100%
TOTAL AMOUNT	5,000,000	

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (US$ millions)	Actual/Latest Estimate (US$ millions)	Percentage of Appraisal
GEF	Grant	5,000,000	5,000,000	100%
Government co-financing	Counterpart	3,350,000	3,350,000	100%

Annex 2. Outputs by Component

Component	Description of Outputs
1 - Partnership strengthening among the Government agencies responsible for water pollution control	Development and signing of MoUs between seven Agencies responsible for water pollution control; DENR, MWSS, DoH, MMDA, Coast Guard, LLDA and PRRC MoUs signed with 14 LGUs, workshops held and sanitation action plans developed 19 Bi-Annual Partnership Meetings Conducted Integrated water quality monitoring guidelines PASS developed and 1000 Households Sampled/Surveyed Partnership Information Center PIC online database and IT platform PIC Content Management System, GIS and Database training for LGUs and Partner agencies San Juan Water Quality Monitoring Area designated and Governing Board appointed Baseline surveys and initial consultation completed for Water Quality Monitoring Areas in Las Pinas – Paranaque and Navotas-Malabon-Tullahan-Tenejeros (NMTT) Sewerage and sanitation awareness workshop: Significant impact of community organizing for sewerage and sanitation improvement – for LGUs and Barangays Training in water quality management
2 - Planning and policy development	Metro Manila Septage and Sewerage Management Plan updated based on new criteria, to respond to the Supreme Court Mandamus with new projections to reach 100% coverage by 2037, clarify the strategy and ensure consistency with the business plans of the two private concessionaires - still in draft Draft Policy 1 - Septage Management Ordinance An Act Establishing a Septage Management System in the City: submitted by the PMO for endorsement by EMB-DENR Draft Policy 2 – Guidelines for the Adoption of New Design Parameters for Septic Tanks: submitted by the PMO for endorsement by EMB-DENR Draft Policy 3 – Pre-Treatment Standards for Wastewater Effluents Discharged by Commercial and Industrial Wastewater Sources to Publicly-owned Sewer Systems: submitted by the PMO for endorsement by EMB-DENR Draft Policy 4 – National Registry of the De-Sludgers or Entities Engaged in Septage Management: submitted by the PMO for endorsement by EMB-DENR Draft Policy 5 – Industry- Specific Effluent Standards for Sewerage and Septage Treatment Facilities Operated by Public Water Utilities, Revising DAO 34 and 35, Series of 1990: submitted by the PMO for endorsement by EMB-DENR Draft Policy 6 – Procedural Guidelines for Harmonized Water Quality

	Monitoring in NCR: submitted by the PMO for endorsement by EMB-DENR Draft Policy 7 – Joint DENR-DOH Administrative Order on Bio-solids: Guidelines for Bio-solids in the Philippines: submitted by the PMO for endorsement by EMB-DENR
3 - Innovative financing	Three (3) Investment Proposals produced using innovative financing mechanisms for sewerage and sanitation in Metro Manila; San Jose Water District is looking for alternative routes outside of the project; Quezon City LGU is still in the process of site selection; Los Baños Water District is awaiting LGU ordinance before proceeding
4 - Use of Market-based Incentives	Studies on pollutant parameters to be introduced under the Environmental User Fee (EUFS), including cover COD and Heavy Metals Studies on how BOD and TSS and additional parameters will be applied to regulated establishments through the EUF and how the EUF should be restructured Roadmap for implementation and harmonization with DENR
5 - Rate rebasing	MWSS and MWSI supported to complete rate rebasing during 2008 Logistical support to consultation during the 2013 rate rebasing
6 - Joint sewage and septage treatment plant (JSSTP)	Technology selection study Construction and Commissioning of JSSTP – with a capacity of 2400m^3 of sewage per day and 240m^3 of septage per day. O&M manual and Commissioning report
7 – Project Management	Supporting the PMO and cooperation and collaboration between agencies – no outputs

Annex 3. Economic and Financial Analysis

1. The project's objective was to support the development of the policy environment for the scaling up of investments in pollution control, and to improve environmental efficiency of investments through better targeting of environmental hotspots. The baseline scenario for investments in sewerage and sanitation management at appraisal was estimated at US$104 million for the period 2005 - 2025. The GEF provided incremental financing in the amount of US$8.35 million, of which US$5 million constituted the grant and US$3.35 million, the counterpart funding from Maynilad Water, the west zone concessionaire. It was expected that the incremental financing would catalyze significantly higher investment levels through the scaling up of technology demonstrated in this project within the mechanism of the rate rebasing exercises every five years.

2. There were three project components that were completed and officially accepted by the government as of loan closing date, as follows: (a) expansion of public assessment to cover sewerage and sanitation services; (b) technical assistance to MWSS in the rate rebasing; and (c) upgrading of a communal septic tank in Project 7 (Quezon city) to a upgrading of a communal septic tank in Project 7 (Quezon city) to a JSSTP. The economic impact of these completed components is potentially significant. However, quantifying the benefits is difficult except for the JSSTP where the economic rate of return was estimated. The other remaining components are in different stages of completion, and official adoption by the government is pending.

Expansion of Public Assessment to Cover Sewerage and Sanitation Services

3. The design and piloting of this component was completed and the results officially accepted by the government. As it has with the public assessment of water services (PAWS) earlier implemented, the public assessment of sewerage and sanitation services (PASS) is expected to improve concessionaire performance and to enhance regulation through direct consumer assessment of performance. Based on the PAWS experience, the concessionaires have been attentive to the survey results and responsive to the complaints and shortcomings in service provisioning as perceived by the consumers, resulting in improved services to the benefit of the consumers. The PASS was to be implemented together with the PAWS. The PASS was completed in 2010; however, the survey has not been repeated or rolled out to date. Implementation of the PAWS has been suspended since 2009 due to policy issues raised by the MWSS-RO, and this has affected the roll out of PASS. At the technical level, MWSS RO is hopeful that the PASS would be implemented and mainstreamed once policy issues are resolved.

Assistance to MWSS in the 2008 Rate Rebasing

4. The assistance to MWSS in the 2008 rate rebasing was specifically to assist in the restructuring of the environmental tariff, and to institutionalize involvement of government environmental agencies (DENR, LLDA) in the review of investments particularly in aligning these to environmental hotspots. While the environmental tariff was eventually restructured to a single tariff (i.e., increasing it to 20% from 10% of the water bill and to cease the 50% sewerage charge), it is not clear to what extent the project contributed to the work inasmuch as the consultancy commissioned for this purpose was terminated prematurely, and that remaining work was done in-house by MWSS-RO with this project providing logistical support. With regard to the targeting of investments towards environmental hotspots, this was expected to be achieved through the participation of the concerned government environmental agencies in the review of business plans of the concessionaires. However, it is not clear how this was done, if at all. Nonetheless, in a follow-on loan by the World Bank on sewerage and septage management to the

two concessionaires in 2011 (Manila Water Management Project with the World Bank loan provided through the Land Bank of the Philippines), the investments funded supported environmental hotspots identified by DENR. Total cost of the program was US$343.275 million, with the World Bank loan amounting to US$275 million, and the balance financed from concessionaires' counterpart. In this sense, the objective of the component was achieved, although the contribution of this project is at best implied. MWSS updated the Manila sewerage and sanitation master plan through this project. Review of the master plan by the government environmental agencies would mainstream the process of aligning investments in sewerage and sanitation to environmental priorities.

Joint Sewage and Septage Treatment Plant (JSSTP) in Project 7, Quezon city

5. Prior to this project, the Project 7 facility was an Imhoff tank serving a sewered area under the management of Maynilad. The facility had outlived its design (facility was constructed in 1955), and as consequence, Maynilad had been paying penalties to LLDA for non-compliance to effluent standards. The project upgraded the facility into a 2640 MLD joint sewage and septage treatment facility that would serve the same sewered area in Project 7 as well as accept septage in the non sewered areas in the vicinity. Total project cost was ₱266 million, with the grant financing ₱57 million and the balance provided by Maynilad to be recovered through the rate rebasing. The project cost included the investment, the operation and maintenance cost during the commissioning period of three months and during one-year of process proving, net of tax and contractor's profit. The technology adopted (Sequencing Batch Reactor or SBR) was selected based on a Technical Options Study and the selected technology garnered the lowest net present value. The facility is operating at full capacity.

6. The economic rate of return of this component was estimated to be 15% with benefits comprising of environmental benefits, health benefits, avoided cost from non-payment of discharge fees to LLDA, and benefits from water re-use. An additional benefit but which was not estimated due to incomplete data is the cost savings of diverting vacuum trucks to a closer destination for treatment rather than to the Dagat-dagatan treatment facility of Maynilad.

7. Environmental benefits. Environmental benefits are difficult to measure. Benefits were estimated based on willingness to pay for improved water quality, and using as proxy, the environmental fee of 20% of the water bill. In the calculation, per capita water consumption was assumed at 130 liters per day, a return rate for wastewater of 80%, and a tariff of P38.25 per m3 (the average for the west zone in 2013). Only consumers served by the JSSTP were included in the calculation, although benefits are expected to accrue to a larger population.

8. Health benefits. Health benefits would come from reduced risk of people coming in contact with raw wastewater from overflowing septic tanks. The impacts of poor sanitation on health, water, tourism, and other welfare impacts were estimated for the Philippines to be in the order of US$1.4 billion per year, equivalent to 1.5% of gross domestic product in 2005.[3] Health impacts represented 72% of total economic costs, and these include health care costs, productivity costs due to adult and child sickness and premature mortality, and 23% accounted for the impact on water resources. For purposes of these calculations, a per capita sanitation benefit of US$65

[3] Source: Economic Impacts of Sanitation in the Philippines, Water and Sanitation Program – East Asia and the Pacific, World Bank, 2008

was assumed which include only health impacts.[4] Benefits were assumed to grow by 2% a year to represent the increase in the level of incomes. BOD elimination from treatment was assumed to be 10% of sanitation benefits.

9. Avoided cost from non-payment of discharge fees to LLDA. 20% of total treated effluent discharge is being re-used in the facility, generating an organic load of 5.28kg BOD per day. The discharge fee imposed by LLDA is P5 kg BOD. Annual savings from non-payment of discharge fees to LLDA is estimated to be P9,636.

10. Benefits from water re-use. The benefit from water re-use is the cost of water supply saved, equivalent to 20% of the design capacity of 2640 MLD. Annual savings from water re-use is estimated to be ₱18,912,000.

Table 1. Economic rate of return

Year	Investment cost	Operation & Maintenance costs	Total costs	Environmental benefits	Health benefits	Savings from nonpayment of discharge fees	Savings from water re-use	Total benefits	Net benefits
2012	89,722,650	-	89,722,650	-	-	-	-	-	(89,722,650)
2013	92,846,063	-	92,846,063	-	-	-	-	-	(92,846,063)
2014	8,767,413	30,209,256	38,976,669	4,188,375	29,563,427	4,818	9,456,000	43,212,620	4,235,951
2015		60,418,511	60,418,511	8,927,550	60,309,391	9,636	18,912,000	88,158,577	27,740,066
2016		60,418,511	60,418,511	8,927,550	61,515,578	9,636	18,912,000	89,364,764	28,946,253
2017		60,418,511	60,418,511	8,927,550	62,745,890	9,636	18,912,000	90,595,076	30,176,565
2018		60,418,511	60,418,511	8,927,550	64,000,808	9,636	18,912,000	91,849,994	31,431,483
2019		60,418,511	60,418,511	8,927,550	65,280,824	9,636	18,912,000	93,130,010	32,711,499
2020		60,418,511	60,418,511	8,927,550	66,586,440	9,636	18,912,000	94,435,626	34,017,115
2021		60,418,511	60,418,511	8,927,550	67,918,169	9,636	18,912,000	95,767,355	35,348,844
2022		60,418,511	60,418,511	8,927,550	69,276,533	9,636	18,912,000	97,125,719	36,707,208
2023		60,418,511	60,418,511	8,927,550	70,662,063	9,636	18,912,000	98,511,249	38,092,738
2024		60,418,511	60,418,511	8,927,550	72,075,305	9,636	18,912,000	99,924,491	39,505,979
2025		60,418,511	60,418,511	8,927,550	73,516,811	9,636	18,912,000	101,365,997	40,947,486
2026		60,418,511	60,418,511	8,927,550	74,987,147	9,636	18,912,000	102,836,333	42,417,822
2027		60,418,511	60,418,511	8,927,550	76,486,890	9,636	18,912,000	104,336,076	43,917,565
2028		60,418,511	60,418,511	8,927,550	78,016,628	9,636	18,912,000	105,865,814	45,447,303
2029		60,418,511	60,418,511	8,927,550	79,576,960	9,636	18,912,000	107,426,146	47,007,635
2030		60,418,511	60,418,511	8,927,550	81,168,499	9,636	18,912,000	109,017,685	48,599,174
2031		60,418,511	60,418,511	8,927,550	82,791,869	9,636	18,912,000	110,641,055	50,222,544

[4]Calculated using Gross Domestic Product purchasing power parity (PPP) of US$591 billion (estimate for 2012), population of 97 million (estimate for 2012), and a peso-dollar exchange rate of ₱43.50. The source of data for GDP at PPP values and population is the World Bank.

2032	60,418,511	60,418,511	8,927,550	84,447,707	9,636	18,912,000	112,296,893	51,878,382
2033	60,418,511	60,418,511	8,927,550	86,136,661	9,636	18,912,000	113,985,847	53,567,336
2034	60,418,511	60,418,511	8,927,550	87,859,394	9,636	18,912,000	115,708,580	55,290,069
2035	60,418,511	60,418,511	8,927,550	89,616,582	9,636	18,912,000	117,465,768	57,047,257
2036	60,418,511	60,418,511	8,927,550	91,408,914	9,636	18,912,000	119,258,100	58,839,589
2037	60,418,511	60,418,511	8,927,550	93,237,092	9,636	18,912,000	121,086,278	60,667,767
Economic rate of return								15.27%

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Rose Abena Ampadu	Program Assistant	AFCW1	Administration
Bebet Gozun	Consultant	CCGCC	Environmental Management
David C. Hanrahan	Consultant	SASDI	Technical Specialist
Patchamuthu Illangovan	Manager, Operations	SACAF	Management
Nicolas Kotschoubey	Consultant	MNSHD	Technical Specialist
Juan D. Quintero	Consultant	EASDE	Technical Specialist
Joseph G. Reyes	Financial Management Specialist	EASOS	Financial Management
Jitendra J. Shah	Lead Environmental Specialist	ECSEN	Environmental Management
Luiz Claudio Martins Tavares	Lead Water and Sanitation Spec	AFTU1	Task Team leader
Cecilia D. Vales	Lead Procurement Specialist	EASR1	Procurement
Maya Gabriela Q. Villaluz	Senior Operations Officer	EASPS	Environmental safeguards
Mei Wang	Senior Counsel	LEGAM	Legal
Mara K. Warwick	Manager, Operations	EACCF	Management
Supervision/ICR			
Preselyn Abella	Senior Finance Officer	CTRLN	Financial management
Aisha Lanette N. De Guzman	Financial Management Specialist	EASFM	Financial management
Mingyuan Fan	Sr Sanitary Engineer	EASCS	Technical Specialist
Demilour Reyes Ignacio	Program Assistant	EASIN	Operations support
Imogene B. Jensen	Consultant	EASNS	Technical Specialist
Isabel Duarte A. Junior	Program Assistant	EASIN	Operations support
William D. Kingdom	Lead Water and Sanitation Spec	SASDU	Task Team Leader
Nicolas Kotschoubey	Consultant	MNSHD	Technical Specialist
Victoria Florian S. Lazaro	Operations Officer	EASPS	Social safeguards
Gia Mendoza	Program Assistant	EACPF	Operations support
Noel Sta. Ines	Senior Procurement Specialist	EASR1	Procurement
Rene SD Manuel	Senior Procurement Specialist	EASR1	Procurement
Tomas JR. Sta.Maria	Financial Management Specialis	EASFM	Financial management
Maya Gabriela Q. Villaluz	Senior Operations Officer	EASPS	Task Team Leader
Leonardo Paat		EASPS	Environmental safeguards
Claire Grisaffi	Water and Sanitation Specialist	EASIN	ICR Author
Mariles Navarro	Consultant		Economist

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	US$ Thousands (including travel and consultant costs)
Lending		
FY05	8.23	46.41
FY06	19.92	136.22
FY07	29.53	106.42
FY08	0.00	0.00
Total:	57.68	289.05
Supervision/ICR		
FY05	0.00	0.00
FY06	0.00	0.00
FY07	0.00	0.00
FY08	9.34	16.91
FY09	10.76	36.37
FY10	15.02	61.28
FY11	10.26	37.15
FY12	6.73	29.91
FY13	8.07	18.43
FY14	11.25	25.32
Total:	71.43	225.36

Annex 5. Beneficiary Survey Results
Not applicable

Annex 6. Stakeholder Workshop Report and Results

1. The workshop to develop the PCR was held over three days January 27-30, 2014. The following Agencies attended; FASPO, EMB, Philippine Coast Guard, LLDA, DOH, MWSS, Maynilad, APTES, LGU Mandaluyong. The structure of the workshop was as follows:

a. Review overall status of project implementation and PCR process
   - Discuss overall status of the project implementation; develop a Common Understanding of the Status of Project Implementation To-Date
   - Level-off on the Process and Content of the Project Completion Report (PCR) Preparation; develop a Common Understanding on the Process and Content of PCR Preparation
   - Discuss activities that are relevant in the PCR preparation; List of PCR Activities, People Involved & Timelines in the PCR Preparation

b. Stakeholder data gathering and validation for the PCR
   - Review the project component implementation and provide information on the accomplishment vs. targets, achievement of Development Objectives, challenges, Issues and Concerns facilitating and hindering factors lessons learned and good practices
   - Analyze Results & draw policy recommendations for consideration in future interventions

c. Critical next steps
   - Identify recommendations and next steps in the PCR preparation

2. There were a number of open forums to discuss the development of the Master plan. This are not summarized here apart from overall status. Many of the issues were addressed through question and answer sessions and are presented in their original form below.

3. Progress on deliverables was summarized and is as shown in Annex 2. The following additional information was given in terms of unresolved issues and efforts at mainstreaming outputs:

a. The scope of work required to complete the update of the MWSS Master Plan (Component 2) needs to be clarified. The consultant believes that the scope of work is still unclear and the demands are greater than the update described in the original ToR. The range of comments which have been received was very wide and some issues are not suitable for inclusion in the Master Plan

b. All tasks for Use of Market-based Incentives (Component 4) were finished in 2013 and LLDA has worked on mainstreaming the recommendations since this time, including requesting the Operating Department to review the recommendations and roll out the priority reform agenda based on the roadmap. New parameters, such as Chemical Oxygen Demand, will be included once the General Effluent Standards are approved by DENR

c. All seven draft policies were presented to the public for consultation before the policies were developed. However some documentation is missing which may mean some consultation processes need to be redone. The policies are unlikely to be institutionalized before the end of the project as they are for DENR and other agencies

4. Project Preparation:

Q: Was the design of the project appropriate? Why/Why not?
A: Yes, the design is appropriate since the main objectives of the project were attained, and the different components were assigned to appropriate agencies.
Q: Was preparation made prior to project proposal sufficient? In what ways?
A: Yes; the concerned agencies were properly consulted in the preparation of TORs, KPIs, etc.

Q: Did the Bank provide adequate advice and facilitation? Please provide examples.
A: Yes; • During the first failure of bidding for Component 6 JSSTP, the Bank approved the re-bidding based on one pre-selected technology in order to have an "apple to apple" evaluation of bids. • The Bank approved the Grant extension up May 2014. • Bank's issuance of "NOL" on the request for the amendment of APTES' (consultant) contract to include general/conceptual design of the P7 JSSTP.

5. Project Implementation:

Q: What difficulties did you face in implementing the project (e.g. procurement and financial management)? Could any of these have been avoided?
A: Component 1 Partnership strengthening: There were difficulties in the management of LGUs Component 2 Planning and policy development: The scope of works was not clear and the resource requirements were underestimated. Consultants were paid by person months, rather than deliverables, leading to problems in completion of outputs. Documentation of public policy consultations were not retained in all cases meaning that they may need to be repeated in order for policy approvals to move forward Component 4 Use of Market-based Incentives: Expansion of EUF is dependent upon external factors; lack of COD standard in DAO 35 and delays in approval of GES by DENR may block implementation Component 6 JSSTP: Change of procurement route led to some delays during the bidding stage. Minor delays were also caused due to increase in local counterpart funding and delays in possession of the site
Q: Are there ways which DENR/MWSS/Bank could have worked on to turn around things earlier/more effectively?
A: Yes, changes should have been made during the project preparation stage
Q: Were the capacity building components effective? If so, in what ways and how was this demonstrated? Are there any ways to enhance the mode in providing capacity building?
A: Transfer of knowledge for Component 6 JSSTP was effective through trainings conducted on proper operation. Other trainings were also conducted (GIS, others) for LGUs
Q: What factors within DENR/MWSS's control (e.g. management effectiveness, staffing adequacy and quality and effective use of TA) affected project implementation?
A: Component 4 (Use of Market-based Incentives) and Component 6 (JSSTP); Effective project management; inter-agency cooperation
Q: What factors beyond the control of government or implementing agencies (e.g. credit conditions in the post financial crisis period) affected the success of the project?
A: Change in exchange rate (peso devaluation) leading to a shortfall in project funding. Problems with the limited capability of Consultants working on Component 1 (Partnership Strengthening) and the change in Consultants without consultation on Component 2 (Planning and policy development)

6. Project Impact

Output and Indicator	**Impact**
Component1 Partnership Strengthening: • Stakeholder signing MOU • Partnership meetings • Policy advice • Test PAWS with sewerage and sanitation	• Awareness, involvement, commitment and compliance • MWSS-RO monitored and validated the

parameters	concessionaires installed facilities
Component 2 Planning and policy development: • Sewerage and sanitation master plan with new criteria updated • Seven policies	• Investment cost to comply the identified changes/upgrading • New set of guidelines to improve treatment, management and effluent compliance
Component 3 Innovative Financial Mechanisms: Signing of contract using innovative financing mechanism for sewerage and sanitation	Commitment, awareness
Component 4 Market based incentives: Use of market based incentives	• Maintains water quality • Reduction of pollution load • Increased revenue from EUF
Component 5 Rate rebasing: Rate of sewerage and sanitation services increased in negotiated contract	Cost of tariff
Component 6 JSSTP: Reduction of cost per m^3 of septage using joint treatment as compared to separate treatment	• Demonstrated technical, economic and financial viability of joint sewage and septage treatment • Demonstrated reduced treatment cost from existing treatment facility o Existing treatment cost: Sewage = P8.00/m3 Septage = P167.00/m3 o For joint SPTP treatment cost: Sewage = P7.00/m3 Septage = P99.00/m3 Joint Sp/STP = P17.00/m3

7. Additional information, challenges and lessons learnt:

Q. In what ways has the project affected the Sanitation and Sewerage Sector?
A: It improved the sanitation and sewerage project and services through the Pilot Project of JSSTP; Strengthened collaboration/coordination and Policy Development and Compliance
Q. What is the regulatory framework like and how has this changed?
A: The regulatory framework is the same, however, additional mandates of the Clean Water Act of 2004 and DPWH Sewer design criteria need to be addressed.
Q. Were any of these factors attributable to the project?
A. No
Q: Are there other co-benefits that have transpired?
A: Job generation resulting from projects investments. A healthy environment equates to a healthy community
Q: Is there any gender impact?
A: None
Q: What circumstances (other than those raised earlier) helped/hindered the project?
A: **Helped:**

- Expertise and technical capability of each implementing agencies' staff assigned to the project;
- Support of the top management of each agency;
- Support of the Bank

Hindered:

- Insufficient records of consultation and project decisions (for example lack of consultation records is hindering issue of the draft policies
- Changes in personnel, e.g. PMO's Project Manager, consultants
- Multi-level approval process of the different partner agencies
- Change in LGU leadership
- Too much autonomy of LGUs in terms of policy crafting, implementation, etc. They tend to do it their own way.
- Unclear deliverables of the Consultant to merit an acceptable report (e.g. SSMP)

Q: What lessons can we learn from the project that would be applicable to future bank projects in the Philippines?

A.

- Each agency should assign a dedicated group to handle and closely monitor the project;
- PMO should conduct regular coordination meetings among partner agencies to get updates and immediately address problems
- Project design should incorporate the approval processes, i.e. payments, acceptance of reports/outputs, etc.
- Project leadership should be maintained from the beginning of the project until the end of implementation
- Increase capacity building component for all stakeholders
- For multi-stakeholder project, commitment and active participation is essential. Lesser commitment/participation results to delay in project implementation.
- Project objectives, timelines, and deliverables of Consultants/Contractors should be known by top management of concerned government agencies/entities.

Q: How was the bank's performance?

A. Very satisfactory; timeline for WB actions are strictly followed, NOLs are issued promptly and funds are released on time, technical advice supported implementation.

Annex 7. Summary of Borrower's ICR

1. The context, project description, project beneficiaries and basic data in the Borrowers PCR are essentially the same as the information contained in this ICR and is not repeated here. The overall assessment, challenges, lessons learnt and conclusions are summarized below.

2. The key differences between the PCR and the World Bank ICR are the much higher ratings given in the PCR. Ratings are higher in the PCR due to the different approaches used to evaluate success; the PCR assesses deliverables finalized by the PMO and gives greater weight to anecdotal feedback, the ICR assesses achievement by the project results framework and outcomes attributable to the project. However, despite these differences in ratings the Borrower and Bank teams are largely in agreement on the achievements of the project and challenges faced.

Overall Assessment of Project Implementation

3. The overall rating of the project is as follows (translated from a 6 point score):

Relevance	Highly relevant
Effectiveness	Satisfactory
Efficiency	Moderately satisfactory – Satisfactory
Implementation	Satisfactory

4. The project has encouraged greater understanding of sectoral issues and needs for many stakeholders, resulting in more positive behaviors. Most Agency staff felt their capacity was increased through being involved in the program; including increased confidence to coordinate with other agencies and helped them to appreciate the 'big picture' and need for integrated approaches. Component 3 helped to open up new options and orientate LGUs away from public financing. Component 4 created a road map that outlines the strategic direction for improving and expanding the Environmental User Fees (EUF) for LLDA. Component 6 set a new industry benchmark for constructing a sewage and septage treatment plant. Social impacts; about 11 families raised issues and concerns about odor and noise during the works, these concerns were discussed and resolved with the support of barangay officials. .

5. Assessment by component:

a. Component 1: Partnership Development.
   i. The 21 MoAs were signed as planned
   ii. The strategy to create three WQMAs was approved by DENR
   iii. A site for the PIC was launched online including databases which are planned to be populated with water quality information. It is recommended that, in order to make the PIC fully functional, water quality data should be regularly uploaded and budget and staff need to be assigned for maintenance and operation of the site
   iv. Annual Metro Manila Water Quality Monitoring Reports were not published under the project
   v. PASS was developed and pilot was completed. MWSS need to confirm whether the mainstreaming of the PASS is covered by a legal document and will continue in the future
b. Component 2: Master Planning and Policy development
   i. The updated SSMP was submitted on May 30, 2014. This key output has been delayed
   ii. Seven policies were drafted and packaged and issued by the PMO. It is recommended that these policy documents be approved for adoption and implemented by concerned

agencies.

c. Component 3: Innovative financing Mechanisms
   i. Detailed proposals have been completed and LGUs have completed initial coordination to source financing. San Jose del Monte has passed a municipal ordinance on sewerage and septage. Los Banos is waiting for a similar ordinance to be passed. Quezon City has an existing ordinance.
d. Component 4: Use of Market Based Incentives
   i. The study has been completed and the recommendations developed in agreement with LLDA, including restructuring the EUF and developing market based industry for domestic sewage
e. Component 5: Technical Assistance for Rate Rebasing
   i. Technical assistance was provided to MWSS in 2008 to support rate rebasing with MWSI. It was intended that this would be guided by the updated SSMP, however this was not possible due to delays
f. Component 6: JSSTP
   i. The design, construction and commissioning of the JSSTP was completed on schedule. Training was completed for MWSS, MWSI, DENR and the contractor. All operators and engineers were trained and also completed on the job training with guidance from the JSSTP design consultant. Operation and maintenance manuals were produced.
   ii. The treatment cost has reduced from PhP 165 to PhP 100 and in addition MWSI has seen cost savings from re-diverting loads from Dagat Dagatan to Project 7

6. Financial status: Total disbursement is around 87%; total obligated funds are 97% of total grant. Organization and management: A total of 29 key stakeholders were involved in project implementation

Challenges

7. The following challenges were faced during implementation:
   a. The delay in finalizing the SSMP affected the process of establishing a clear strategy and approach, including the advocacy for policy documents. These delays therefore limited the impact of the project.
   b. Project management issues including high turnover of project managers and the separation of technical and fiduciary roles which left the PMO with little control – these led to many problems including the loss of institutional memory, weakness in contract management and monitoring consultants, lack of quality assurance and less effective dissemination of key information among stakeholders
   c. Delays in billings and procurement – particularly for the JSSTP where centralization of payment led to delays.
   d. Frequent delays in the issue of the sub allotment release order for the project led to delays in the release of funds for salaries and wages of the PMO staff as well as shortage of funds to pay contracts
   e. Institutionalization of results of technical assistance and outcomes; the TA provide recommendations which should be seriously considered for formal adoption and implementation in order to achieve the grant objectives. However there was a lack of effort and no mechanism was developed to campaign and advocate to partner agencies to make water quality improvement a priority
   f. The fluctuation of the peso against the dollar caused problems in financial management
   g. The system for ensuring quality outputs from the consultants were not adequate

8. For component 3 it was found that the workshops held were sufficient to stimulate the demand for financing mechanisms, but not sufficient for implementation. The time required to obtain institutional (municipal) approvals of project components was longer than expected.

Lessons learnt

9. The benefits of collaboration between implementing Agencies far outweighed the risks. The project resulted in heightened awareness and improved Agency responses to emerging issues. Stakeholder views of the implementation arrangement were positive and there were increased opportunities for collaboration. Partner agencies were able to improve coordination and working arrangements contributed to professional growth and advancement. The Technical Working Group (TWG) was an effective mechanism to address the lack of regular venues for project review and provided a troubleshooting role – helping to identify solutions to emerging issues.

10. The approach to capacity building by consultants varied. Some agencies reported that there benefitted from working together with the consultant. However this was not an explicit capacity building role in the ToR for most consultants.

11. Integrating all components is not easy. Some stakeholders still view their component as an independent project resulting in a fragmented view of the goal and objectives of the project.

Conclusions and Recommendations

12. The following main conclusions and recommendations are made for future implementation:

a. The integration process is critical. Joint activities and events should be programmed to support partnership building.
b. Under similar projects in the future the PMO should be strengthened, including combined control over technical and fiduciary functions and regular review and updating of its functions. The PMO should have an explicit function to support advocacy within DENR, monitor components and improve the implementation and organize events for all agencies to update on progress.
c. The approach to capacity building should be more proactive to address implementation issues. Trainings should be preceded by a needs assessment and be designed to promote institutionalization of results and sustainability of benefits. The delivery of capacity building should be a part of the Terms of Reference
d. Terms of reference for consultants should have had greater inputs from DENR and the World Bank to ensure they were aligned to the actual needs and expectations of the donor and client including setting standards for quality of deliverables
e. Programming and scheduling of project outputs should have been improved, for example the draft policies should have been programmed to be produced near the beginning of the project so that their implementation could have been supported during the project
f. Sustained LGU participation needs to be ensured by getting LGUs involved in the project design, implementation and review. Mechanisms are needed to monitor and document engagement.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders
Not applicable

Annex 9. List of Supporting Documents

Supporting Document Reviewed:

1. DENR, Memorandum of Agreement on Strengthening Partnerships to Address Issues on Water Pollution Sewerage and Sanitation with DoH, MWSS and MMDA, 2011
2. DENR, Memorandum of Agreement on Strengthening Partnerships to Address Issues on Water Pollution Sewerage and Sanitation with LLDA, PRRC, Coast Guard, 2011
3. DENR, Memorandum of Agreement on Strengthening Partnerships to Address Issues on Water Pollution Sewerage and Sanitation with Local Government of Quezon City, 2009
4. DENR, Draft Policy 1 – Septage Management Ordinance An Act Establishing a Septage Management System in the City, May 2014
5. DENR, Draft Policy 2 – Guidelines for the Adoption of New Design Parameters for Septic Tanks, May 2014
6. DENR, Draft Policy 3 – Pre-Treatment Standards for Wastewater Effluents Discharged by Commercial and Industrial Wastewater Sources to Publicly-owned Sewer Systems, May 2014
7. DENR, Draft Policy 4 – National Registry of the De-Sludgers or Entities Engaged in Septage Management, May 2014
8. DENR, Draft Policy 5 – Industry- Specific Effluent Standards for Sewerage and Septage Treatment Facilities Operated by Public Water Utilities, Revising DAO 34 and 35, Series of 1990, May 2014
9. DENR, Draft Policy 6 – Procedural Guidelines for Harmonized Water Quality Monitoring in NCR: submitted by the PMO for endorsement by EMB-DENR, May 2014
10. DENR, Draft Policy 7 – Joint DENR-DOH Administrative Order on Bio-solids: Guidelines for Bio-solids in the Philippines, May 2014
11. DENR, Manila Third Sewerage Project: Components 3 and 4 Consulting Services for Innovative Financial Mechanisms (IFMs) and Use of Market-based Instrument (MBIs), ITAC, May 2012
12. Hibbert, P., Huxham, C. & Ring, P. S. 2008. Managing collaborative inter-organizational relations. In: Cropper, S., Ebers, M., Huxham, C. & Ring, P. S. (eds.) The Oxford Handboook of Inter-Organizational relations.
13. Global Environmental Fund (GEF) Manila Third Sewerage Project (MTSP), Annual Progress Report, 2011 and 2013
14. GEF MTSP, Exit Report for the Project Monitoring and Evaluation Specialist, June 2010
15. GEF MTSP, Project Completion Report, June 2014
16. GEF MTSP, Record for the Project Completion Report Workshop, 30 January 2014
17. Metropolitan Waterworks and Sewerage System (MWSS), Water Supply, Sewerage and Sanitation Master Plan for Metro Manila: Final Report. World Bank, November 2005
18. MWSS (2014), Metropolitan Waterworks and Sewerage System Draft Updated Master Plan Version 1, Berkman International, Inc. April 2014
19. National Engineering Centre (2010), Public Assessment of Sewerage and Sanitation Services Pilot Year 1 – Accomplishment Report, University of the Philippines, MWSS, December 2010
20. San Juan River System, Water Quality Management Area, Governing Rules, April 2014
21. Water and Sanitation Program, Economic assessment of sanitation interventions in the Philippines, World Bank, 2011
22. World Bank, Aide Memoir (Preparation and Implementation), Dated February 2006, June 2008, March 2009, February 2010, October 2011, January 2013
23. World Bank, Country Assistance Strategy for the Republic of the Philippines, April 2005
24. World Bank, East Asia and the Pacific Region Urban Sanitation Review; Philippines Country

Study, World Bank, December 2013
25. World Bank, Global Environment Facility Grant Agreement (GEF-Manila Third Sewerage Project) Between Republic of the Philippines and International Bank for Reconstruction and Development acting as an Implementing Agency of the Global Environment Facility, August 2007
26. World Bank, IFR Reporting and Compliance Schedules 2007-2014
27. World Bank, Implementation Completion and Results Report (IBRD-73110) on a loan in the amount of Japanese Yen 6,592.00 Million (US$64 Million equivalent) to the Land Bank of the Philippines with the Guarantee of the Republic of the Philippines for the Manila Third Sewerage Project, December 2012
28. World Bank, Implementation Status Reports, Archived June 2008, June 2009, May 2010, March 2011, February 2012, April 2013, December 2013, May 2014
29. World Bank, Project Appraisal Document on a Proposed Loan in the Amount of US$ 275 million to the Land Bank of the Philippines for the Metro Manila Wastewater Management Project, April 2012
30. World Bank, Project Document on a Proposed Grant from the Global Environment Facility Trust Fund in the amount of $5 million to the Republic of the Philippines for a GEF-Manila Third Sewerage Project, May 2007
31. World Bank, Restructuring Paper on a Proposed Project Restructuring of GEF-Manila Third Sewerage Project August 16, 2007 to the Republic of the Philippines, November 27, 2012

Organizations met during the ICR mission, April - May 2014

1. Aqua Prisms Technology and Environmental Services
2. Environmental Management Bureau, DENR
3. Foreign Assisted and Special Projects Office, DENR
4. GEF MTSP Project Management Office
5. Laguna Lake Development Authority
6. Manila Bay Coordinating Office, DENR
7. Marikina Local Government Unit
8. Maynilad Water Services, Inc
9. MWSS Corporate Office
10. MWSS Regulatory Office
11. San Jose WQMA Governing Board
12. World Bank task team

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