Document of
The World Bank

Report No: ICR00003919

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-H4890TF-94675 IDA-H7030 IDA-H8560)

ON A

GRANT
IN THE AMOUNT OF SDR 16.8 MILLION (US$ 25 MILLION EQUIVALENT)

AND

TWO ADDITIONAL GRANTS
IN THE AMOUNT OF SDR 9.5 MILLION (US$ 15 MILLION EQUIVALENT) AND
SDR 9.4 MILLION (US$ 14 MILLION EQUIVALENT)

AND

A GLOBAL ENVIRONMENTAL FACILITY GRANT
IN THE AMOUNT OF US$ 1.82 MILLION

TO THE

REPUBLIC OF TOGO

FOR A

EMERGENCY INFRASTRUCTURE REHABILITATION AND ENERGY PROJECT

December 22, 2016

Social, Urban, Rural and Resilience Global Practice (GSURR)
Country Department AFCF2
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective November 30, 2016)

Currency Unit = CFA Francs BCEAO
US$ 1.00 = FCFA 616
US$ 1.00 = SDR 0.74

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AFD	French Development Agency (*Agence Française de Développement*)
AfDB	African Development Bank
AGETUR-Togo	Agency for the Execution of Urban Works (*Agence d'Exécution des Travaux Urbains à Haute Intensité de main-d'oeuvre*)
ANASAP	National Agency for Sanitation and Public Health (*Agence Nationale d'Assainissement et de Salubrité Publique*)
ANGE	National Agency for Environment Management (*Agence Nationale de Gestion de l'Environnement*)
BOAD	Development Bank of West African States (*Banque l'Ouest Africain du Développement*)
CAS	Country Assistance Strategy
CBD	Central Business District
CDQ	Neighborhood Development Committee (*Comité de Développement des Quartiers*)
CEET	Togo's Electric Energy Utility (*Compagnie Energie Electrique du Togo*)
CESSE	Environmental and Social Monitoring Unit (*Cellule Environnementale et Sociale de Suivi Evaluation*)
CFL	Compact Fluorescent Light
CII	Inter-Ministerial Committee on Compensation (*Comité Interministériel d'Indemnisation*)
CSI	Core Sector Indicator
DGEA	Department of Hydraulics and Sanitation (*Direction Générale de l'Hydraulique*)
ERR	Economic Rate of Return
EU	European Union
GEF	Global Environment Facility
GoT	Government of Togo
IDA	International Development Association

ISC	Interministerial Steering Committee
ISR	Implementation Status Report
KfW	German Development Bank (*Kreditanstalt für Wiederaufbau*)
LICUS	Low-Income Countries Under Stress
LV	Low Voltage
MEF	Ministry of Economy and Finance (*Ministère de l'Economie et des Finances*)
MTR	Mid-Term Review
MUDH	Ministry of Urban Development and Housing (*Ministère du Développement Urbain et de l'Habitat*)
MV	Medium Voltage
NPV	Net Present Value
PAD	Project Appraisal Document
PANSEA	National Action Plan for the Water and Sanitation Sector
PDNA	Post-Disaster Needs Assessment
PNE	National Policy for Water
PNHDU	National Policy for Housing and Urban Development (*Politique Nationale de l'Habitat et du Développement Urbain*)
POLEN	National Energy Policy
SP-EAU	Assets Management Company for Urban Water and Sanitation *(Société du Patrimoine de l'Eau et de l'Assainissement Urbain)*
SWM	Solid Waste Management
TdE	Togo's Water Utility (*Togolaise des Eaux*)
TS	Technical Secretariat
WSS	Water Supply System

Senior Global Practice Director:	Ede Jorge Ijjasz-Vasquez
Sector Manager:	Bernice van Bronkhorst
Project Team Leader:	Kwabena Amankwah-Ayeh
ICR Team Leader:	Bontje Marie Zangerling

TOGO

EMERGENCY INFRASTRUCTURE REHABILITATION AND ENERGY PROJECT

CONTENTS

A. Basic Information

Country:	Togo	Project Name:	Emergency Infrastructure Rehabilitation and Energy Project
Project ID:	P113415,P115066	L/C/TF Number(s):	IDA-H4890,IDA-H7030,IDA-H8560,TF-94675
ICR Date:	10/12/2016	ICR Type:	Core ICR
Lending Instrument:	ERL,SIL	Borrower:	GOVERNMENT OF TOGO
Original Total Commitment:	USD 25.00M,USD 1.82M	Disbursed Amount:	USD 52.70M,USD 1.77M
Environmental Category: B,C		**Focal Area**: C	
Implementing Agencies: Ministry of Urban Development and Housing, AGETUR-Togo			
Cofinanciers and Other External Partners: n/a			

B. Key Dates

Emergency Infrastructure Rehabilitation and Energy Project - P113415

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	04/28/2009	Effectiveness:	09/01/2009	09/01/2009
Appraisal:	02/10/2009	Restructuring(s):		05/04/2010 05/31/2011 06/04/2013 12/11/2015
Approval:	06/02/2009	Mid-term Review:	12/03/2012	05/12/2014
		Closing:	12/31/2013	06/30/2016

Togo Efficient Lighting Program - P115066

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	01/07/2009	Effectiveness:		09/01/2009
Appraisal:	02/10/2009	Restructuring(s):		
Approval:	06/02/2009	Mid-term Review:	09/01/2011	05/12/2014
		Closing:	12/31/2013	06/30/2016

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes	Satisfactory
GEO Outcomes	Satisfactory
Risk to Development Outcome	Substantial
Risk to GEO Outcome	Substantial
Bank Performance	Satisfactory
Borrower Performance	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	**Ratings**	**Borrower**	**Ratings**
Quality at Entry	Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance	Satisfactory	Overall Borrower Performance	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Emergency Infrastructure Rehabilitation and Energy Project - P113415			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating:**
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA)	None
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA)	None
DO rating before Closing/Inactive status	Satisfactory		

Togo Efficient Lighting Program - P115066			
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):	No	Quality of Supervision (QSA)	None
GEO rating before Closing/Inactive Status	Satisfactory		

D. Sector and Theme Codes

Emergency Infrastructure Rehabilitation and Energy Project - P113415		
	Original	Actual
Sector Code (as % of total Bank financing)		
Energy efficiency in Heat and Power	8	8
Flood protection	40	40
Transmission and Distribution of Electricity	8	8
Urban Transport	24	24
Water supply	20	20
Theme Code (as % of total Bank financing)		
City-wide Infrastructure and Service Delivery	51	51
Environmental policies and institutions	11	11
Natural disaster management	10	10
Urban services and housing for the poor	28	28

Togo Efficient Lighting Program - P115066		
	Original	Actual
Sector Code (as % of total Bank financing)		
Energy efficiency in Heat and Power	100	100
Theme Code (as % of total Bank financing)		
Climate change	50	50
Urban services and housing for the poor	50	50

E. Bank Staff

Emergency Infrastructure Rehabilitation and Energy Project - P113415		
Positions	At ICR	At Approval
Vice President:	Makhtar Diop	Obiageli Katryn Ezekwesili
Country Director:	Pierre Frank Laporte	Madani M. Tall
Practice Manager/Manager:	Bernice van Bronkhorst	Eustache Ouayoro
Project Team Leader:	Kwabena Amankwah-Ayeh	Kwabena Amankwah-Ayeh
ICR Team Leader:	Bontje Marie Zangerling	
ICR Primary Author:	Bontje Marie Zangerling	
	Samira El Khamlichi	

Togo Efficient Lighting Program - P115066		
Positions	**At ICR**	**At Approval**
Vice President:	Makhtar Diop	Obiageli Katryn Ezekwesili
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ICR Team Leader:	Bontje Marie Zangerling	
ICR Primary Author:	Bontje Marie Zangerling	
	Samira El Khamlichi	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)
The Project Development Objective is to increase access to infrastructure and urban services in Lomé.

Revised Project Development Objectives (as approved by original approving authority)
The PDO remained unchanged.

Global Environment Objectives (from Project Appraisal Document)
The Global Environment Objective is to reduce peak load and energy use by diffusing compact fluorescent light bulbs (CFL) to households in Togo and by introducing standards and labels for light bulbs.

Revised Global Environment Objectives (as approved by original approving authority)
The GEO remained unchanged.

(a) PDO 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 :	Direct project beneficiaries (Number, Core)			
Value (quantitative or Qualitative)	NA	NA	885,500	1,020,983
Date achieved			12/31/2015	06/30/2016
Comments (incl. % achievement)	***Exceeded***. The target value was surpassed by 19%. Indicator introduced as part of the first Additional Financing (AF) in 2011.			
Indicator 2 :	Number of people protected against periodic flooding (Number, Custom)			
Value	2,000	202,000	768,000	858,062

(quantitative or Qualitative)				
Date achieved	05/13/2009	12/31/2013	12/31/2015	06/30/2016
Comments (incl. % achievement)	***Exceeded***. The formally revised target was surpassed by 12%. The original target was revised upwards to 502,000 and eventually 768,000 to reflect the scale-up of activities under the first (2011) and second AFs (2013).			
Indicator 3 :	Number of people in urban areas provided with access to all-season roads within a 500 meter range under the project (Number, Core)			
Value (quantitative or Qualitative)	0	105,000	262,500	350,000
Date achieved	05/13/2009	12/31/2013	12/31/2015	06/30/2016
Comments (incl. % achievement)	***Exceeded***. The formally revised target value was surpassed by 33%. The original target was revised upwards to 153,000 and eventually 262,500 to reflect the scale-up of activities under the first (2011) and second AFs (2013).			
Indicator 4 :	Number of people in urban areas provided with access to Improved Water Sources under the project (Number			
Value (quantitative or Qualitative)	0	55,000		64,444
Date achieved	05/13/2009	12/31/2013		06/30/2016
Comments (incl. % achievement)	***Exceeded***. The target value was surpassed by 17%. The standpipes constructed under the project will service 64,444 people living within a 200 meter range. Up to 167,792 people living in the target areas may access them walking longer distances than 200 meters.			
Indicator 5 :	Additional households and businesses with access to reliable electricity (Number, Custom)			
Value (quantitative or Qualitative)	0	100,000	Replaced by core sector indicator	139,522
Date achieved	05/13/2009	12/31/2013	12/31/2015	06/30/2016
Comments (incl. % achievement)	***Achieved***. Indicator was replaced with core sector indicator for electricity access (Indicator 6) as part of Restructuring in May 2011. The target value was surpassed by 40%.			
Indicator 6 :	Number of people in urban areas provided with access to electricity under the project by household connections (Number,Core)			

Value (quantitative or Qualitative)	0	n/a	100,000	98,477
Date achieved	05/12/2009	12/31/2013	12/31/2015	06/30/2016
Comments (incl. % achievement)	***Nearly achieved***. 98.5% of the target value was achieved. CSI was introduced to replace Indicator 5 but the target was not revised.			

(b) 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 :	Peak load reduction from CFL installed (Megawatt, Custom)			
Value (quantitative or Qualitative)	0	10.8		12.5
Date achieved	05/13/2009	12/31/2013		06/30/2016
Comments (incl. % achievement)	***Exceeded***. The target value was surpassed by 16%.			
Indicator 2 :	Energy consumption reduction per year from CFL installed (Megawatt hour (MWh), Custom)			
Value (quantitative or Qualitative)	0	20,000		26,500
Date achieved	05/13/2009	12/31/2013		06/30/2016
Comments (incl. % achievement)	***Exceeded***. The target value was surpassed by 33%.			

(c) 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
Indicator 1 :	Drains cleaned (Kilometers, Custom)			
Value (quantitative or Qualitative)	0	42	98.2	120.9
Date achieved	05/13/2009	12/31/2013	12/31/2015	06/30/2016

Comments (incl. % achievement)	***Exceeded***. The formally revised target value was surpassed by 23%. The original target value was revised upwards to 92km and eventually 98.2km to reflect the scale-up of activities under the two AFs in 2011 and 2013.			
Indicator 2 :	Drainage network rehabilitated (Kilometers, Custom)			
Value (quantitative or Qualitative)	0	8	22.2	31.3
Date achieved	05/13/2009	12/31/2013	12/31/2015	06/30/2016
Comments (incl. % achievement)	***Exceeded***. The formally revised target value was surpassed by 41%. The original target value was revised upwards to 17km and eventually 22.2km to reflect the scale-up of activities under the two AFs in 2011 and 2013.			
Indicator 3 :	Roads rehabilitated, Non-rural (Kilometers, Core)			
Value (quantitative or Qualitative)	0	5	12.5	18.5
Date achieved	05/13/2009	12/31/2013	12/31/2015	06/30/2016
Comments (incl. % achievement)	***Exceeded***. The formally revised target value was surpassed by 48%. The original target value was revised upwards to 7.5km and eventually 12.5km to reflect the scale-up of activities under the two AFs in 2011 and 2013.			
Indicator 4 :	Improved community water points constructed or rehabilitated under the project (Number, Core)			
Value (quantitative or Qualitative)	0	60		64
Date achieved	05/13/2009	12/31/2013		06/30/2016
Comments (incl. % achievement)	***Exceeded***. The target value was surpassed by 7%.			
Indicator 5 :	Newly constructed mini water systems (Number, Custom)			
Value (quantitative or Qualitative)	0	15		15
Date achieved	05/13/2009	12/31/2013		06/30/2016
Comments (incl. % achievement)	***Achieved***. 16 boreholes were drilled. 6 water towers with a total capacity of 1,359m^3 (instead of initially planned 15 mini water systems totaling 750m^3), 27 km of distribution network and 64 standpipes (as initially foreseen) were constructed.			
Indicator 6 :	Transformer stations rehabilitated (Number, Custom)			

Value (quantitative or Qualitative)	0	20		25
Date achieved	05/13/2009	12/31/2013		06/30/2016
Comments (incl. % achievement)	***Exceeded***. The target value was surpassed by 25%. 15 transformer stations were rehabilitated, 5 others reconstructed, 5 pre-built stations were set up, 36 kilometer of electricity distribution network constructed, and 200 default detectors installed.			
Indicator 7 :	Compact energy efficient light bulbs installed (Number, Custom)			
Value (quantitative or Qualitative)	0	400,000		500,000
Date achieved	05/13/2009	12/31/2013		06/30/2016
Comments (incl. % achievement)	***Exceeded***. The target value was surpassed by 25%. In addition, a national laboratory for the testing of CFL bulbs was equipped.			
Indicator 8 :	People trained in institutions involved in project management and implementation (Number, Custom)			
Value (quantitative or Qualitative)	0	40	60	164
Date achieved	05/13/2009	12/31/2013	12/31/2015	06/30/2016
Comments (incl. % achievement)	***Exceeded***. The formally revised target value was surpassed by 173%. The original target value was revised upwards to reflect the scale-up of activities under the first AF in 2011.			

G. Ratings of Project Performance in ISRs

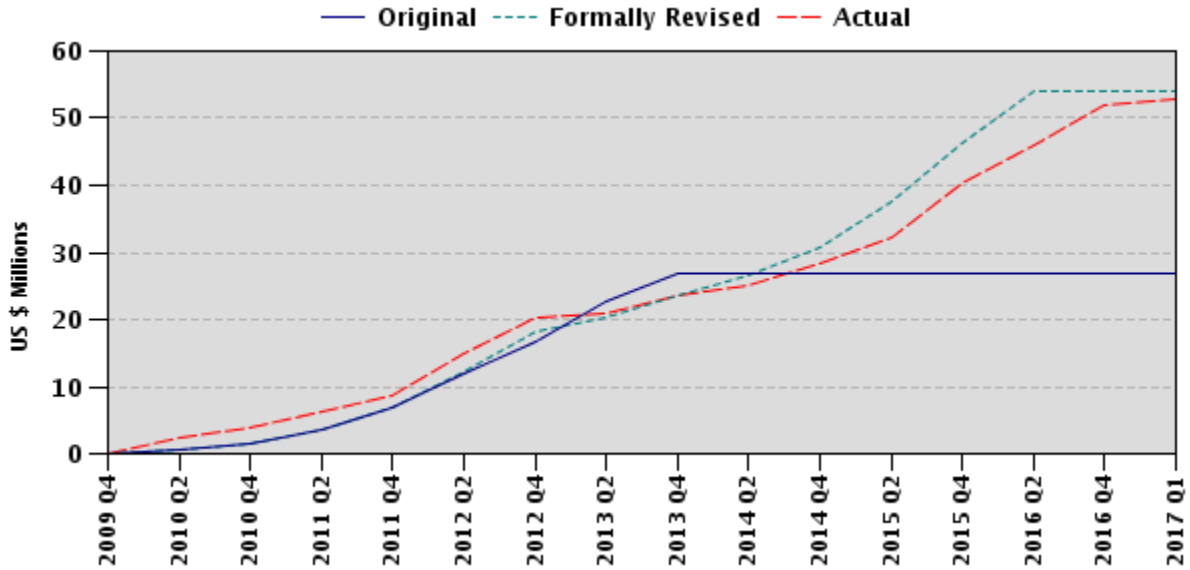
No.	Date ISR Archived	DO	GEO	IP	Actual Disbursements (USD millions)	
					Project 1	Project 2
1	12/29/2009	S	S	S	2.25	0.22
2	06/02/2010	S	S	S	2.61	0.22
3	02/19/2011	S	S	S	6.88	0.24
4	11/01/2011	S	S	S	11.84	0.24
5	06/11/2012	S	S	S	19.73	0.43
6	12/17/2012	S	S	S	20.98	0.45
7	07/05/2013	S	S	S	23.48	1.13
8	01/19/2014	S	S	S	25.02	1.14
9	09/30/2014	S	S	S	28.77	1.17
10	05/19/2015	S	S	S	38.53	1.29
11	11/25/2015	S	S	S	46.02	1.73
12	06/27/2016	S	S	S	51.90	1.77

H. Restructuring (if any)

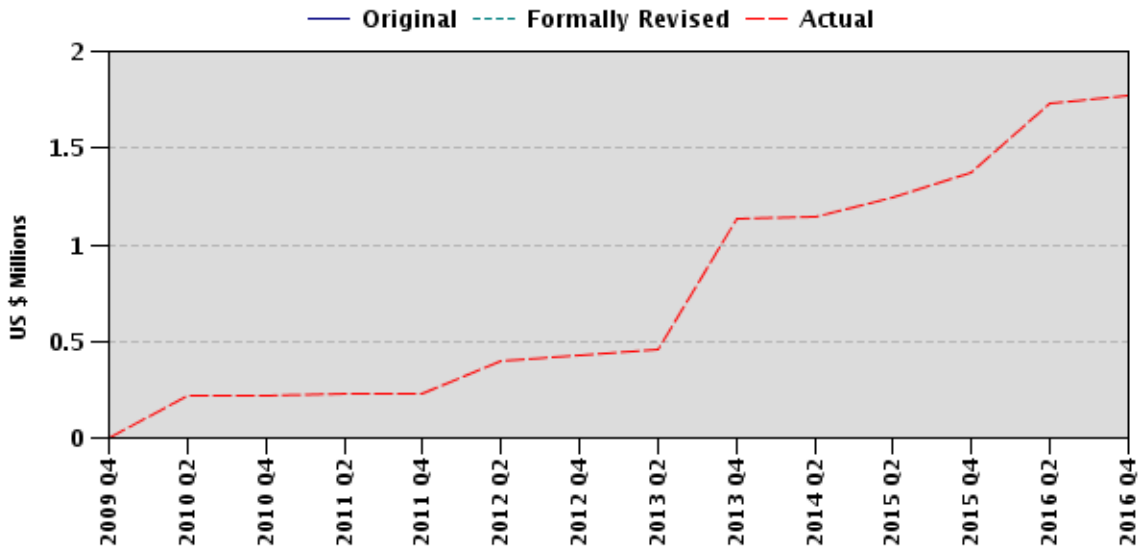
Restructuring Date(s)	Board Approved		ISR Ratings at Restructuring			Amount Disbursed at Restructuring in USD millions		Reason for Restructuring & Key Changes Made
	PDO Change	GEO Change	DO	GEO	IP	Project1	Project 2	
05/04/2010	N	N	S	S	S	2.41	0.22	Inclusion of construction of center for disaster victims
05/31/2011	N	N	S	S	S	8.08	0.24	Additional Financing and extension of closing date by 24 months
06/04/2013	N	N	S	S	S	23.48	1.13	Additional Financing
12/11/2015	N	N	S	S	S	46.02	1.73	Extension of closing date by 6 months

I. Disbursement Profile

P113415



P115066



1. Project Context, Development and Global Environment Objectives Design

1.1 Context at Appraisal

1. *Country Background*. At appraisal, Togo had recently started to emerge from 15 years of social and political crisis that had severely limited infrastructure and service provision with devastating effects for the population, in particular the poor. Tensions in the country remained high since the social unrest around the presidential succession challenges in 2006; the political agreement between the opposing factions was still fragile. The new Government of Togo (GoT) needed to deliver "peace dividends" to the unsettled population by providing basic infrastructure and services, improving employment opportunities, engaging them in their own community development, and ensuring more equitable access to the nation's natural wealth. Expectations that the GoT would deliver on its promises were high despite internal skepticism in the potential for lasting peace.

2. *Recovery strategy*. The GoT presented its recovery strategy in the 2008 Interim Poverty Reduction Strategy Paper (I-PRSP) that set out an ambitious program to revive economic growth, reduce poverty, improve living conditions, and strengthen political governance. Among the key priorities were the rehabilitation of infrastructure and services to support economic growth and the promotion of citizen-driven community development. The new government offered a window of opportunity to foster recovery and longer-term development. Since its own resources and capacity were limited and the reforms were taking more time to implement than anticipated, the GoT called on development partners to provide emergency support to its stabilization efforts.

3. *Sector Background*. 36 percent of Togo's population was urban at appraisal. The capital Lomé[1] housed over half of them (about 1.4 million people) and contributed about 60 percent of gross domestic product. The city had been adversely affected by the absence of investments and unable to provide and maintain infrastructure services. Most neighborhoods had become difficult places to live, in particular for the poor, and were also prone to heavy periodic flooding. Many people had taken refuge in Lomé during the years of crisis and the risk of regression into violence was considerable. As such, Lomé was particularly suited to serve as an entry point to strategically address urgent infrastructure needs. The recently created Ministry of Urban Development and Housing (MUDH) had indicated its commitment to extend services to underserviced segments of the population and its long-term plan to ensure maintenance of existing infrastructure.

4. *Rationale for Bank Assistance*. At appraisal, the Bank and other development partners had just started reengaging with the GoT[2] that needed international support to improve the dire condition of infrastructure and services in the country. The Bank's experience in supporting fragile, post-conflict countries in their efforts to move towards recovery could be applied in Togo to swiftly address the infrastructure rehabilitation

[1] The urbanized area of Lomé extends beyond the municipal boundaries into the Golfe Prefecture.

[2] Togo fell into non-accrual status with the Bank in May 2002 as a consequence of the decade-long political and economic crisis. Operations funded by the Bank and other development partners were suspended. Recommendations from the Low-Income Country Under Stress (LICUS) Task Force a Country Re-engagement Note (CRN), endorsed by the Board of Executive Directors on December 14, 2004, paved the way to resuming the Bank engagement in Togo in the form of analytical work and activities financed through the LICUS Trust Fund, including the Lomé Infrastructure Rehabilitation and Maintenance Project (P111338, US$1.57 million) approved in May 2008.

needs alongside multifaceted governance issues. The Bank's convening power was also expected to provide a lead in the coordination with other development partners that were resuming their activities in Togo to support the GoT's reconstruction efforts. The Bank could also build on an Urban Sector Review completed in 2008 and a pilot operation to rehabilitate key drainage structures in Lomé's central business district (CBD) approved in May 2008. The project was consistent with the Bank's Interim Strategy Note (ISN) FY08-FY10 for Togo, directly supporting its second and third pillars: to promote economic recovery and sustainable development by helping the GoT rehabilitate critical infrastructure; and to address urgent social needs through rehabilitation of the infrastructure base to provide quality public services and income-generating opportunities to the residents of poorest communities in Togo.

5. *Eligibility for processing under OP/BP 8*.00. The project was a key element in the Bank's carefully sequenced emergency response to support Togo's recovery. Project activities were designed to help stabilize the fragile situation, focusing on reconstruction of physical assets, protection and restoration of essential services and social/institutional capital, and capacity building, which was in line with specific objectives that may be supported through emergency assistance under OP/BP 8.00.

1.2 Original Project Development Objectives (PDO) and Key Indicators (as approved)

6. *PDO*. The Project Development Objective is to increase access to infrastructure and urban services in Lomé. The achievement of this objective would support the GoT's efforts to demonstrate visible and tangible improvements in the lives of its citizens, which would be critical for sustaining social and political stability in the country.

7. *Key Indicators*. The achievement of the PDO would be measured by the following outcome indicators:

- Additional population protected against periodic flooding (Number)
- Additional population with access to year-round passable roads (Number)
- Additional population with access to potable water (Number)
- Additional households and business with access to reliable electricity (Number)

1.3 Original Global Environment Objectives (GEO) and Key Indicators (as approved)

8. *GEO*. The Global Environment Objective is to reduce peak load and energy use by diffusing compact fluorescent light bulbs (CFL) to households in Togo and by introducing standards and labels for light bulbs.[3] The GEF-financed energy efficiency project was blended into sub-component A4 of the project. The GEF Grant Agreement restates the PDO, identical to the IDA Financing Agreement, and does not state the GEO.

9. *Key Indicators*. According to Annex 7 in the PAD, the achievement of the GEO would be measured by the following two outcome indicators:

- Peak load reduction from CFL installed (Megawatt)
- Energy consumption reduction per year from CFL installed (Megawatt hour)

[3] There is no explicit reference to the GEO as such in the main body of the Project Appraisal Document (PAD). However, the results framework for the GEF project/component in section E of annex 7 to the PAD states that the objective is to reduce peak load and energy use by diffusing CFL to households in Togo and by introducing standards and labels for light bulbs.

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

10. The PDO was not revised. Yet, key indicators on access to roads, water, and electricity were revised to align with the World Bank core sector indicators (CSI) as part of a project restructuring in April 2010. In addition, a PDO indicator tracking direct beneficiaries was included as part of the first additional financing (AF) in May 2011.

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

11. The GEO was not revised and key indicators remained the same.

1.6 Main Beneficiaries

12. At appraisal in 2009, the expected project beneficiaries in Lomé included: (i) 200,000 inhabitants of poor neighborhoods to benefit from reduced flooding; (ii) 100,000 people to gain access to improved roads; (iii) 50,000 residents to gain access to potable water; and (iv) 100,000 households and business to benefit from access to reliable electricity. In addition, staff from the various institutions involved in project management and implementation was expected to benefit from training and capacity building.

13. In order to reflect the scale-up of selected activities (roads, drainage, capacity building) under two AFs in 2011 and 2013, which were triggered by a flooding emergency in Lomé, relevant target values were adjusted upwards. The project was now expected to directly benefit 885,500 inhabitants of Lomé, including: (i) 768,000 people protected against periodic flooding; (ii) 262,500 people with access to all-season roads within a 500 meter range; (iii) 55,000 people with access to improved water sources; and (iv) 100,000 people with access to electricity by household connections.

1.7 Original Components (as approved)

14. ***Component A: Infrastructure Rehabilitation*** (US$ 22.8 million equivalent).This component had four sub-components:

15. *A.1 Drainage cleaning and rehabilitation* (US$ 9 million equivalent IDA) in selected poor neighborhoods of Lomé, through: (i) cleaning of approx. 42 kilometers of existing canals throughout the city; (ii) rehabilitation and extension of approx. eight kilometers of unsound drainage networks, resurfacing of drains and construction of new culverts along major roads, using mostly labor-intensive works methods; (iii) rehabilitation of shoulders and side ditches of the secondary drainage network that drains into the lagoons of Lomé; and (iv) construction of four storm water retention ponds, including fencing for all four and the equipment of one of them with a pumping station.

16. *A.2 Urban roads rehabilitation* (US$ 5 million equivalent IDA) to rehabilitate five kilometers of primary and secondary roads in Lomé to increase access to isolated areas of the city through: (i) reshaping and reinforcing of base structures, re-gravelling and paving of roads, and rehabilitating drainage and crossing structures along those roads; and (ii) construction of a bridge to widen an existing road and ease traffic flow.

17. *A.3 Water supply* (US$ 4 million equivalent IDA) to increase access to and improve the quality of water supply services for residents in poor peri-urban neighborhoods of Lomé, not serviced by TdE, through: (i) drilling and equipping fifteen

solar-powered production boreholes, (ii) connecting selected neighborhoods to boreholes in the form of mini-water supply systems, and (iii) installing sixty (60) water kiosks (*kiosks à eau*) and standpipes.

18. *A.4(a) Rehabilitation of the electric distribution network* of Lomé (US$ 3 million equivalent IDA) through: (i) rehabilitation of twenty medium voltage (MV) or low voltage (LV) transformers, including the replacement of selected small transformers by higher capacity transformers; (ii) rehabilitation of the network distribution, including the execution of new MV substations and the reconstruction of selected LV substations to support acceptable capacity levels; and (iii) installation of fault passage indicators on the electric distribution network.

19. *A.4 (b) Improving the energy efficiency of the electric distribution system* (US$1.82 million from GEF; US$ 1.32 million in-kind GoT contribution; US$ 0.57 million in kind contribution from the national electricity utility CEET; and partial payment by consumers totaling US$ 0.4 million) through: (i) installation of at least 400,000 Compact Fluorescent Lamps (CFLs) replacing incandescent light bulbs in use; (ii) carrying out of public information and awareness campaigns to promote a culture of energy efficiency; and (iii) implementation of a normative framework and quality control system in the national market of CFL distribution.

20. Component B: Institutional Strengthening (US$ 4 million), including: (i) a program to build capacity in terms of equipment and logistics for the entities involved in project implementation; (ii) a program to strengthen the supervision, monitoring, evaluation, and communication skills and functions of the Technical Secretariat for project implementation; and (iii) a program to provide capacity building to the staff of the entities involved in project implementation in financial management, procurement, monitoring and evaluation, environmental and social safeguards.

1.8 Revised Components

21. Responding to a GoT request following the 2009 rainy season, a restructuring in April 2010 included the construction of a center for disaster victims under sub-component A.1 to enable the GoT to provide timely emergency services for victims of recurrent heavy flooding. In order to accommodate the costs of this new activity, the drainage network to be rehabilitated was reduced from eight to five kilometers.

22. Two AFs in May 2011 and June 2013, which both responded to a GoT request for additional funding to tackle the negative effects of another flooding emergency in Lomé in the fall of 2010, scaled-up activities under the roads and drainage sub-components and provided financing for more capacity building. The revised components were as follows:

23. ***Component A: Infrastructure Rehabilitation*** (US$ 50.8 million equivalent):

24. *A.1 Drainage cleaning and rehabilitation* (US$ 31.71 million equivalent IDA) in selected poor neighborhoods of Lomé, through: (i) cleaning of approx. 98 kilometers of existing canals throughout the city; (ii) rehabilitation and extension of approx. 21 kilometers of unsound drainage networks, resurfacing of drains and construction of new culverts along major roads, using mostly labor-intensive works methods; (iii) rehabilitation of shoulders and side ditches of the secondary drainage network that drains into the lagoons of Lomé; (iv) construction or rehabilitation of five storm water retention

ponds, including fencing for all four and the equipment of one of them with a pumping station; and (v) construction of a center for disaster victims.

25. *A.2 Urban roads rehabilitation* (US$ 10.29 million equivalent IDA) to rehabilitate 12.5 kilometers of primary and secondary roads in Lomé to increase access to isolated areas of the city through: (i) reshaping and reinforcing of base structures, re-gravelling and paving of roads, and rehabilitating drainage and crossing structures along those roads; and (ii) construction of a bridge to widen existing road and ease traffic flow.

26. *A.3 Water supply*. Unchanged.

27. *A.4 (a) Rehabilitation of the electric distribution network* of Lomé and *A.4 (b) Improving the energy efficiency of the electric distribution system*. Unchanged.

28. ***Component B: Institutional Strengthening***. Unchanged.

1.9 Other significant changes

29. The project closing date was extended twice. The AF in 2011 extended it by 24 months from December 31, 2013, to December 31, 2015, to allow for implementation of the additional activities. A second extension of six months to June 30, 2016, was approved in December 2015 to ensure completion of some works that had suffered delays, in particular the construction of water tanks and the paving of two roads.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

30. *Emergency character.* In light of the fragile situation in Togo and the urgent need for infrastructure investments following years of socio-political crisis combined with severe damages caused by heavy flooding in 2008, the project was prepared in less than four months using flexible and accelerated procedures as allowed under OP/BP 8.0. The project activities and proposed technical solutions were simple focusing on reconstruction and extension of critical infrastructure and restoration of essential services in peripheral neighborhoods of the country's main city with a view to reestablishing trust in government and strengthening social cohesion. No economic or financial analyses were conducted as allowed under OP/BP 8.0. No quality at entry review was done, but the fact that implementation started soon after effectiveness (first disbursements in October 2009) and continued steadily thereafter suggests that the project design was effective.

31. *Building on previous experience.* The project design built on lessons learnt from two Bank-financed operations that rehabilitated key roads and drainage structures in Lomé's CBD[4]. It also capitalized on the ongoing sectoral dialog with GoT counterparts. Activities were prioritized based on their potential for rapid implementation considering available technical studies and plans that could be easily updated, simplicity of design, and successful previous experience, which helped to ensure project readiness.

[4] The Lomé Urban Development Project (P002865, 1994-2002, US$ 24 million) financed rehabilitation of five major roads and anti-erosion drainage works in Lomé, strengthened community development in the Bé neighborhood and also supported urban institution building (including creation of the Urban and Municipal Development Agency Citafric, which prepared many of the plans and studies that were used for the Project); and the Lomé Infrastructure Rehabilitation and Maintenance Project (P111338, 2008-2010, US$1.6 million) financed the rehabilitation of Boulevard Oti and was still ongoing at the time of preparation.

Implementation arrangements also built on previous experiences. Project-related procurement and contract management was delegated from the young MUDH to AGETUR-Togo, which was created in 1994 under a previous Bank-funded project and had a track record of executing externally-funded infrastructure projects. The national utilities for electricity (CEET) and water (TdE) as well as the Municipality of Lomé were to provide technical assistance to AGETUR on relevant sub-components. A Technical Secretariat (TS) was created in MUDH to ensure day-to-day project supervision and coordination between AGETUR and others, as well as reporting to the Bank.

32. *Inter-sectorial coordination.* Project preparation benefited from strong inter-sectorial coordination that was facilitated by the President's interest in the project and the integrative leadership of the Minister of Urban Development and Housing, who had previously served as Minister of Energy and Water. A Project Preparation Committee chaired by MUDH and comprising representatives from the ministries for energy, mining and water, public works, and planning, the Municipality of Lomé, TdE, CEET, AGETUR-Togo, and beneficiary communities was set up to ensure involvement of all stakeholders in key decisions regarding project design. This approach was translated into implementation through the creation of an Inter-ministerial Steering Committee (ISC) to ensure involvement of all stakeholders in strategic decision-making regarding project implementation on at least a bi-annual basis.

33. *Complementarity to other donors*. Project activities were identified in coordination with other donors that had recently started to reengage with Togo in order to build synergies. The drainage sub-component directly complemented a project co-financed by the French Development Agency (AFD) and the European Union (EU) to clean Lomé's lagoon system and construct two outlets to enable the flow of excess water from the city's storm water drainage and lagoon system into the sea. As AFD was also to support solid waste management (SWM) for Lomé, the project did not include any activities in this regard. The German Cooperation, through KfW, provided parallel financing for the rehabilitation of another major urban road, for which it adopted the Bank's fiduciary and safeguards procedures and joint missions were conducted to harmonize implementation solutions.[5]

34. *Piloting energy efficiency*. Building on the Bank's experience to support phasing out of inefficient incandescent lamps in other countries in the region, the Bank team mobilized a GEF co-financing grant to complement the IDA-funded rehabilitation of the electricity distribution network with diffusion of energy efficient light bulbs to maximize energy savings and reliability. Blending the modest GEF resources with IDA allowed the Bank to leverage their dialogue with high-level decision makers around infrastructure rehabilitation to get buy in for the energy efficiency agenda. However, in retrospective, the scope of the GEF pilot may have been overambitious given the sector context in Togo and available resources since it also intended to set-up a regulatory framework and an national laboratory to test lamps, which are large and complex tasks.

35. *Risks and mitigation.* The overall risk was rated as high. Main risks identified were: social and political upheaval causing further instability; weak capacity of key GoT

[5] The 17-million Euro KfW parallel financing financed the rehabilitation/construction of the 10.3 kilometers long road (the so-called *petit contournement*) connecting the airport with the main North-South national road (N1).

counterparts to effectively coordinate project implementation; political interference in selection of project activities; corruption and fraud; insufficient community involvement in project implementation; weak capacity of responsible agencies to operate and maintain the rehabilitated infrastructure; and poor capacity of local contractors. Proposed mitigation measures included strengthening of the Technical Secretariat in fiduciary management and safeguards; putting in place a computerized accounting system; delegating contract management to an independent agency; defining adequate prior review procurement thresholds; creating the ISC that included representatives from beneficiary communities; regular implementation support missions; elaboration of a communication strategy; capacity building activities for local contractors; and supporting the GoT to identify viable maintenance arrangements.

2.2 Implementation

36. *Bank-Client collaboration.* Implementation progress was rated *Satisfactory* throughout the duration of the project; disbursements started shortly after effectiveness and continued steadily until project closing. The constructive collaboration and frank dialog between the Bank team and the government agencies involved in project implementation was key to ensuring effective project implementation. Time-bound action plans were defined during regular implementation support missions and effectively followed up on. The close collaboration also helped sustain strong government commitment and dedication (despite three changes of Minister) throughout the seven years of project implementation, beyond the first quick visible results on the ground from drainage cleaning/de-silting that was executed within few months of effectiveness.[6] The good working relationship also allowed the Bank to assist the Borrower in resolving initial challenges related to multi-sectorial/inter-agency implementation arrangements and occasional frictions between AGETUR and TS/MUDH.

37. *Additional financing*. The satisfactory project performance facilitated the approval of two AFs in 2011 and 2013. Both AFs responded to a GoT request for additional funding in the amount of US$58 million in early 2011 to address the negative effects of a flood emergency in Lomé in the fall of 2010. A Post Disaster Needs Assessment (PDNA) suggested possible actions in support of the GoT recovery efforts. Given the limitation in the Togo IDA envelope in 2011, only US$ 15 million were granted under the first AF approved on May 31, 2011. The second AF in the amount of US$ 14 million was approved on June 4, 2013, following the gains made in the initial works that had been carried out through the parent and first additional grant. The two AFs helped expand rehabilitation of roads and drainage infrastructures in Lomé damaged by the 2010 floods, and thereby reduce risks of disruption to urban service provision. The closing date was extended to December 31, 2015, to allow for completion of the additional works.

38. *Mid-term review.* A joint mid-term review (MTR) was conducted in May 2014. It concluded that the initially proposed technical solution for supplying water in peri-urban areas (construction of solar-powered mini water supply systems - WSS) could be

[6] The cleaning/de-silting of the initial 42 kilometers of major drains and rehabilitation of the initial five kilometers of drainage network were completed by end of May 2010 and helped minimizing considerably the flood impacts of heavy rains that the country experienced in fall 2010. The ISR from February 2011 states that neighborhoods with drains cleaned under project were less affected by the flooding in that year.

improved in light of new information on the hydrogeological potential of the aquifers that became available after boreholes for the WSS had been drilled.[7] Considering remaining project funds, it was decided to build only six WSS that have a higher capacity (totaling 1,359m^3) than the initially planned 15 mini-WSS (totaling 750m^3) and would reach the same number of beneficiaries. The MTR also validated the proposed operation and maintenance arrangements for the water kiosks. Regarding the GEF-funded activities, it recommended to drop the elaboration of a regulatory framework for energy efficiency due to the complexity of this activity and use the resources to correct drops in voltage. It also provided recommendations to steer the GoT through the preparation and implementation of remaining safeguards instruments. Finally, it emphasized the need to ensure the dissemination of good practices from the project to a broader audience in Togo.

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

39. *Design.* A simple and clear project results framework was established. The four PDO and seven intermediate indicators were relevant, specific, and measurable. As per the requirements of GEF[8], the task team also prepared a separate, detailed results framework for the GEF-funded activities that included two GEO indicators and 17 intermediate indicators (Annex 7 of PAD)[9]. One of these intermediate indicator (tracking the number of CFLs installed) was also included into the overall project results framework and subsequently tracked in the ISRs. As part of the 2010 project restructuring, PDO indicators were revised to align with CSIs, but in the case of the indicator tracking access to electricity the target value was not adjusted although the unit changed from households to people. In addition, a PDO indicator tracking direct beneficiaries was included as part of the 2011 AF.

40. *Implementation and utilization.* A dedicated staff was recruited for the TS to coordinate and oversee M&E of the agencies involved in project implementation. Tools and equipment to track project progress were put in place. Surveys were conducted in 2013, 2014, 2015, and 2016 to monitor progress towards achieving PDO indicators. AGETUR collected data for intermediate indicators for sub-components A1, A2, and A3, while CEET monitored those for sub-component A4. The GEO indicator measuring peak load reduction was inconsistently monitored, potentially due to a lack of clear definition.

2.3 Safeguard and Fiduciary Compliance

41. *Environmental and social safeguards.* The project was classified as Category B and trigged two safeguards policies: OP 4.01 (Environmental Assessment) and OP 4.12 (Involuntary Resettlement). The Environmental and Social Management Framework (ESMF) and the Resettlement Policy Framework (RPF) were prepared and disclosed in August 2009.[10] As execution of the first drainage and urban road works was underway, complaints regarding compensation payments to project affected people (PAP) and a fatal

[7] The initial technical studies estimated a possible pumping rate of 5 cubic meter per hour, but further studies after 15 boreholes were drilled showed that the pumping rate can actually be as high as 60 cubic meter per hour.
[8] Streamlined procedures are now in place for blended operations with GEF funding.
[9] The GEF-specific results framework (Annex 7 of the PAD) included two GEO indicators: (i) energy savings; and (ii) peak load reduction. The ISRs reported on a third GEO indicator tracking the number of CFL installed, which was also included and monitored as an intermediate results indicator of the PDO in the overall project results framework.
[10] Safeguards instruments were published via Togo Press, the Ministry of Environment, traditional chefs, and later also the PURISE website (online since January 2014). They were also disclosed via the World Bank's InfoShop.

accident triggered social and environmental safeguards audits in April 2012.[11] The audits revealed several shortcomings in the application of safeguards policies, including non-conformities in the elaboration of Resettlement Action Plans (RAPs) and Environmental Management Plans (EMPs)[12], which were largely attributed to a lack of clarity regarding the institutional responsibilities for the review and approval of such documents and insufficient client capacity. In particular the members of the project-specific Environmental and Social Monitoring Unit (CESSE)[13], who was tasked with reviewing RAPs and EMPs, had not received any specific training on Bank safeguards policies. A detailed and time-bound action plan to correct the shortcomings was agreed on and successfully implemented. Key measures included: (i) preparation of an ex-post abbreviated RAP for the retention basin in Agbalépédogan; (ii) swift payment of delayed compensations to PAPs[14]; (iii) dismantling CESSE and delegation of the sole responsibility for reviewing and approving safeguards documents to the new National Agency for Environment Management (ANGE)[15]; (iv) targeted training to reinforce the capacity of AGETUR, ANGE, the Inter-ministerial Compensation Committee (CII), contractors and supervision consultants; and (v) closer safeguards supervision by both the Borrower and the Bank. Safeguards compliance for the subsequent works was satisfactory; RAPs and EMPs were approved and published before the start of works and mitigation measures included in the bidding documents were implemented in a satisfactory manner. No further complaints were recorded until project closing and the GoT implemented successful resettlement compensation measures, notably the construction of the market in Agbalépédogan. The estimated number of PAPs was 187.

42. Fiduciary compliance. Given the high fiduciary risks, procurement and financial management (FM) was delegated to AGETUR, which had experience in executing externally-funded projects. In addition to annual external audits, the Bank required the recruitment of an internal auditor to strengthen the internal control environment. FM was initially rated moderately satisfactory due to delays in mobilizing this auditor, but was upgraded to satisfactory after compliance with this covenant in May 2011. Adequate FM and disbursement systems were maintained throughout the project. Quarterly interim financial reports and annual financial statements, prepared by AGETUR, were submitted on time. The opinions of annual external audit reports were unqualified. Procurement was rated moderately satisfactory in the first years given some weaknesses in procurement practices resulting from AGETUR staff being poorly acquainted with changes in Bank procedures that had occurred when Bank operations were suspended in Togo, and a lack of a clear classification/filing system. Targeted training and close implementation support improved procurement performance, which was deemed satisfactory from July 2013

[11] The complaints were raised by a group of PAPs from the terrain on which the Agbalépédogan water retention pond and Aflao-Gakli drainage systems were being constructed. The existence of ruins of houses, from which inhabitants had been dislodged by rising floods of previous years, (and hence PAPs) in the low-lying area where the retention basin was to be constructed was revealed in July/August 2011 when the contractor drained the area in preparation for the works, but the PAPs had not yet received compensation by January 2012 while the works continued to be executed.
[12] While some RAPs existed for the initial works under execution, none of them had actually been finalized, approved, and published before the execution of the works had started.
[13] Given the absence of a national agency for environmental management at project preparation, CESSE was created to ensure coordination and follow-up on safeguards issues. It comprised focal points from relevant agencies.
[14] The GoT sent documentation on May 15, 2012, to prove that the compensation and settlement issues were resolved.
[15] ANGE was created in November 2011 under the Ministry of Environment.

onwards. Post-procurement reviews showed compliance and timely implementation of recommendations, but also noted some delays in completing procurement for civil works.

2.5 Post-completion Operation/Next Phase

43. *Post-completion activities.* The GoT committed to some activities after project closing to ensure operation of the investments. Given changes in technical design and delays in the execution of works, the construction of the WSS was only completed at the end of the project. The responsibilities for managing these assets and ensuring their operation were transferred to the Assets Management Company for Urban Water and Sanitation (SP-EAU) and TdE after project closing. At the time of the ICR, SP-EAU and TdE were in the process of transferring the water kiosks (stand pipes) to private local operators and signature of the concession agreements was underway.[16] The GoT also indicated that other externally-funded projects would finance the construction of additional decentralized WSS on the other ten boreholes drilled under the project.[17] Similarly, the operation and maintenance of the electricity distribution network was successfully transferred to CEET, but the national laboratory is not yet operational and permanently housed in the Ministry of Mines and Energy. A decree was prepared and validated to outsource the management to a private firm but is awaiting signature from the four ministries involved.[18]

44. *Follow-up operation.* Based on the successful experience of the project, the GoT requested a follow-up urban operation to deepen the engagement in Lomé and extend the approach to six intermediate cities. The new project would strengthen the emphasis on maintenance and institutional aspects, including an update of the urban sector review. An identification mission was carried out in November 2016 and the project is expected to be delivered to the Board by September 2017. The GoT and the World Bank have also engaged in discussion of a potential follow-up support in the energy sector - an important sector faced with substantial challenges to provide reliable and accessible electricity services in quickly growing urban areas.[19]

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

45. *Relevance of Objectives is* ***high***. The PDO and the GEO were highly relevant at the time of appraisal considering the urgent needs due to lacking extension and

[16] The models for the concession contracts between TdE, the local authority/community development committee, and a private operator, which among other things stipulate the fees to be charged, were finalized during project implementation (available at MTR). The communities first vet potential private local operators that will then be evaluated by TdE to ensure that they comply with the stipulated requirements (including residence in the vicinity of the water kiosk and ability to operate it all day) before transferring the operation to them and finalizing the contracts. This is a new approach for operating decentralized WSS in peri-urban areas in Togo.

[17] The project financed the drilling of 16 boreholes, but only constructed WSS on six of them. The UNDP-funded Community-based Emergency Program is expected to finance construction of two additional WSS and further extend the distribution network of the six existing systems. The GoT is also exploring the possibility of including the construction of WSS on the remaining eight boreholes under an EU-funded project under preparation.

[18] MUDH, Ministry of Mines and Energy, Ministry of Economy and Finance (MEF), and Ministry of Commerce.

[19] In FY13, the Bank conducted a policy review of Togo's electricity sector that outlined the sector's issues along with a set of recommended priority actions, among which stepping-up government's efforts and investments for the rehabilitation and expansion of the electricity distribution network in Lomé.

maintenance of infrastructure and services during 15 years of crisis. The geographical focus on Lomé was justified given its status as primary city in both demographic and economic terms as well as more pronounced tension and low levels of trust between its residents and the GoT. The objectives remain relevant for Lomé and even more so for Togo's secondary cities, where urban infrastructures and services remain degraded or missing due to underinvestment, destruction by recurrent torrential rains, increased peak electricity demand, and continuing strong urbanization.[20] In 2015, about 13% of Lomé's population and over 31% residents of secondary cities did not yet have access to potable water, and 14% of the country's urban households had not yet access to electricity, while a periodic load shedding continued to be applied as the only measure to manage the electricity demand side[21]. The focus of project interventions on poor peri-urban neighborhoods has remained equally relevant as the poverty rate in Lomé increased from 28.5% in 2011 to 34.8% in 2015 (QUIBB), despite the country's return to political stability and a more favorable environment for socio-economic development. Providing infrastructure and reliable services to urban dwellers remains a key priority on the government agenda. The PDO is in line with the Strategy for Boosting Growth and Promoting Employment 2013-2017 (SCAPE) that articulates the need to further consolidate and foster inclusive growth including through the rehabilitation and expansion of urban roads along with water and electricity services, and explicitly identifies urban development as key for achieving economic growth. At the sectorial level, the National Policy for Housing and Urban Development (PNHDU), the National Policy for Water (PNE), the National Energy Policy (POLEN), and the National Action Plan for Energy Efficiency (adopted in 2015) set forth detailed objectives and actions to enhance access to infrastructure and services and promote energy efficiency to improve living conditions in cities. Moreover, the PDO is consistent with the latest ISN (FY12-13, approved on December 29, 2011) that maintains improving access to infrastructure as a key priority in order promote economic recovery and sustainable development.[22]

46. *Relevance of design and implementation is **substantial***. The project design proved to be effective during implementation and remained relevant until project closing. The PDO was clearly stated, and the causal chain between the proposed activities and anticipated outcomes was straightforward. GEF-funded activities were generally well integrated into the overall project. Yet, the scope of proposed activities under this sub-component, which included the development of the regulatory framework (dropped during the MTR) and setting up of a testing laboratory, seems to have been an overreach considering the sector context in Togo and the modest grant amount. Institutional arrangements, including the delegation of contract management responsibilities to a professional independent agency and mechanisms for cross-sectorial coordination, were adequate for a multi-sectorial project in a post-emergency setting and low capacity of the young MUDH[23]. At the same time, institutional strengthening activities were designed to

[20] According to the PNHDU, Togo's cities continue to grow at over 4% per year on average; Lomé's population is even growing at an annual rate of 5% (compared to a population growth rate of 2.9%). Based on these growth rates, it is projected that 57% of Togolese will live in cities by 2040 and nearly 72% of this urban population will reside in Lomé.
[21] Around 67% of electricity demand is from households (residential sector).
[22] The World Bank has started the process of preparing a new strategy to support Togo's development efforts, including a Systematic Country Diagnostic (SCD) that will provide the diagnostic basis for a Country Partnership Framework (CPF) to be defined in consultation with the government and other stakeholders.
[23] MUDH in its current form was put in place in 2008. Its precursor, the Ministry of Cities, had been created in 2005.

enhance technical capacity of key government agencies to effectively coordinate project implementation. The facts that disbursements started one month after effectiveness and continued at a steady pace thereafter and that overall project design did not have to be adjusted during implementation also point to a substantial relevance of design.

3.2 Achievement of Project Development Objectives and Global Environment Objectives

47. *Achievement of PDO and GEO is **substantial**.* The project achieved its PDO to increase access to infrastructure and urban services in Lomé, exceeding the revised end-of-project targets for several PDO indicators.[24] It also exceeded the targets for the GEO indicators on reduction of peak load and energy consumption. Project interventions directly benefitted a total of 1,020,983[25] people in Lomé, many living in poor peri-urban areas[26], exceeding the target of 885,500 beneficiaries by 19 percent. Findings from the beneficiary surveys and the ICR mission also showed the beneficiaries' satisfaction with the quality of the satisfactory quality of the infrastructure and services provided (see below for more details).

48. *Urban drainage and roads.* Today 858,062 residents in the Lomé metro area, which corresponds to roughly half of the area's population, are protected against periodic flooding, exceeding the target of 768,000 people by 12 percent. A total of 350,000 residents were provided with access to an all-season urban road within a 500 meter range, exceeding the target value (262,500) by 33 percent. These achievements are the result of improvements of strategically selected drainage and roads infrastructure: (i) a total of 120.9 kilometers of storm water drains were cleaned (compared to a target of 98.2 kilometers); (ii) another 31.1 kilometer of drainage network was rehabilitated or constructed (compared to a target of 22.2 kilometers); (iii) five major retention ponds were constructed or rehabilitated, totaling a capacity of over 190,000 cubic meters, and one was equipped with a pumping station; and (iv) 18.5 kilometers of primary and secondary urban roads were rehabilitated (compared to target of 12.5 kilometer), including over nine kilometers of new or rehabilitated storm water drains. The strategic selection of drainage interventions, based on the 2004 drainage master plan for Lomé and interventions supported by other donors, allowed creating a city-wide network of inter-connected retention basins and canals that drain excess rain water into the lagoon system and eventually into the sea.[27] The result is a significant improvement of storm water

[24] Surveys were conducted to determine the results achieved for the PDO indicators on protection against periodic flooding, access to an all-season road, access to water supply, and access to electricity.

[25] The last ISR based on the final GoT project report reports 1,553,055 direct beneficiaries, but this would be the entire population of greater Lomé and also exceeds the total number of people who benefited from the rehabilitated infrastructure as tracked by the other PDO indicators. The more conservative value presented here was calculated adding the people who are protected against flooding, gained access to water supply and to electricity. In order to avoid double counting, the number of people who received access to a rehabilitated urban road (all of which include drainage now and are largely in the same areas where drainage was rehabilitated) were not added as they are likely also included in the people protected against flooding.

[26] The project did not include an explicit objective on poverty reduction, but the activities under various subcomponents were to benefit the residents of poor neighborhoods. The PAD did not provide quantitative criteria to define the targeted poor areas, but the ICR mission confirmed that the beneficiary neighborhoods were indeed poor settlements located in low-lying zones that are prone to flooding, and distant from existing urban infrastructure and services.

[27] An AFD/EC-funded project financed the cleaning of Lomé's lagoon system and the construction of two major outlets from the lagoon system to allow the flow of excess rain water from the city's storm water drainage system into the sea. The construction of these outlets was finalized in 2012. Another EC-funded project is now financing the excavation of a fourth lake in Lomé's lagoon system to further enhance water absorption capacity and reduce the risk of flooding.

management and reduction of flood-prone areas in Lomé. In addition, the project financed the construction of a center for disaster victims in the neighborhood of Logopé in 2010 that can offer temporary shelter for up to 1,000 people whose dwellings are affected by flooding or other disasters. Since its inauguration and transfer of its management to the Ministry of Social Affairs in 2011, the center has offered shelter to a total of 6,350 people with a maximum of 400 people at one time, who had been internally displaced during the 2013 floods. It is used as a training facility for government agencies, when it is not needed for emergencies.

49. *Urban water supply.* The project is likely to provide access to an improved water source within a 200 meter range to 64,444 residents in six poor, peri-urban neighborhoods, which had not previously been served by the national water utility TdE, surpassing the target (55,000 people) by 17 percent. Overall, 167,792 people, who live in the catchment areas of the decentralized WSS constructed under the project, could access water from the standpipes by covering a longer distance or request a private household connection.[28] Six decentralized water production and supply system (each with a storage capacity of over 200m^3, totaling 1,359 m^3) were constructed, which would be able to supply the same number of beneficiaries in the same target areas as the initially foreseen 15 solar-powered mini WSS.[29] A total of 64 public standpipes to be operated as water kiosks (compared to a target of 60) were constructed along 27 kilometers of new distribution network. Tests before project closing confirmed the functioning of the constructed systems. Service delivery arrangements for the water kiosks were defined during project implementation and validated as part of the MTR. The responsibilities for managing the WSS was transferred to TdE and SP-EAU after project closing, and the signature of concession agreements for the operation and maintenance of water kiosks with local private operators was underway at the time of the ICR. These local operators had been identified and vetted for this task by the respective beneficiary communities. It is further expected that decentralized WSS on the remaining 10 boreholes drilled under the project would be constructed under other donor-funded projects (see section 2.5 for more details).

50. *Urban electricity supply and energy efficiency.* 98,477 people in Lomé were provided with access to electricity by household connections, nearly achieving the target of 100,000. In addition, 139,522 households and businesses benefited from improvements in the reliability of electricity supply.[30] The project contributed to reducing peak load by 12.5 MW[31] (compared to target of 10.8 MW) and energy consumption by 26,500 MWh per year, exceeding the target of 20,000 MWh. These achievements resulted from: (i) rehabilitation/construction of 25 strategically targeted transformer stations in areas with the most voltage drops, overloads or other safety issues; (ii) extension of LV electricity

[28] Few households had actually requested a connection to the distribution network at the time of the ICR The beneficiary survey carried out in June 2016 found that 89 percent of households would be willing and able to pay on average 18,500 CFA (approx. USD 30) for the installation of a household connection. Yet, the average actual costs for TdE to install a household connection is 100,000 CFA (approx. USD 170) depending on the distance of the household to the distribution network. This points to a need for subsidies to allow low-income households to connect.

[29] In order to achieve an equitable spatial distribution of the six WSS, one additional borehole was drilled.

[30] A sample of household was interviewed as part of the annual surveys to determine the number of beneficiaries and their satisfaction with the electricity service improvement and reliability after the rehabilitation of transformers.

[31] The ICR team calculated the peak load reduction purely attributable to technical considerations and assumptions: (i) 500,000 CFL installed, (ii) power factor of 0.7, and (iii) coincidence factor of 80%.

distribution network by 36 kilometers; (iii) installation of 200 fault detectors; (iv) replacement of 500,000 light bulbs with more energy-efficient CFLs instead of the targeted 400,000 thanks to an effective distribution mechanism that allowed CEET to use revenues from the sale of CFL to buy 100,000 additional lamps and distribute them for free[32]; and (v) numerous communication campaigns (TV, radio, workshops, putting labels,…) that helped raise awareness and incentivize consumers to reduce their electricity consumption through the use of CFLs. As per the project design, CFL recycling was not included in this pilot operation. The operation and maintenance of the rehabilitated electricity distribution network was successfully transferred to CEET. In addition, a laboratory for verifying efficiency standards for light bulbs was equipped. It is not yet operating, but an inter-ministerial decree that allows outsourcing of its management to a private operator is awaiting signature. The elaboration of a regulatory framework and efficiency standards, which could have helped accelerate and sustain the market transformation towards energy efficiency, were dropped in the MTR.

51. *Institutional strengthening*. The project also contributed to strengthening the capacity of the institutions involved in project implementation, including technical staff of relevant ministerial departments, AGETUR-Togo, the national water and electricity utilities (TdE and CEET), and the Municipality of Lomé. A total of 164 staff were trained in topics such as safeguards, FM and procurement, M&E, and communication, in 16 training events in several countries. Moreover, involved government agencies were equipped with vehicles, IT equipment, and office furniture (see Annex 2 for more detail). While the primary focus was to guarantee smooth project implementation, the activities also aimed to build the foundation for achieving sustainable operation and maintenance of the urban infrastructure and services in the long run through other activities that the GoT and other donors would implement in the future.[33]

52. *Potential contributions to sustaining stability*. It is more challenging to provide evidence to attribute achievements in sustaining socio-economic and political stability in Togo to the impact of the project. The project interventions have helped bring about tangible improvements in the living conditions of Lomé's residents, particularly those in poor peri-urban areas. The ICR mission validated that roads and drainage canals were relatively clean allowing for smooth traffic and flow of water and electricity transformer stations were functioning. Beneficiaries interviewed during field visits confirmed that their properties, schools, and markets no longer flood and roads remain usable during rainy season. They also commended the involvement of community representatives in project preparation and implementation. Although it is not possible to prove causality, these may be signs that the project made a contribution to reducing frustration and

[32] A survey was conducted at the beginning of the project to evaluate the lighting market, perception of consumers, and willingness to pay for CFLs. CEET took in charge the distribution of CFLs and disposal of collected incandescent lamps. At first, 15,000 lamps were distributed free of charge as a test, and the rest was sold at a cost of FCFA 200 each. Revenues were used to buy and distribute additional 100,000 CFLs free of charge to consumers. The CFLs were purchased under a bulk procurement using ELI (IFC/GEF Efficient Lighting Initiative) standards and specifications.

[33] The last ISR also includes an intermediate indicator tracking the number of water utilities supported by the project with a baseline and target of one. This indicator was not in the original results framework and only appears in the results framework annexed to the project paper for the first AF, without however being explained in the project paper itself. Considering this and the limited usefulness of an indicator that has the same target and baseline values, it seems to have been an oversight and not meant to be included.

enhancing beneficiaries' perception of the GoT's intention to improving and providing services, which in turn could help sustain stability in the country.

3.3 Efficiency

53. *Efficiency is considered* ***high***. Cost Benefit Analyses (CBA) were conducted to quantify the major benefits stemming from the drainage and roads sub-components, which represent 73 percent of the investment. The major benefits derived from improved drainage infrastructure are avoided flood damages and avoided health expenses. The benefits were generated by strategically combining cleaning of drains with rehabilitation and construction of drains and water retention ponds. The works were carried out at an estimated total cost of US$15.2 million instead of the planned US$31 million. The CBA shows an economic rate of return (ERR) of 21.4%, largely above the recommended threshold of 6%. A sensitivity analysis showed that the results are robust to even more rigorous assumptions. These economic results should be viewed as a conservative lower bound value as other major benefits could not be quantified because of their qualitative nature. The major benefits from the roads rehabilitation will be derived from improved mobility and comfort, Vehicle Operating Costs (VOC) savings and Travel Time Costs (TTC) savings. The CBA focuses on Vehicle Operating Costs (VOC) savings to estimate a lower bound value of ERR. The ERR is 16% (much higher than the bank recommended value of 6%) and the net present value (NPV) is US$ 393.4 million. Sensitivity analysis showed that the results are robust to changes in several variables including the future traffic growth rate or the benefits resulting from VOC savings. The investments were therefore economically justified.

54. The water supply sub-component provided access to more than 64, 000 people in poor suburban settlements. This access is expected to translate into major benefits, including time saving and reduced incidence of some water related diseases such as diarrhea. However, these benefits could not be quantified due to the lack of adequate data and/or complexity of modeling these effects. The water supply component disbursed US$ 4.05 million representing US$ 63 per beneficiary of the component. This value compares favorably with the per capita cost of standpipes in Africa estimated at US$ 62. The water supply component is therefore cost-effective.

55. Ex-post economic analyses were also conducted for the energy sub-component. The CBA for the rehabilitation of the electric distribution network (sub-component A.4a) adopts a conservative with- and without-project comparison over 15 years. The activities were carried out at an estimated cost of US$2.3 million. The major benefits derived from the rehabilitation are cost savings resulting from purchasing less electricity from neighboring countries thanks to the reduction in technical losses of the distribution network. The analysis assumes that the reduction in technical losses to be attributed to the project is 0.7 percentage point of energy sales.[34] The analysis shows an ERR of 21%, largely above the recommended threshold of 6%, and NPV of US$1,116,993. A sensitivity analysis showed that the results are robust to even more rigorous assumptions.

[34] This is a conservative estimate based on data communicated by email from CEET in December 2016 on energy sales and losses before and after the projet. The data show that there was a 2% loss reduction after the completion of the activities in 2013, but there may have been other initiatives during those years to support the improvement of the network. The marginal generation cost is US$248 per MWh. (see annex 3for more details).

The analysis of the energy efficiency activities (sub-component A.4b) was carried out over a 5-year period (average lifetime of CFL) from the perspective of CEET as the entity in charge of electricity distribution. The activities were carried out at an estimated cost of US$1.7 million. Conservative values were chosen for the different assumptions used to calculate NPV and ERR. The analysis shows that substituting inefficient lamps more efficient CFL results in an ERR of 109% and a NPV of US$2,491,707. The reasons for such a high ERR in the case of Togo are: (i) low retail tariffs that do not reflect the real cost of electricity; and (ii) high marginal generation cost as CEET relies on relatively more expensive generation imported from neighboring countries. The analysis demonstrates the high economic relevance of such energy efficiency activities[35] and their substantial positive impacts on the power sector in terms of avoiding generation capacities, especially that electric lighting continues to be a major contributor to the peak load. It must, however, be noted that no follow-up mechanism was put in place to verify if CFLs were effectively installed and working, which would ensure energy savings occur. Details of all calculations are in the annex 3.

56. In addition, project implementation costs were only four percent of total project costs, indicating efficiency in project management.

3.4 Justification of Overall Outcome and Global Environment Outcome Rating

Rating: *Satisfactory*

57. The project's overall performance is deemed satisfactory, reflecting the high rating for relevance and efficiency and the substantial rating for efficacy.

3.5 Overarching Themes, Other Outcomes and Impacts

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

58. Although poverty reduction was not an explicit project objective, the selection of target areas was informed by non-monetary criteria characterizing poor neighborhoods, such as low-lying, flood-prone areas and expansion areas with low levels of infrastructure and services. The project also set out to use labor-intensive public works methods when possible as a means to create short-term employment for the poor, but did not track the number of such jobs actually created under the various construction contracts. The project neither specifically monitored gender-related aspects. However, field visits and interviews during the ICR mission indicate that the reduced exposure to flooding and improved access to neighborhoods created a favorable environment for local (informal) economic activities, including several stands in front of houses run by women. Moreover, the project rehabilitated a market in Agbalépédogan (funded by the GoT as a safeguards compensation measure) that houses 77 female vendors who expressed their satisfaction with much improved sanitary conditions and also reported increases in their earnings. Moreover, the elementary school of Hunkpati in the Tokoin Forever neighborhood that used to be closed for extended periods each year due to flooding can now function all year round thanks to the project interventions.

59. The project also adopted a participatory approach aiming to involve beneficiary communities in project implementation, thereby fostering community ownership and

[35] High ERR values were also found in other Bank projects with similar scope.

commitment to collaborate in the maintenance of infrastructure. Representatives of neighborhood development committees (CDQ) participated in key decision-making processes regarding project implementation as part of the project's ISC. Conversations with representatives of CDQs, traditional chiefs, and other residents during the ICR mission showed that beneficiaries perceive this systematic participation as an important change vis-à-vis their previous interaction with the GoT and feel the need to further strengthen this approach for potential future project. The ICR mission also observed that CDQs were engaged in preventing the disposal of solid waste in the retention basins.

(b) Institutional Change/Strengthening

60. The dialog between the Bank and the GoT around project preparation and implementation contributed to the creation of the National Agency for Sanitation and Public Health (ANASAP) in December 2013 and the institutionalization of the Inter-ministerial Committee for Compensations (CII). The creation of ANASAP emerged from the need to maintain the urban infrastructure assets created under the project considering the weak maintenance culture and limited capacity in Togo. ANASAP, an autonomous agency under the supervision of MUDH and MEF, is tasked with promoting and maintaining sanitation and public health in Togo's cities by, amongst other things, manage the maintenance and rehabilitation of drainage and roads. It has received yearly allocations from the national budget in the amount of approx. USD 1.16 million since 2014 and was able to leverage donor funding from the Japanese development agency to purchase equipment. It started to carry out maintenance works of drainage infrastructure in Lomé in 2015 and is currently working on the preparation of more systematic inventories and plans for existing urban infrastructure. The project also contributed to the creation of a surveillance and monitoring brigade for public health at the Municipality of Lomé (50 temporary staff). The CII was created within the MEF in August 2009 to handle the compensation of people affected by government projects that require expropriation. It is composed of representatives from key government agencies.[36] The dialog and capacity building around resettlement issues under the project helped consolidate the procedures of the CII, and institutionalize their early involvement in all government projects, including those funded by donors, to address issues related to resettlement and compensation. The project's institutional strengthening activities also helped consolidate the technical capacity of the National Agency for Environment Management (ANGE) that was created in May 2008, in particular for preparation and implementation of environmental safeguards for public works.

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

61. The energy efficiency activities may have helped stimulate interest from the private sector to supply energy-efficient light bulbs. One producer recently installed in Togo and some firms started importing efficient lamps. The intensive communication activities of the project raised awareness about the benefits of CFLs, including potential

[36] It includes representatives from the MEF, Ministry of Public Works, Minister of Territorial Administration, Ministry of Planning, Development and Spatial Planning, MUDH, Ministry of Environment, and Ministry of Social Affairs.

impact on consumers' electricity bills, which may have helped create the demand in the market and which could be reinforced further if regulations were in place.[37]

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

62. Beneficiary surveys were conducted in 2013, 2014, 2015, and 2015 to update results for PDO indicators and assess the impact of project activities on beneficiaries. Respondents overall expressed their satisfaction with the rehabilitated infrastructure, reported improved living conditions and attributed reductions in flooding to the project interventions. The analysis of survey results also showed that the average income of households that are now protected against periodic flooding increased by 20 percent. In addition, over 65 percent of retailers attributed increases in income to the rehabilitation of urban roads. Yet, increases in land and housing prices were reported as negative externalities. Over 89 percent of interviewees confirmed tangible improvements in voltage drops with a substantial reduction in load shedding scheduling, which used to damage their appliances, but 75 percent also indicated there is a need to further reinforce the network. Nearly 10 percent of households reported reductions in their electricity bill starting from 2015, which coincides with the completion of CFL distribution.

4. Assessment of Risk to Development Outcome and Global Environment Outcome

Rating: Substantial

63. The risk to the project outcomes is deemed substantial as some of the project investments are not yet fully operational and maintenance challenges persist for others. Targeted efforts were made during project implementation focusing on capacity building/ institutional strengthening and defining feasible arrangements for the operation and maintenance of the new assets in order to lay the foundation for sustainability of project outcomes.[38] CEET has taken on the operation and maintenance of the rehabilitated electricity distribution network. The Ministry of Social Affairs has been managing the center for disaster victims since 2011 with yearly operating budgets of approx. US$50,000. However, most water kiosks and the testing laboratory for light bulbs were not yet operational at the time of the ICR. Water kiosks will likely be operational soon considering that signature of concession agreements between TdE/SP-Eau, CDQs and local private operators for the water kiosks are underway. While it also seems likely that the laboratory will be made functional by outsourcing it to a private operator (inter-ministerial decree is awaiting signature), it cannot be fully operational until efficiency standards and regulations are in place against which lamps would be tested.

64. In addition, some uncertainties persist regarding the maintenance of roads and drainages over the medium and long term. The creation of and budget allocations to ANASAP to maintain these infrastructures and improve SWM in collaboration with the municipality demonstrate the GoT commitment to sustaining project investments. The

[37] Togo has been participating in the regional initiatives of CEDEAO/UEMOA on promoting access to modern and energy efficient lighting.

[38] Amongst other things, a temporary tri-partite committee (TS, DGIEU/MUDH, and Municipality of Lomé) was created towards the end of project implementation to support the appropriation of the infrastructures built by the Municipality and identify solutions for challenges related to maintenance of these infrastructures.

project also opted for technical solutions that reduced maintenance needs (such as the systematic inclusion of storm water drainage along urban roads). Yet, ANASAP needs further institutional consolidation and financial strengthening, which is unlikely without external support given the GoT's tight fiscal situation. The memorandum of understanding between ANASAP and the Municipality of Lomé defining the details of their collaboration had not yet been signed. In addition, more efforts are needed to improve SWM in Lomé, including behavioral changes, complementing the awareness raising activities already undertaken. Finally, the implementation of the decentralization policy and improvements in urban planning could help support the sustainability of project outcomes. The follow-up urban project may help reduce the risk to project achievements by promoting maintenance, strengthening ANASAP, and potentially also supporting the operationalization of the decentralization policy.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Satisfactory

65. Bank performance in ensuring quality at entry is rated satisfactory. The preparation team included technical staff from the urban and energy units, most of which had already been working on the preceding LICUS-funded project. They were thus familiar with the context in Lomé and had close working relationships with relevant government agencies. This allowed for a quick preparation of a project that adequately incorporated lessons learnt and defined interventions based on existing plans and studies as well as complementarities to ongoing and planned efforts supported by other donors. The Bank team also managed to garner the President's interest in the project and support to facilitate inter-ministerial collaboration during preparation. Moreover, the productive collaboration between the urban and energy staff during preparation allowed full integration of energy activities, including promotion of energy efficiency financed by a GEF grant, into the project. Yet, in hindsight, the scope of the GEF-funded sub-component seems to have been overly ambitious. The team also adequately identified risks and mitigation measures, but implementation showed that even stronger efforts than anticipated were needed regarding safeguards and operation and maintenance of certain assets (roads and drainage). In the absence of a formal quality-at-entry review, the fact that project implementation started immediately after effectiveness and continued at a steady pace during the entire life of the project suggest that the project activities and implementation arrangements were adequate.

(b) Quality of Supervision

Rating: Satisfactory

66. Bank performance in terms of supervision is deemed satisfactory. The task team provided timely hands-on implementation support over the life of the project, fielding 16 missions in seven years that contributed to the successful execution of project activities. Aide-memoires were detailed, reflecting discussions and agreements with the GoT and implementing agencies. They also included time-bound action plans for pending activities, which the Bank team continuously followed up on to keep implementation on

track. The task team leader and other key team members remained unchanged over the entire preparation and implementation period, contributing to consistency and a good working relationship, which was highly valued by the client. Task team members regularly visited construction sites and consulted with traditional chiefs and other community representatives. FM and procurement support was adequate throughout project implementation. There were however initial challenges in providing sufficient hands-on safeguards support to the client who had low capacity in managing environmental and social issues in accordance with Bank policies. This resulted in problems that eventually led to an environmental and social audit as well as frustrations for the client. Safeguards supervision was reinforced following the audit and adequate support and ample training were provided to the client until project closing.

67. The task team processed two AFs to scale up project activities and carried out a MTR jointly with the client in May 2014. The MTR provided pertinent recommendations to modify the design of the decentralized WSS ensuring that the changes would not jeopardize the achievement of the relevant PDO indicator. However, the task team missed an opportunity to formally revise the intermediate indicator for these activities as part of the last project restructuring in December 2015.[39] As part of the MTR, the task team also validated the proposed operation and maintenance arrangements for the decentralized WSS. The team kept following up on issues to achieve the sustainability and dissemination of project achievements and lessons learnt until project closing.

(c) Justification of Rating for Overall Bank Performance

Rating: Satisfactory

68. Both quality at entry and quality of supervision are considered satisfactory. The overall rating for Bank performance is therefore also rated satisfactory.

5.2 Borrower Performance

(a) Government Performance

Rating: Satisfactory

69. Government performance is deemed satisfactory. The GoT and in particular the MUDH had adequate ownership and remained committed to achieving the project objectives throughout preparation and implementation. As the first major Bank-funded investment project in Togo after nearly a decade without donor support, the project enjoyed high visibility and inter-sectorial collaboration during preparation was facilitated by the President. Moreover, all three Ministers of Urban Development were champions of the project, took timely strategic decisions and allocated adequate staff and resources. The GoT fulfilled effectiveness conditions in a timely manner. It also recruited and maintained a project coordinator, M&E specialist, communications specialist, and an internal auditor for the TS in MUDH, but the latter was recruited with a significant delay. The TS effectively supervised AGETUR's work and coordinated it with CEET, TdE, and the Municipality of Lomé, except for initial challenges and disagreements related to safeguards compliance and procurement processes. The TS organized monthly meetings

[39] The task team actually revised the target value for the intermediate indicator in the ISR from May 2015, including an explanation as to why, but this change was not formalized as part of the subsequent project restructuring.

with the implementing agencies starting in April 2010 and provided regular progress reports to the Bank. In addition, MUDH convened regular meetings of the ISC to review implementation progress and provide strategic recommendations. During the last year, the Minister himself took charge of intensive bi-weekly monitoring of project activities. The GoT also maintained an open dialog with the Bank.

70. While there was no official counterpart financing, the GoT financed water supply, electricity, and drainage works, and equipment for the center for disaster victims and has been allocating yearly operating budgets since 2011. Moreover, it created and provided budget to ANASAP since 2014 to improve maintenance of urban infrastructure. The GoT also proposed a viable system for the operation and maintenance of water kiosks in peri-urban areas, but has been slower than expected in its implementation. Similarly, the test laboratory is so far housed within the Ministry of Mines and Energy but still not operational. Finally, CEET provided in-kind contributions to the management of the energy efficiency activities and made available a number of kiosks to distribute the CFLs lamps and collect incandescent lamps for subsequent destruction.

(b) Implementing Agency or Agencies Performance

Rating: Satisfactory

71. The overall performance of AGETUR, to which all contract management was delegated, and CEET, TdE, Municipality of Lomé, and TS/MUDH, which provided technical assistance for the implementation of specific sub-components, is deemed satisfactory. The involved agencies were committed to achieving the project objectives and collaborated well after some initial challenges were overcome. Their dedication and professionalism contributed to successful project implementation. They typically responded to issues in a constructive and timely manner and swiftly adopted recommendations made by the Bank. They also strove to incorporate lessons learnt during implementation, such as improving the design of the fencing for the retention basins and enhancing M&E coordination between AGETUR and TS. While there were some shortcomings at the beginning, in particular regarding the application of the Bank's safeguards policies, the agencies were eager to improve their capacity and soon resolved issues. FM and PM were judged satisfactory or moderately satisfactory throughout the project, but there were some delays in procuring the civil works. The implementing agencies were committed to outreach and communication, ensuring involvement of beneficiaries and other stakeholders during project implementation. Finally, they maintained close and candid communication with the Bank and produced required project reports in a timely manner.

(c) Justification of Rating for Overall Borrower Performance

Rating: Satisfactory

72. The rating for overall Borrower performance is satisfactory given the satisfactory ratings for the GoT and for the implementing agencies.

6. Lessons Learned

73. *Achieving infrastructure delivery in a post-emergency context requires a pragmatic approach and strong commitment.* Building on lessons learnt from previous projects, prioritization of straightforward interventions based on existing plans, and close

coordination with other donors, the GoT and Bank teams managed to prepare, in only four months, a relevant project with realistic objectives and appropriate design that quickly delivered results in a fragile context and led to a successful program with two AFs. The implementation of project interventions was strategically sequenced to deliver quick wins for the life of beneficiaries (i.e. cleaning of drainage), which contributed to reestablishing trust in government, ensuring interest and ownership around the project, and starting disbursements early on, while allowing time to update/complement studies for bigger civil works. Technical solutions were gradually improved based on emerging lessons learnt from implementation (e.g. different type of fencing around retention basins). The project also demonstrated the value of strong government commitment and facilitating continuous dialog between key stakeholders for achieving development objectives and moving forward on broader reforms (e.g. creation of ANASAP and CII) as the country transitions towards stability.

74. *Getting institutional arrangements and capacity building right contributes to ensuring effective governance of projects in low capacity contexts.* In light of the low capacity of involved government agencies and high risks for political interference in the selection of project activities, all project-related contract management responsibilities were delegated to a more experienced independent agency (AGETUR) while the institutional capacity of the government to supervise and guide the work of this agency was strengthened in parallel. Despite the appropriateness of these arrangements in the post-conflict environment, there were initial challenges to achieving effective ministerial control over project implementation that were overcome with time as institutional capacity of the MUDH increased. Implementation arrangements of future projects should be carefully designed considering both existing capacities and aspired governance.

75. *Safeguards, fiduciary, and project management training should be provided early in project implementation to ensure adequate client capacity.* thorough assessment of the client capacity, in particular for safeguards, is important to define and provide adequate training to government agencies in a timely manner. It should be complemented with sufficient hands-on support to continuously build client capacity for effective project implementation and allow government agencies to take on more responsibilities in subsequent projects. In addition to training for technical staff, it would be critical to also sensitize decision-makers on Bank policies, in particular on safeguards, to enable effective oversight and streamline the implementation process. Moreover, it is useful to provide capacity building support to local companies given their weak capacity and lack of knowledge on Bank policies for procurement and safeguards.

76. *Strengthening operation and maintenance arrangements from the outset, coordination with other development partners and beneficiary participation contribute towards sustainability.* As an emergency operation, the project focused primarily on rehabilitation of key urban infrastructure and services. It also provided institutional strengthening support, but operation and maintenance aspects were more systematically considered only as project implementation advanced. The dialog around the project eventually led to the creation of ANASAP and drawing up of a MoU with the Municipality of Lomé, as well as the definition of an operation model for peri-urban WSS. Coordination with other donors also allowed leveraging efforts to improve the prospects of sustainability of project investments (e.g. JICA support to ANASAP). Moreover, the extensive communication with and involvement of beneficiary

communities in project execution also helped promote changes in behaviors (i.e. on SWM) and involve community organizations in the protection of assets. For future operations, especially in a context of incipient decentralization where institutional roles and responsibilities are unclear, it would be important to work out clear maintenance arrangements from the beginning, which could be done through a contractual approach between municipal and national government. It would equally be useful to provide targeted capacity strengthening to neighborhood development committees (CDQs).

77. *Urban projects can be opportunities to pilot energy efficiency activities, but a realistic scope and step-wise planning approach should be adopted*. Given the relatively complex and challenging agenda of energy efficiency, blending GEF-funded activities with the IDA project was important to give higher visibility to the energy efficiency agenda as part of the ongoing dialog with the client. However, when introducing a new agenda in a country, the scope of initial activities should be kept realistic and a step-wise planning approach should be adopted to ensure that key elements necessary for transformation of the lighting market would be in place and to prevent jeopardizing the sustainability of the energy gains. It is not prudent to create a test laboratory without providing the policy tools to support an effective functioning of the laboratory.

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

(a) Borrower/implementing agencies. A summary of the Borrower's completion reports is attached in Annex 7. The reports did not raise any issues that require comments from the World Bank. The GoT reviewed the draft ICR and expressed its agreement with its findings and ratings in a letter dated December 20, 2016.

(b) Cofinanciers. Not applicable.

(c) Other partners and stakeholders. Not applicable.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Emergency Infrastructure Rehabilitation and Energy Project - P113415			
Components	**Appraisal Estimate (USD millions)**	**Latest Estimate / Actual Disbursed (USD millions)**	**Percentage of Appraisal**
Component A	*22.82*	47.00	206
Sub-component A1	9.00	15.20	168.9
Sub-component A2	5.00	24.56	491.2
Sub-component A3	4.00	4.05	101.3
Sub-component A4	4.82	3.20	66.4
Component B	*4.00*	7.47	186.8
Technical equipment acquisition, contingencies, technical assistance and training	2.16	5.45	252.3
Overall implementation costs	1.84	2.02	109.8
Total Project Costs	26.82	54.47	203.1
PPF	0.00		
Front-end fee IBRD	0.00		
Total Financing Required	**26.82**		
Togo Efficient Lighting Program – P115066			
Components	**Appraisal Estimate (USD millions)**	**Actual/Latest Estimate (USD millions)**	**Percentage of Appraisal**
Sub-component A4 (b)	1.82[40]	1.77	97.32
Total Project Costs	1.82	1.77	97.32
PPF	0.00		
Front-end fee IBRD	0.00		
Total Financing Required	**1.82**		

(b) Financing

P113415 - Emergency Infrastructure Rehabilitation and Energy Project				
Source of Funds	**Type of Financing**	**Appraisal Estimate (USD millions)**	**Actual/Latest Estimate (USD millions)**	**Percentage of Appraisal**
Borrower		0.00	0.00	

[40] The GEF funding is incorporated in the overall project financing the activities under Sub-component A4(b).

Global Environment Facility - Cofinancing Trust Funds		1.82	1.82	100
IDA Grant		25.00	54.00	216

P115066 - Togo Efficient Lighting Program

Source of Funds	Type of Financing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		1.32	1.32	100
GLOBAL ENVIRONMENT - Associated IDA Fund		3.00	3.00	100
Global Environment Facility (GEF)		1.82	1.82	100
Local Sources of Borrowing Country		0.97	0.97	100

Annex 2. Outputs by Component

Component A –Infrastructure Rehabilitation

Subcomponent A1 – Drainage Cleaning and Rehabilitation

- 120.9 kilometer of drains cleaned
- 31.3 kilometer of drains rehabilitated or constructed, including:
    - construction of 2,106 meter-long sub-collector A1 (Road 195 AGP and Road 171 AGP)
    - construction of 130 meter of culverts along the Road 186 AGP
    - construction of 1,373 meter of main collector A
    - construction of 745 meter of main collector B
    - construction of 2,500 meter of collector EEP Hunkpati in the neighborhoods of Tokoin Forever and Tokoin Auba
    - rehabilitation/construction of 296 meter of drainage along the roads Biaga (76 TKF) and Gazépé (115 TKF) in the neighborhood of Forever, including re-profiling of 592 meter of these unpaved roads
    - construction of a passage (32 meters long by 2.5 meters high) under the Avenue of Kondona in the neighborhood of Forever draining water under gravity to the lagoon (a distance of over 1500 meters)
    - construction of a 1,100 meter long collector to drain rain water accumulating in the natural depression at Gbati in the Aflao/Gakli area
    - construction of a 1,300 meter long collector to drain rain water from the Road 164 Totsi
    - construction of a 711 meter long rain water collector connecting Boulevard Malfakassa to the Zio river (outlet 1), including rehabilitation of the same road section
    - construction of a 1,260 meter long rain water collector connecting Boulevard Malfakassa to the Zio river (outlet 2), including rehabilitation of the same road section
    - rehabilitation/construction of 5,600 meter of culverts along secondary roads in the neighborhoods of Adakpamé, Akodéssewa Kponou and Kangnikopé, including re-profiling of 2,750 meters of these unpaved roads
- Retention pond Takassi rehabilitated (construction of fencing and stabilization of embankments), four retention ponds constructed (retention ponds of Aflao Gakli, Agbalépédogan, Kagbara, and on the Road 37 TKA), totaling a capacity of over 190,000 cubic meters, and pumping station equipment provided for one.
- Center for Disaster Victims constructed in the neighborhood of Logopé with a capacity for 1,000 people

Subcomponent A2 – Urban Roads Rehabilitation

- 18.5 kilometer of primary and secondary urban roads rehabilitated, of which over nine (9) kilometers with new or rehabilitated storm water drains, including:
    - rehabilitation of 3,600 linear meters of the Boulevard Malfakassa Prolongé N. 1, including asphalting of two lanes of 1,800 meters each and construction of culverts and storm water collectors

- reprofiling and recharging of 700 meters of unpaved secondary roads (roads 176 AGP, 126 AGP, 182 AGP) that connect to Road 195 AGP (Road Malou) and construction of 300 meters of culverts and storm water collectors along these roads
- paving of 3,400 meters of the Road Malou, including rehabilitation of 1,200 meter of culverts and storm water collectors
- asphalting of 340 meters of the Road Zooti (117WTK), including rehabilitation of 660 meters of culverts and storm water collectors
- paving of 1,653 meters of the road 190 AGP and the road to the Baptist Church in the neighborhood of Agbalépédogan, including rehabilitation and construction of 3,296 meters of culverts and storm water collectors
- rehabilitation of 560 meters of Road 37 TKA into dual carriage way between Carrefour Amina and Airport highway
- paving of 3,600 meters of the second lane of Boulevard Malfakassa
- paving of 6,200 meters of the second lane of the Avenues Pya and Pya Prolongé

- Market with a capacity for 80 vendors in Agbalépédogan rehabilitated (safeguards compensation measure)
- Cemetery in Bé-Kpota rehabilitated, including a fence for protection (safeguards compensation measure)

Subcomponent A3 – Water Supply

- 16 boreholes drilled in under-service peri-urban zones
- Six water towers with capacities between 200,000 and 250,000 cubic meters constructed on six of the new boreholes, covering five peri-urban cantons
- Over 27 kilometer of distribution network constructed around these six water towers
- 64 community water points (standpipes) built along these distribution networks

	Number of standpipes	Meter of distribution network	Capacity (m^3)/height (m)
Vakpossito	6	3,151	250/14.5
Fidokpui	14	6,187	200/16
Dabarakondji	10	3,180	250/14.5
Lankouvie	9	4,106	200/16
Kleme	16	5,780	209/16.5
Avepozo	9	4,900	250/14
Total	64	27,304	

Subcomponent A4 – Rehabilitation of the Electricity Distribution System and Improving Energy Efficiency

- 25 transformer stations rehabilitated, including:
  - 15 transformer stations rehabilitated
  - 5 transformer stations reconstructed
  - 5 pre-built transformer stations installed

- 36 kilometer of low-voltage electricity distribution network built around 75 transformer stations
- 200 modern default detectors installed
- 500,000 CFL bulbs installed
- Equipment for a national laboratory to verify standards of CFL bulbs provided

Component B – Institutional Strengthening

- 160 representatives from national agencies and local government involved in project implementation and management (DGIEU, DGEA, TS, Municipality of Lomé, CEET, TdE) trained in procurement, financial management, environmental and social safeguards, and project management

Place	Theme	Number of participants
Lomé (Togo)	Workshop on Project Documentation	41
Abidjan (Côte d'Ivoire)	Study exchange trip to Emergency Infrastructure Rehabilitation Project in Cote d'Ivoire	8
Grand Popo (Bénin)	Workshop on Monitoring and Evaluation	15
Kigali (Rwanda)	Study exchange trip with Rwanda energy company	3
Notsé (Togo)	Training on environmental monitoring	37
Cotonou (Bénin)	Study exchange trip with to Urban Management Project in Benin	8
Lomé (Togo)	Training on environmental and social safeguards	53
Lomé (Togo)	Training on Social Impact Assessment	31
Lomé (Togo)	Procurement Training	15
Lomé (Togo)	Training on Social Development	47
Dakar (Sénégal)	Training on Human Resource Management	1
Dakar (Sénégal)	Communication Training	2
Dakar (Sénégal)	Secretarial Training	3
Paris (France)	Project Management Training	5
Paris (France)	Financial Management Training	2
Dakar (Sénégal)	Training on Monitoring and Evaluation	2

- Equipment and furniture purchased for institutions involved in project implementation, including 20 vehicles, 10 motorcycles, office furniture, 13 computer, other IT equipment and software packages

Annex 3. Economic and Financial Analysis

Sub-component A.1 - Drainage Cleaning and Rehabilitation

Increasing access to adequate drainage systems throughout the city is one of the key objectives contributing to support the PDO. Project subcomponent A.1 Drainage cleaning and Rehabilitation improved drainage in poor neighborhoods in Lomé and thereby protected approximately 858, 000 people from recurrent flooding. Appraised with an estimated amount of US$ 9 million, this subcomponent benefited from 2 Additional Financing (AF) of US$12.91 million and US$9.8 million in 2009 and 2013 respectively. However, the subcomponent ended up spending only US$15.2 million. The specific activities undertaken under this subcomponent include:

1) Cleaning of 120 km existing drains throughout the city
2) Rehabilitation of approximately 31.3km of substandard and unsound drainage structures using mostly labor-intensive works methods; and
3) Rehabilitation of five storm water retention ponds, including fencing and providing pumping station equipment for one.

This section presents the ex-post CBA of project drainage investments. Because of the emergency nature of the project, there was no ex-ante economic analysis at Appraisal nor for the 2 AF.

Overall benefits

Deficiency of basic urban infrastructure and recurring floods since early 2000 resulted in dire consequences for the economy of Togo. Major floods since 2007 led to loss of lives of thousands of Togolese and caused tremendous damage to different types of infrastructures (houses, schools, markets, health facilities etc.). Further, the resulting stagnating water has contributed to increase the prevalence of several undesirable water-borne diseases.

The expected benefits from the drainage works therefore include:

- Avoided cost of the related damages to infrastructures (houses,
- Reduction of waterborne diseases: by reducing stagnating water, improved drainage system can considerably reduce the incidence/prevalence of water related diseases including malaria, typhoid, dermatoses, cholera and various types of diarrhea.

In addition, improving drainage systems also provides an array of benefits including:

- Protection of lives of thousands of people [41]
- Less school absenteeism for children
- Lower health expenses incurred for waterborne diseases;
- Less time spent by parents providing health care to themselves or their children and, as a result, greater opportunity to increase their income;
- Time saved, principally by women, for activities associated with household wastewater removal;

[41] 2100 people were estimated to have lost their lives during 2010 floods in Lomé.

- Improved well-being.

Cost Benefit Analysis (CBA) for drainage works in Lomé.

Considering the data available, a quantitative analysis is carried out for 2 of the most important expected benefits: benefits of flood prevention and benefits resulting from avoided expenses related to the main waterborne disease in Lomé, malaria.

The methodological approach

The Cost Benefit Analysis assesses the net benefits stream generated by drainage interventions in the most vulnerable settlements of Lomé. The benefits are equal to the difference between the incremental benefits and the incremental costs of two scenarios: "with" and "without" the project. The "with" project scenario considers the actual achievements obtained with the drainage systems. The "without" project scenario considers a counterfactual situation if the intervention did not occur. It is likely that without the project intervention the situation would have likely remained the same during the project life cycle. A 30-year time horizon was considered for the CBA analysis.

Project Benefits

Two major sets of benefits are considered in the analysis:

1) Health improvement related benefits

The assessment of benefits was based on the avoided cost method. Based on similar projects and literature (Sasaki et al, 2009), it was assumed that investments in drainage systems would reduce the incidence of water borne diseases and thereby partially avoid costs occurring from the main water-borne diseases in Lomé which is malaria. The current health expenditure data[42] is used as it encompasses a vast array of health care related costs (treatment, services, transport, opportunity costs) and allows comparison across different cities and countries over time. According to data from « Direction Générale des Études, de Planification et de l'Information Sanitaire », malaria prevalence dropped from 15% in 2011 at the beginning of the project to 11.2% in 2015 towards the project completion. It is assumed that this trend continued until the completion of the project in 2016 and that the prevalence stabilized at 10% throughout the horizon of the analysis.

2) Flood avoidance related benefits

Here again, the assessment of benefits was based on the avoided cost method. It is assumed that the infrastructures built under the project will allow avoiding frequent flood events that presently occur in the project influence area Lomé. This will impede the damages to houses and the associated reparation costs[43].

Without project scenario

1) Health improvement related benefits

[42] The data is sourced from the report of the Ministry of Health and Social Protection (Comptes de Santé du Togo année 2010. 56p).

[43] The assumption that the damages are limited to houses is conservative as several other facilities are also affected by floods. Damage data were collected from the assessment of 2010 flood in PNDA report. The damage value is brought down proportionately to the population covered by the project.

To assess avoided costs in the without investment scenario, the following information was collected from existing literature:

1- Health expenses data for malaria were sourced from OMVS statistics and a report from the Ministry of Health[44].
2- Prevalence of major water-borne diseases were also sourced from the same sources[45].

The total health care cost by individual is estimated at 35, 459 FCFA

2) Flood avoidance related benefits

To assess avoided costs related to avoiding floods, the following information was collected:

1- Frequency and costs of major flood events in the project influence area[46]. This information is based on data from the PNDA report and project design documents. It is assumed that without the project intervention a major flood such as the flood of 2010 would have a return period of 3 years.

With project scenario

1) Health improvement related benefits

The positive impact of drainage system on waterborne diseases is largely recognized (FAO, Sasaki et al, 2011; Moraes et al. 2003). Malaria prevalence data was collected at the beginning of the project in 2011 and at the end of the project in 2015. They indicate a sharp decline in the prevalence of malaria prevalence. It is assumed that without the project the prevalence of malaria would have remained at 2011 level.

2) Flood avoidance related benefits

The project infrastructures including drains and collectors (water ponds) were designed for a return period of 10 years.

Table 4: Prevalence of diseases in project areas benefiting from drainage

Years	**2011 (%)**	**2012 (%)**	**2013 (%)**	**2014 (%)**	**2015 (%)**	**2016 (%)**
Without Project	15	15	15	15	15	15
With Project	15	14	13	12	11	10

[44] OMS - Statistiques sanitaires Mondiales 2013. 172p. Ministere de la santé et de la protection socialee. Comptes de Santé du Togo année 2010. 56p.
[45] Prevalence based assessment method of the disease cost was used because it requires less data and less assumptions than other methods. Reference: Segel, J, E. 2006. Cost-of-Illness Studies—A Primer. RTI International RTI-UNC Center of Excellence in Health Promotion Economics.
[46] Survey indicated that on average 2 major floods/year attaining heights of 1.3 m occur in the area.

NB: According to data from « Direction Générale des Études, de Planification et de l'Information Sanitaire », malaria prevalence dropped from 15% in 2011 to 11.2% in 2015.

Project Costs

Costs include investment costs and recurrent maintenance costs:

1) Investment costs data were provided by the PCU[47], referring to actual costs based on cost estimations of similar projects.
2) The annual maintenance costs, estimated at 5% of the total investment based on other similar projects[48].

Results (Benchmark scenario)

The Net Present Value (NPV) and Economic Rate of Return (ERR) ex-ante (using a 12% discount rate) are presented in the table below:

Table 5: Economic efficiency of drainage investments in the project areas at completion

Subproject/ Economic indicator	**ERR (%)**	**NPV (FCFA)**	**NPV (FCFA)**
Discount rate		12%	5%
Drainage cleaning and Rehabilitation	21.4%	4,334,352,499	15,218,499,412

Sensitivity analysis.

The following scenario assumes that the benefits (flood and health protection) from the drainage system is 10% and 20% less than calculated in the main scenario.

Subproject/ Economic indicator	**ERR (%)**	**NPV (FCFA) 12% discount rate**
Drainage cleaning and Rehabilitation (benefits reduced by 10%)	19.1%	3,190,873,174
Drainage cleaning and Rehabilitation (benefits reduced by 20%)	16.7%	2,047,393,850

Sensitivity analysis shows that results are highly robust.

Conclusion

The CBA results which represent a very conservative lower-bound value of the ERR and the NPV clearly shows that the project is economically sound. ERR for the drainage systems/works is largely above 6% and even 12% in all scenarios. It is to be added that several important benefits could not be quantified (touristic attraction, time saved, aesthetic value etc). Also with climate change increase of flood events that may have happened leading to more damages without the project. This additional avoided costs is not accounted for. Furthermore, population increase was not assumed: such assumption would have involved more people protected from flood hence more benefits. Overall, the

[47] See report: evaluation de la rentabilite economique et sociale du projet d'urgence de rehabilitation des infrastructures et des services electriques (purise) – évaluation finale.
[48] The maintenance cost considered in this analysis is on the high side and is therefore conservative.

analysis supports the conclusion that PURISE drainage systems investments were fully justified and highly efficient.

Reference

Evaluation des dommages, pertes et besoins de reconstruction post catastrophes des inondations de 2010 au Togo, 2010
Sasaki, S., Suzuki, H., Fujino, Y., Kimura, Y., & Cheelo, M. (2009). Impact of drainage networks on cholera outbreaks in Lusaka, Zambia. American journal of public health, 99(11), 1982-1987.

Sub-Component A.2 – Urban Roads rehabilitation

The sub-component A.2 aimed to improve the accessibility to the city districts through the rehabilitation of degraded urban roads. To achieve this objective, the PURISE planned to rehabilitate a total of 12.5 km of primary and secondary roads: 5 km financed under the Original Financing, 2.5 km under the first additional financing (AF1) and 5 km under the second Additional Financing (AF2). The following activities were carried out:

(i) Reshaping and reinforcing of base structures of the roads
(ii) Rehabilitation, re-gravelling and paving selected roads,
(iii) Rehabilitation of drainage structures along those roads,
(iv) Construction o f a bridge to widen an existing road at the point of vehicular crossing of the bridge to remove bottleneck in free flow of traffic.

A.1. Mobility

Increasing access to urban roads in low-income settlements was one of the outputs contributing to support the PDO.

Overall benefits

The main benefit of urban road infrastructure stems from improved mobility in poor neighborhoods of Lomé and its surroundings. At project completion, the project rehabilitated of 25.38 km of primary and secondary roads, more than double of the objective for a total investment of FCFA 10.848.131.760. These achievements significantly increased access to isolated areas of the city, including the Adakpame, Adidogome, Totsi, Adidoade, Zorro Bar neighborhoods, Agbalépédogan, Aflao Gakli, Totsi, Tokoin, BeKpota and Anfame neighborhoods of Lomé. The project increased the number of people in urban areas with access to all-weather roads within a 500-meter radius, from 34,395 people in 2013 to 235,711 in 2016 262,500 . The project improve mobility significantly. All the road sections rehabilitated under the project were in severely degraded condition leading to traffic congestions, accidents and high operating cost of vehicles. As evidenced by responses from beneficiaries to the final survey in 2016, the rehabilitation of the roads contributed to reducing commuting time to major business areas, hospitals, and amenities of the city. It also improved the comfort and security of transport.

Cost Benefit Analysis (CBA) of identified sub-project

One road primary section in Lomé was identified for the CBA analysis as it was representative of the degradation of roads across the capital before the project.

Table 1: Investment and length of major roads

Road name	**Road Length (km)**	**Investment (FCFA)**
Lomé		
Boulevard Malfacassa Prolongé	1.8	1,877,471,115

The ex-post economic analysis uses a Cost Benefit Analysis to assess the economic return of the subproject "Rehabilitation of the road track Boulevard Malfacassa Prolongé" which is a 2 way road of 1.8 km. No ex-ante analysis was prepared at appraisal because of the emergency nature of the project.

Benefits were estimated based on Vehicle Operational Costs (VOC) savings made thanks to the construction of the road, building on traffic data and operation costs of vehicles using the roadwork:

1) The Average Daily Traffic (ADT) was estimated based on field surveys conducted at the different points along the axis of the selected road sections at project appraisal from August 26 to September 1, 2010 and at project completion October 18, 2016 (early 2016).

The following table presents estimates of *ADT* for the different road sections:

Table 2: Estimation of the average daily traffic (ADT) at appraisal and completion

Vehicle Category	**Total Average Daily Traffic (ADT)**
	(1)
Car (appraisal)	2874
Car (completion)	11099
LDV (appraisal)	157
LDV (completion)	1538
Bus (appraisal)	3
Bus (completion)	15
Medium Truck (appraisal)	36
Medium Truck (completion)	169
Heavy Truck (appraisal)	49
Heavy Truck (completion)	107
Motor cycle (appraisal)	15
Motor cycle (completion)	56
Art Truck (appraisal)	15
Art Truck (completion)	56
Motor cycle (appraisal)	17102
Motor cycle (completion)	44327

2) Operation costs (in CFAF/km, not including taxes per vehicle) are calculated based on the methodology described in Aron (2007)[49]. It is assumed that the project investments will improve the identified roads by decreasing the International Roughness Index (IRI) from 12 (unpaved poor quality road) to 5 (paved fair quality road)[50]. VOC data are sourced from the Project Appraisal Document of the African Development Bank project "MULTINATIONAL TOGO/BURKINA FASO: REHABILITATION DE ROUTES ET FACILITATION DU TRANSPORT SUR LE CORRIDOR CU9 LOME – CINKANSE- OUAGADOUGOU" and using the methodology developed in Aron (2007). It is assumed that for a good road (IRI=2), the VOC of a car in Lomé in 2010 is about 158 FCAF/km.

Table 3: Vehicle operation costs (in CFAF/km) [51]

	IRI	Car	LDV	Minibus	Bus	Med truck	Heavy truck	Art truck
Without Project	12	255	295	317	641	650	913	1315
With Project	5	175	199	239	509	460	685	971

LDV: Light-Duty Vehicle

Costs

1) Investment costs: investment costs estimates presented in table 1 are drawn from the Consultant report "EVALUATION DE LA RENTABILITE ECONOMIQUE ET SOCIALE DU PROJET D'URGENCE DE REHABILITATION DES INFRASTRUCTURES ET DES SERVICES ELECTRIQUES (PURISE)".
2) The maintenance costs were estimated at 1 percent of the investment costs and expected to be invested every year.

Results

For both with and without project scenarios, an estimation of the annual operating costs for the different vehicle categories was undertaken multiplying the operating cost per km by the annual total number of km by each vehicle. The annual benefit, which represents the Total Vehicle Operating Costs savings for a given year, is the difference between the total costs without the project and the total costs with the project.

A 20-year time horizon was considered for the CBA analysis. A linear progression of the traffic was assumed between 2010 and 2030 with a traffic average growth of 4%. The table below presents the NPV and the ERR for the selected road section:

Table 4: Economic efficiency of the urban road Boulevard Malfacassa Prolongé in Lomé

[49] Aron (2007) calculates VOC in several developing countries and defines coefficients that can be used to compute VOCs across road conditions (International Roughness Coefficient) and vehicle types.
[50] As, the actual IRI were not assessed we adopt very conservative assumption: a paved good road quality has an IRI of 2.
[51] Motorcycles represent up to 84% of total traffic in terms of number of vehicles. However, no reliable data could be obtained directly on VOC for motorcycles. A conservative assumption estimating motorcycle VOC at 1% of car VOC was adopted.

Road sections	Boulevard Malfacassa Prolongé
NPV (CFAF million) 12%	393.4
NPV (CFAF million) 10%	718.9
NPV (CFAF million) 6%	1.757
ERR (%)	16%

Sensitivity analysis

A sensitivity analysis was conducted to test the robustness of the results. Sensitivity analysis shows that even if there is no traffic growth from 2016 to 2030, the project would remain economically justifiable. Other major benefits such as the reduced accidents (less health costs) were not accounted for. The results of the analysis are robust.

Table 5: Economic efficiency of the urban road Boulevard Malfacassa Prolongé in Lomé under different scenarios.

Road sections	**Traffic growth = 2%**	**Traffic growth = 0%**	**Benefits decreased by 10%**	**Benefits decreased by 20%**	**Motorcycle VOC savings not considered**
ERR (%)	14%	13%	14%	12%	14%

Conclusion

The methodology does not take into account some major socio-economic benefits from urban road investments. Some benefits may not have been quantified - owing to the lack of data. These include:

- Time saved as a result of better driving conditions and the associated opportunity costs.
- Protection from permanent air pollution by fine particles (dust). This means less respiratory diseases and less exposure to meningitis.
- Better road drainage during the raining season. This will result in less stagnating water and reduce the incidence of mortal diseases such as malaria.

Therefore the results presented here represent a very conservative lower bound value of the economic benefits.
The CBA supports the conclusion that investments in Lomé are economically justifiable.

References

Aron, J. 2007. Justification of Investments for Low-Trafficked Roads Based on the First Year Rate of Return Indicator and Using Vehicle Operating Cost Savings .Choice for Sustainable Development. Pre-Proceedings of the 23rd PIARRC World Road Congress. World Road Association – PIARC.

Sub-component A.3 – Water Supply

The project made significant achievement in terms of extending water access to suburban areas. 64,444 people were provided with access to a standpipe within a 200 meter range, with a total of 167,792 potential users living in the target areas. 16 boreholes were drilled and 64 standpipes installed. 6 water towers with a total capacity of 1,359m3, 27km of distribution network were constructed. The total costs of these investments are US$ 4.05 million.

The main benefits derived from the water supply system include:

1. Significant time savings arising from reduced time spent walking to collect water from remote distances, especially among women and girls. The time saved is likely to be allocated to more productive activities and hence into increased household incomes. For children, especially girls, this will enable an increase in time spent attending school.
2. Increased household water consumption, together with improved drinking water quality and improved hygiene practices, resulting in decreased morbidity and mortality rates, especially among children under 5 years. This is expected to result in reduced medical expenditures and improved labor productivity.
3. The water investments supported by the project may also have a number of other important positive outcomes including as psycho-physical stress while fetching water, higher school attendance, and increased household level of education.

The benefits could not be quantified due to lack of adequate data and/or complexity of modeling these effects. The water supply component disbursed US$ 4.05 million representing US$ 63 per beneficiary of the component. This value compares favorably with the per capita/beneficiary cost of standpipes in Africa estimated at US$ 62 per capita[52]. The water supply component is therefore cost-effective.

Sub-component A4 - Energy Distribution System and Energy Efficiency

The economic analysis was divided into two parts: one analysis for sub-component A.4(a) and another for sub-component A.4(b).

The first part is an ex-post economic analysis of the subcomponent *A.4 (a) Rehabilitation of the electric distribution network* of Lomé. This component includes: (i) rehabilitation of twenty medium voltage (MV) or low voltage (LV) transformers, including the replacement of selected small transformers by higher capacity transformers;

[52] Per capita costs (USD year 2005) was estimated at USD 50 per capita by WHO. Considering an average inflation rate of 2%, this represents about USD 62 per capita in 2016. WHO. 2008. Regional and Global Costs of Attaining the Water Supply and Sanitation Target (Target 10) of the Millennium Development Goals. Report. 28p.

(ii) rehabilitation of the network distribution, including the execution of new MV substations and the reconstruction of selected LV substations to support acceptable capacity levels; and (iii) installation of fault passage indicators on the electric distribution network.

The economic analysis is carried out from a country perspective and calculates the present value of the stream of net economic benefits resulting from the total investments under the sub-component.

In fact, the project activities under A.4 (a) consisted of rehabilitating and constructing a number of transformers as well as distribution lines, which eventually led to improvements in the operating conditions of the overloaded distribution network. This derived in a reduction of frequency and duration of power outages, increase in electricity sales and reduction in technical losses. Table 1 below[53] shows the evolution of the values of total losses (commercial and technical) and energy sales before and after the implementation year of the sub-component.

Table 1: Evolution of energy sales and total losses in the CEET distribution network

	2012	2013	2014	2015
Energy sales (MWh)	736,910	783,868	852,355	909,836
Total Losses %	18.21	18.93	17.39	16.80

The works were completed in 2013.[54] The investment costs of this sub-component were estimated taking into consideration: (i) total disbursement for sub-component A4 (including a and b) as reported in the Government completion report (US$ 3.2 million) and (ii) some of the GEF funding of the sub-component A.4 (b) were used for additional works under A.4 (a), due to the fact that the activity to establish a regulatory framework for energy efficiency was dropped as reported in the government report on the evaluation of the GEF component (US$ 0.07 million). The total investment cost for activities under sub-component A4(a) is US$ 2.3 million.

The maintenance costs were estimated at 1 percent of the investment costs and expected to be invested every year.

The energy demand in Lomé is expected to grow giving the growth in urbanization and economic development. Energy sales are then assumed to increase by about 5 percent per year starting from 2016.

The economic analysis adopts a conservative with and without project comparison over 15 years. According to table 1, there is a 2 percent loss reduction after the project is completed. The analysis assumes that the reduction in technical losses to be attributed to the project investments is only 0.7 percentage point of energy sales as to be conservative given there may have been other initiatives conducted during those years to support the improvement of the network. The benefits are measured based on the value of cost

[53] Data provided by CEET by email in December 2016
[54] ISR and aide memoire, October 2013

savings to the country resulting from purchasing less energy at avoided cost[55], thanks to the reduction in the technical losses in the distribution system.

Table 2 shows the results of the analysis. ERR of the investments is 21% largely above the recommended threshold of 12% for this type of projects and NPV of US$1,116,993.

Table 2: Economic analysis

year	Capital cost	Maintenance costs	Net Benefits
2013	**(2,300,000)**	(23,000)	
2014		(23,000)	475,035
2015		(23,000)	490,584
2016		(23,000)	500,214
2017		(23,000)	509,523
2018		(23,000)	518,454
2019		(23,000)	526,948
2020		(23,000)	534,937
2021		(23,000)	542,350
2022		(23,000)	549,110
2023		(23,000)	555,132
2024		(23,000)	560,326
2025		(23,000)	564,594
2026		(23,000)	567,831
2027		(23,000)	569,922
2028		(23,000)	570,746
ERR			**21%**
NPV (with discount rate of 12%)			**$1,116,993**

Not all benefits have been quantified and taken into account for the analysis, such as reduction in power outages and making electricity available to more customers on a limited supply basis without blackout, owing to the lack of data.

Sensitivity Analysis

A sensitivity analysis was carried out to examine the robustness of the economic viability of the project. This analysis considered reduction of technical losses 20 percent higher (optimistic scenario) and 20 percent lower (pessimistic scenario) than values assumed for the reference case. The results in table 3 show that that the project remains economically justifiable even assuming that reduction in technical losses is slightly above 0.5 percentage points of sales.

Table 3: Results of Sensitivity Analysis

[55] The marginal generation cost is 248 $ per MWh.

Item	EIRR (%)
Reference case 0.7%	**21%**
Pessimistic case: Reduction in technical losses by 0.56 %	**16%**
Optimistic case: Reduction in technical losses by 0.84 %	**26%**

The second part provides an ex-post economic analysis of the sub-component A.4 (b) Improving the energy efficiency of the electric distribution system funded under GEF. This component includes: (i) the purchase and distribution of at least 400,000 Compact Fluorescent Lamps (CFLs) replacing incandescent light bulbs in use; (ii) carrying out of public information and awareness campaigns to promote a culture of energy efficiency; and (iii) implementation of a normative framework and quality control system in the national market of CFL distribution.

Project costs: The project was successfully able to purchase through bulk procurement of 400,000 CFLs for a total cost of FCFA 524,000,000. 15,000 lamps were distributed free of charge at the start of the project as a test. The remaining were sold at a cost of FCFA 200 each lamp. Revenues were used to buy and distribute additional 100,000 lamps free of charge to consumers. Other activities were funded to support the implementation of the project, such as communication and awareness raising campaigns: more than 5000 flyers produced and distributed, 60 TV & radio commercials in English, French, and Ewe, Kabye, 15 advertising panels, contribution in local newspapers, website. A number of F2F campaigns with focus groups were conducted. Specific labels were produced and used on the lamps sold.

Actual in-kind contribution from CEET was estimated 71,800,000 FCFA, and used to cover part of the management and distribution costs. The total cost of the project is US$ 1,701,480[56]**,** based on the estimates from the consultant report "Evaluation post activities of the sub-component energy efficiency, December 2015".

The economic analysis calculates the present value of the stream of net benefits resulting from the project investments- the purchase, promotion, and the distribution of all 500,000 CFLs. The following benefits have been estimated:

(i) Generation savings resulting from the decrease in energy consumption, and
(ii) Decrease in suppressed demand as more capacity is made available[57], resulting in an increase in energy consumption as more households have now access to more affordable services.

Assumptions	value	Unit
Savings per CFL	*32*	*kWh/yr. Assuming a 3.5 hours per day*
Technical losses	*15*	*%*[3]
breakage	*40*	*%*
Decrease in suppressed demand	*50*	*%*

[56] *The exchange rate used throughout the analysis is US$1=FCFA580 for consistency reasons*

[57] "Suppressed demand" is the situation where energy services provided are insufficient – due to poverty or lack of access to modern energy infrastructure – to meet the needs of stakeholders given their human development needs- *Definition from UNFCCC.*

End-use tariff	*23*	*US$/MWH*[58]
Marginal generation cost	*248*	*US$/MWh.*[3]
Coincidence factor	80	%

Based on these assumptions, an estimate of the net economic benefits for the project was prepared, using a discount rate of 12% as shown in the table below. The analysis shows the project has a NPV of US$2,491,707 and an ERR of 109%.

		1	2	3	4	5
GEF project cost	*$*	*(1,701,480)*				
In-kind contribution CEET	*$*	*(123,793)*				
Generation savings		*$*	2,329,556	1,397,734	838,640	503,184
Increase in demand		*$*	216,048	129,629	77,777	46,666
Net savings	***$***	***(1,701,480)***	*2,545,604*	*1,527,362*	*916,417*	*549,850*

Conclusion:

The analysis was carried out from the perspective of CEET as the owner of the entity in charge of the electricity distribution to consumers, and over 5-year period- corresponding to the average lifetime of a CFL lamp. A conservative approach was taken in selecting the values of different assumptions used in the analysis to calculate NPV and EIRR. The results shows that EIRR of the investments in substituting more efficient lamps (CFL) for the inefficient lamps (IL) that were in use, is very high , 109% and NPV of US$2,491,707. In the case of Togo, these are the following reasons for such high value: i) The retail tariffs are low and far don't reflect real cost of electricity; ii) the marginal generation cost is very high given that CEET relies on relatively more expensive generation imported from neighboring countries.

The high values were found in other bank projects with similar scope. It demonstrates the high economic relevance of such project sub-activity and its substantial positive impacts on the power sector with regard to avoid generation capacities. However, it is important to note, that there was no periodic follow-up put in place from CEET and the project unit to verify that the lamps were effectively installed and working. This would ensure the energy savings occurs.

[58] Togo Energy Sector Policy Review, the World Bank, 2013

Other additional benefits were calculated:

- The cumulative CO2 emission reduction from the project over 5 years=14,382T CO2. The electricity emission factor used is from the UNFCCC website and is 0.35 TCO2/MWh.

- The peak load reduction resulting from the use of CFLs was calculated and estimated: 12.5MWh.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Kwabena Amankwah-Ayeh	Senior Urban Specialist, Task Team Leader	AFTU2	Task Team Leader
Zie Ibrahima Coulibaly	Infrastructure Specialist	AFTU2	
Abdoul Wahabi Seini	Senior Social Development Specialist	GSU01	
Hugues Agossou	Senior Financial Management Specialist	AFTFM	
Itchi Gnon Ayindo	Senior Procurement Specialist	AFTPC	
Wolfgang Chadad	Senior Finance Officer	LOAFC	
Sylvie Nenonene	Communications Officer	AFTEX	
Guy Lakpo	Information Analyst	AFTIS	
Daria Goldstein	Senior Counsel	LEGAF	
Africa Eshogba Olojoba	Lead Environmental Specialist	AFTFM	
Maimouna Fam	Financial Management Specialist	AFTFM	
Marie-Adele Tchakounte Sitchet	Language Program Assistant	AFTU2	
Armele Vilceus	Program Assistant	AFTU2	
Chantal Léontine Tiko	Program Assistant	AFMTG	
Yvette Dan Houngbo	Country Economist	AFMTG	
Fanny Missfeldt-Ringius	Senior Energy Economist	AFTEG	
Franklin Koffi S.W. Gbedey	Senior Energy Specialist	AFTEG	
Léon Biaou	Energy Efficient Consultant	AFTEG	
Anthony Molle	Senior Counsel	LEGSG	
Yao Badjo	Senior Infrastructure Specialist	AFTU1	
Supervision/ICR			
Kwabena Amankwah-Ayeh	Senior Urban Specialist, TTL	GSU19	Task Team Leader
Aissata Zerbo	Senior Procurement Specialist	GGO07	
Alain Hinkati	Senior Financial Management Specialist	GGO26	
Abdoul Ganyi Bachabi Alidou	Safeguards Specialist	GEN01	
Esninam Hlomador-Lawson	Program Assistant	AFMTG	
Franklin Koffi Gbedey	Senior Energy Specialist	GGE07	
Guy Kossi Doumegnon Lakpo	Information Analyst	ITSCR	
Patrice Joachim Nirina Rakotoniaina	Senior Municipal Engineer	GSU13	
Connie Kok Shun	Senior Program Assistant	GSU13	
Bontje Marie Zangerling	Urban Specialist	GSU13	ICR Author

Samira El Khamlichi	Senior Energy Specialist	GCCIA	ICR Author
Yoro Sidibe	Young Professional	GWA07	Economic Analysis (Drainage &Roads)
Augustin Maria	Senior Urban Specialist	GSU10	ICR Peer Reviewer
Van Anh Vu Hong	Urban Development Specialist	GSU10	ICR Peer Reviewer
Ferat Esen	Senior Energy Specialist	GEE01	ICR Peer Reviewer

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
2009	41.79	137.99
Total:	**41.79**	**137.99**
Supervision/ICR		
2010	13.39	59.86
2011	20.12	68.77
2012	24.73	101.45
2013	20.32	96.41
2014	22.27	106.32
2015	19.33	88.71
2016	13.59	51.62
2017	9.31	47.77
Total:	**143.06**	**620.90**

Annex 5. Beneficiary Survey Results

The Government of Togo conducted beneficiary surveys in 2013, 2014, 2015, and 2016 as part of the monitoring procedure to update the results for PDO indicators and assess the socio-economic impacts of project activities on beneficiaries. The final ex-post evaluation report for the project (September 2016) included the results of the last survey carried out between May 23 and June 10, 2016, and covered the drainage, roads, and electricity sub-components. The socio-economic impact of the water supply sub-component was not assessed as the water kiosks were not yet operational at the time of the surveys.

The surveys were carried out face to face with residents in the project areas in Lomé. The survey sample for component A1 and A4 consisted of 367 beneficiary households; the sample for component A3 consisted of 168 beneficiary households and for component A2 consisted of 197 beneficiary households. The response rate was 90.4 percent. Respondents overall expressed their satisfaction with the rehabilitated infrastructure, reported improved living conditions attributed to reductions in flooding, decline in voltage drop problems, and improvements in economic activities. The following is a synthesis of the main conclusions in the survey.

Evaluation of project success

Project communication: A vast majority of the households were satisfied with the communication and awareness raising around the project. As for the problems encountered during project implementation, 56.4 percent of households said the rehabilitation of the drainage network including culverts was the most challenging, followed by the activity on extension of the electricity distribution network and then rehabilitation of the roads. About one third of survey respondents felt that more consultation and involvement of the concerned communities in the project could have been beneficial. Around 90 percent of households said they want the project to be replicated and 70 percent found is urgent to implement similar projects in other areas.

Sub-component A.1-Drainage cleaning and rehabilitation – Nearly two third of project beneficiaries reported they were aware and well informed about the project activities under this component. Out of these, over two third attributed the reduction in flood frequency to improvements of the drainage network, while 24 percent attributed it to the construction of water retention ponds.

Sub-component A.2-Urban roads rehabilitation – 94.7 percent of beneficiaries were aware of the rehabilitation and expansion of the roads in their neighborhoods. Before the project, 49.7 percent said that the roads were in a very poor shape and 37.9 percent said they were mediocre shape. Survey respondents indicated their overall satisfaction with the rehabilitated roads, but also mentioned some smaller problems they encounter when using them (such as small puddles and holes). Of the 360,000 people that were provided access to improved roads under the project, 177,096 use them daily.

Sub-component A.4 Energy efficiency and electricity distribution rehabilitation — 9.6 percent of households said they noticed their electricity bill lowered of at least 10

percent, starting from 2015. This coincides with the full completion of the distribution of CFLs. Over 89 percent of interviewees confirmed tangible improvements in voltage drops with a substantial reduction in load shedding scheduling, which used to damage their appliances. More than 46 percent of households indicated that the voltage drop improved substantially, whereas 43 percent found it good and only 11 percent said the electricity network needs to be reinforced further.

Based on the beneficiaries' survey, the consultant conducted an evaluation of the socio-economic impact of the project.

- The evaluation found productivity increased thanks to reduced flooding. Many households could not engage in economic activities for several weeks (or even months) per year when their properties/neighborhoods were flooded and now have increased income opportunities. Households that are now protected against periodic flooding reported an average increase of 20 percent in their income. Moreover, there are human capital benefits as some schools no longer flood and other schools no longer have to serve as disaster shelters.

- The rehabilitation of urban roads achieved accessibility of previously inaccessible areas and improved mobility of people and goods, reducing economic losses associated with congestion for both households and firms and providing opportunities for more economic activities (such as shops and vendors along roads in areas that previously had no walk-by customers). 65 percent of retailers along the rehabilitated roads attributed improvements in their income after completion of the works to the improvements of the road/mobility. Similarly, 40 percent of the retailers at the rehabilitated market of Agbalepédogan attributed higher incomes to the rehabilitation of the market. However, the improvements achieved under the project also contributed to increases in land and housing prices in previously flood-prone areas with low accessibility. The average costs for a plot in project areas increased by 10 percent, and housing costs increased on average between 1-5 percent depending on the type of housing (highest increase for room and board).

- The project activities related to electricity distribution and energy efficiency also had a positive impact on the life of the beneficiaries. Better access to reliable electricity typically increases productivity and allows for improvements in human capital. Focus group discussions with beneficiaries confirmed improvements in educational attainments by students in project areas. Households that switched from connecting to a sort of an informal spider web of cables to the formal electricity grid saw their electricity bills reduced by an average of 28 percent and less risk for appliances to burn out caused by the voltage drops.

(if any)

Annex 6. Stakeholder Workshop Report and Results

Not applicable.

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

The Government of Togo prepared and shared four reports in French with the Bank that present the achieved outcomes and assess the performance of the project: (i) a final project completion report prepared by MUDH in June 2016 highlighting achievements and lessons learnt of the project; (ii) an ex-post evaluation of the project in September 2016; (iii) an ex-post evaluation of the energy efficiency sub-component in December 2015; and (iv) an assessment of economic and social returns of the project in September 2016. The following is a synthesis of the main conclusions presented in these reports.

Relevance of the Project

The overall relevance of the project, which aimed to increase access to infrastructure and urban services in Lomé, in particular in peri-urban and flood-prone areas, was considered to be high. The reports describe the negative consequences of the interruption of international development aid to Togo between 1990 and 2005 on the provision and maintenance of infrastructure, including in urban areas, and on economic growth. They also highlight that the degraded status of drainage and roads infrastructure in Lomé worsened due to widespread flooding of urban areas in 2007 and 2010. The Post Disaster Needs Assessment estimated damages and losses in infrastructure of the 2010 floods at 9,012.9 million FCFA. The government reports also highlight that the project objective was in line with the priorities of the Poverty Reduction Strategy Paper from March 2008 and continue to be aligned with the country's current Strategy for Boosting Growth and Promoting Employment (SCAPE).

The reports also assess the relevance of each sub-component considering their alignment with national policies, the actual needs on the ground, and the priorities of beneficiaries. They find that sub-component A1 (drainage) was very relevant and aligns adequately with national priorities as reflected under the second axis on strengthening of economic infrastructure of the SCAPE and the National Action Plan for the Water and Sanitation Sector (PANSEA). The activities implemented under this sub-component addressed the needs of beneficiaries and helped to considerably reduce flood risk in Lomé. Similarly, sub-component A.2 (roads) is judged to be very relevant given the alignment of funded activities with priorities on improving accessibility and urban mobility to bolster economic growth expressed in the SCAPE and with the urgent need to rehabilitate and extend the roads network of Lomé. In contrast, the relevance of sub-component A.3 (water supply) is judged as moderate. While the objectives of this sub-component are well aligned with national priorities set forth in SCAPE and the National Policy for Water (PNE) and address real needs on the ground, the proposed solution of public water standpipes is not the most adequate for all localities covered by the project. Sub-component A.4 (electricity) is considered as relevant as objectives and activities are well aligned with the National Energy Policy (POLEN) and the National Action Plan for Energy Efficiency adopted in 2015 and address the population's needs to have access to reliable electricity, which can help bolster economic activities. The relevance of Component B (institutional strengthening) is considered as high given the capacity constraints in Togo.

Assessment of Project Outcomes

The government reports find that the project has contributed considerably to reducing social, economic, and environmental costs related to frequent flooding in the Lomé area. They further conclude that the funded activities have also contributed to improving energy efficiency, urban mobility, and access to improved water supply. The activities funded under the project, in particular the strategic combination of investments in drainage and roads infrastructure, allowed to regain access to previously flood-prone areas for adequate housing and economic activities creating important benefits for the residents of Lomé, in particular the poor living in these previously flood-prone and less connected areas.

The achievements of sub-component A.1 (drainage) were evaluated as very satisfactory. All targets related to this sub-component were met and many were exceeded. The construction of drainage canals and water retention ponds has significantly improved the drainage of rain water and reduced the risk of flooding in the targeted zones of Lomé. Beneficiaries expressed their satisfaction with the results achieved, in particular in terms of protection against floods.

The outcome of sub-component A.2 (roads) was assessed as satisfactory. Thanks to two additional financings, the project was able to rehabilitate more than double the length of the road that was initially foreseen and enhanced accessibility of peri-urban areas in Lomé. All targets related to this sub-component were achieved and the quality of the works is good as confirmed by beneficiaries.

The reports also assess sub-component A.3 (water supply) as satisfactory in terms of outputs, but point out that operation and maintenance arrangements for the public water points still need to be finalized. Despite changes in the technical design and delays in the execution of the works, the targets for this sub-component were reached at the end of the project and the capacity of the installed water supply systems exceeds what was initially foreseen. The reports highlight that residents of the areas where the decentralized water supply systems were built did not have any access to potable water provided by the national water utility TdE before the project interventions.

Sub-component A.4 (electricity) is equally judged as satisfactory. The target of people provided with access to electricity by household connection was nearly achieved and beneficiaries noted that important progress was made in improving access and reliability of electricity services.

Finally, Component B is considered as very satisfactory as it successfully strengthened the capacity of over 150 representatives from the different government agencies involved in project management and implementation (instead of the initially foreseen 60 people), which would help achieve sustainability of the project interventions.

Efficiency of the Project

In order to evaluate efficiency of the project, the reports analyzed differences between the initial budget allocations and actual final costs per sub-component as well as the initially planned and actual execution time of major infrastructure investments under the project.

The analysis of budgeted and actual costs shows that all infrastructure sub-components except sub-component A.2 (roads) have achieved the anticipated results with less money than initially allocated. The reports explains that some of these savings stem from local contractors offering low bid prices, which in some cases may have been a willing strategy to win the bid, but in several cases it shows difficulties of local companies to properly estimate the actual costs of infrastructure works. Overall, the project spent 6 percent less of the budgeted funds, while achieving all its results.

In terms of execution times, the government's analysis concluded that most drainage and roads work suffered delays in their execution due to the rainy seasons (which were not adequately taken into account in the original schedules), delays in the delivery of certain construction materials, use of obsolete machinery/equipment by some contractors, cash flow issues of some contractors due to an initial under-estimation of costs, and, in few cases, the need to update or complement the technical feasibility studies. The construction of the decentralized water supply systems suffered the biggest delays due to, on the one hand, shortcomings of the initially available technical studies that needed to be complemented and resulted in changes of the technical solution; and, on the other hand, difficulties with the contractor that was finally hired to execute the works and did not stick to the agreed timeline. The rehabilitation of the electricity distribution network, energy efficiency activities and training activities did not suffer major delays.

Socio-economic impact of the Project

The reports received from the Government also assessed potential impacts of the project on the beneficiaries. Given the lack of baseline survey data, the Government could not conduct a fully blown impact evaluation, but instead analyzed gains and losses potentially induced by the project, based on information from the beneficiary survey and complementary interviews and focus group discussions with beneficiaries.

The reports conclude that the improved drainage network substantially improved the living conditions of the beneficiaries. The evaluation found productivity gains thanks to reduced flooding. Many households could not engage in economic activities for several weeks (or even months) per year when their properties/neighborhoods were flooded and now have increased income opportunities. Households that are now protected against periodic flooding reported an average increase of 20 percent in their income. Moreover, there are human capital benefits as some schools no longer flood and other schools no longer have to serve as disaster shelters. Together with the drainage interventions, the rehabilitation of urban roads achieved accessibility of previously inaccessible areas and improved mobility of people and goods, reducing economic losses associated with congestion for both households and firms and providing opportunities for more economic activities (such as shops and vendors along roads in areas that previously had no walk-by costumers). 65 percent of retailers along the rehabilitated roads attributed improvements in their income after completion of the works to the improvements of the road/mobility. Similarly, 40 percent of the retailers at the rehabilitated market of Agbalepédogan attributed higher incomes to the rehabilitation of the market. However, the improvements achieved under the project also contributed to increases in land and housing prices in previously flood-prone areas with low accessibility. The average costs for a plot in project areas increased by 10 percent, and housing costs increased on average between 1-5 percent depending on the type of housing (highest increase for room and board).

The impacts of the new decentralized water supply systems were not assessed as the water kiosks were not yet operational at the time of the surveys. However, the government reports note that, once operational, the systems will contribute to improved hygiene and health, reduced time to get water (which instead can be used for economic activities). It is likely that beneficiaries will use the new water source as it is cheaper and closer than current options of buying potable water.

The project activities related to electricity distribution and energy efficiency also had a positive impact on the life of the beneficiaries. Better access to reliable electricity typically increases productivity and improvements in human capital. Focus group discussions with beneficiaries confirmed improvements in educational attainments by students in project areas. Moreover, the CFLs seem to have contributed to lowering electricity expenditures by at least 10 percent for nearly 10 percent of the surveyed households. There is also a lower risk of electrocution thanks to the rehabilitated or newly installed sub-stations with public lighting may help to increase safety.

Sustainability of the Project

The government reports evaluated the appropriation of the project by the government and beneficiaries as well as the capacity of beneficiaries to contribute to the maintenance of the works. They concluded that the project managed to obtain unprecedented engagement and ownership from both high-level decision makers and the beneficiary population thanks to close monitoring and outreach activities. The dialog with key stakeholders around the project also contributed to the creation of ANASAP to ensure systematic and regular maintenance of urban infrastructure assets and to the Municipality of Lomé putting in place surveillance brigade for public health (consisting of 50 volunteers).

Lessons learnt

The Government identified the following lessons learnt from the project:

- Creating and maintaining a close dialog between different sectorial government agencies and other stakeholders of the project is key. The close collaboration among different sectorial agencies and dialog with other government institutions contributed to: (i) the creation of the Interministerial Committee for Compensation housed in the Ministry of Economy and Finance, which is now systematically involved in the implementation of compensation and resettlement of project affected people under government projects; (ii) the creation of ANASAP as an instrument of the Government to maintain basic urban infrastructure; and (iii) the adoption of a regulation requiring the systematic inclusion of drainage system in all new roads that are constructed in Togo.
- Success in the field of urban development requires coherent programs and an efficient organization.
- Three key ingredients need to come together in order to achieve success of an urban project: (i) project objectives and activities need to respond to real needs on the ground; (ii) beneficiaries need to be involved in the design and implementation of the project; and (iii) the implementation needs to be guided by a technical, institutional and fiduciary financial framework that is in line with the rules of external financiers.
- The participatory approach in both design and implementation of the project was crucial to achieve broad ownership of the project by its beneficiaries and also contributes to improving sustainability of the project outcomes.
- Commitment, accountability, and coordination among key actors are crucial to ensure project success.
- The close implementation support provided by the World Bank team, their professionalism, and ability to adapt have contributed to maintaining a constructive dialog to the benefit of the project and its beneficiaries.
- Good project management is an important asset of the Government in the dialog with other donors and can help leveraging additional financial and technical support.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Not applicable.

Annex 9. List of Supporting Documents

Emergency Project Paper for a Proposed Grant in the Amount of SDR 16.8 million (US$ 25 million equivalent) to the Republic of Togo for an Emergency Infrastructure Rehabilitation and Energy Project, May 13, 2009, Report No. 47975-TG.

GEF Project Document (CEO Endorsement/Approval) - Togo Energy Efficiency Project, March 31st 2009, GEFSEC Project ID: 3880.

Restructuring Paper on a Proposed Project Restructuring of the Emergency Infrastructure Rehabilitation and Energy Project to the Republic of Togo, April 26, 2010.

Project Paper on a Proposed Additional Grant in the amount of SDR 9.5 million (US$ 15 million equivalent) to the Republic of Togo for the Emergency Infrastructure Rehabilitation and Energy Project, May 13, 2011, Report No. 59868-TG

Project Paper on a Proposed Second Additional Grant in the amount of SDR 9.4 million (US$ 14 million equivalent) to the Republic of Togo for the Emergency Infrastructure Rehabilitation and Energy Project, May 7, 2013, Report No. 66898-TG

Restructuring Paper on a Proposed Project Restructuring of the Emergency Infrastructure Rehabilitation and Energy Project to the Republic of Togo, December 10, 2015, Report No. RES13284.

Financing Agreement for Emergency Infrastructure Rehabilitation and Energy Project between Republic of Togo and International Development Association, Dated June 29, 2009, Grant Number H489-TG

Global Environment Facility Grant Agreement for Emergency Infrastructure Rehabilitation and Energy Project between Republic of Togo and International Bank for Reconstruction and Development acting as Implementing Agency for GEF, Dated June 29, 2009, GEF Grant Number TF094675.

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MUHCV. Évaluation de la Rentabilité Économique et Sociale du Projet d'Urgence de Réhabilitation d'Infrastructures et des Services Electriques au Togo, Rapport Final préparé par Anani Nourredine Mensah, Juillet 2016.

MUHCV. Évaluation Post Activité du Projet d'Urgence de Réhabilitation d'Infrastructures et des Services Electriques au Togo, Rapport Final préparé par Oladé Balo Akakpo, Septembre 2016.

MUHCV. Evaluation post activities of the sub-component energy efficiency, Mr. Agbezo Dodji, December 2015

Republic of Togo, Study on introducing Compact Fluorescents Lamps in public, residential, and commercial buildings, November 2009.

Questionnaire Unifié des Indicateurs de Base du Bien-être (QUIBB) 2015

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 3, 02/19/2011, Report No. ISR2055.

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 4, 11/01/2011, Report No. ISR3887.

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 5, 06/11/2012, Report No. ISR5091.

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 6, 12/17/2012, Report No. ISR8931.

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 7, 07/05/2013, Report No. ISR11179.

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 8, 01/19/2014, Report No. ISR13200.

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 9, 09/30/2014, Report No. ISR16080.

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 10, 05/19/2015, Report No. ISR18615.

Implementation Status and Results Report – Togo, Emergency Infrastructure Rehabilitation and Energy Project (P113415), Sequence # 11, 11/25/2015, Report No. ISR20904.

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Aide-Mémoire. République du Togo. Mission de Supervision du PURISE du 10 au 30 mars 2010.

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