

Document of  
The World Bank

Report No: ICR00003620

IMPLEMENTATION COMPLETION AND RESULTS REPORT  
(IDA-43030 IDA-49720)

ON A

CREDIT

IN THE AMOUNT OF SDR59.5 MILLION  
(US\$90 MILLION EQUIVALENT)

AND

AN ADDITIONAL CREDIT

IN THE AMOUNT OF SDR14.2 MILLION  
(US\$23 MILLION EQUIVALENT)

TO THE

REPUBLIC OF MALI

FOR THE

SECOND TRANSPORT SECTOR PROJECT

May 26th, 2016

Transport and ICT Global Practice  
West Africa 3 Country Management Unit  
Africa Region

## CURRENCY EQUIVALENTS

(Exchange Rate Effective May 13th, 2016)

Currency Unit = West African CFA Franc (FCFA)

FCFA 1.00 = US\$ 0.00172

US\$ 1.00 = FCFA 580

US\$ 1.00 = SDR 0.7097

FISCAL YEAR

January 1 – December 31

## ABBREVIATIONS AND ACRONYMS

AF	Additional financing
AGEROUTE	<i>Agence d'exécution des travaux d'entretien routier</i> (Executing agency for road maintenance)
AGETIER	<i>Agence d'exécution des travaux d'infrastructure et d'équipements ruraux</i> (Executing agency for works on rural infrastructure and equipment)
BP	Bank procedure
EIRR	Economic internal rate of return
FCFA	<i>Franc de la Communauté Financière Africaine</i>
FY	Fiscal year
GENIS	<i>Gestion de l'entretien routier par niveau de service</i> (Management of road maintenance by level of service). Refers to performance-based contracts.
HIV/AIDS	Human immunodeficiency virus infection and acquired immune deficiency syndrome
ICR	Implementation completion and results report
ISR	Implementation status and results report
M&E	Monitoring and evaluation
NCU	National coordination unit
OP	Operational policy
PAD	Project appraisal document
PDO	Project development objectives
SDR	Special drawing rights
Sotrama	Acronym for " <i>Société des transports du Mali</i> ", a company created in 1978 that was the first to operate minibuses for public transport in Bamako. Now designates any minibus used for public transport in Bamako.
TSP2	Second transport sector project
UNESCO	United Nations educational, scientific, and cultural organization
US\$	United States dollar

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**MALI**  
**SECOND TRANSPORT SECTOR PROJECT**

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## DATA SHEET

A. Basic Information			
Country:	Mali	Project Name:	Second Transport Sector Project
Project ID:	P090075	L/C/TF Number(s):	IDA-43030,IDA-49720
ICR Date:	09/24/2015	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	GOVERNMENT OF MALI
Original Total Commitment:	XDR 59.50M	Disbursed Amount:	XDR 73.69M
Revised Amount:	XDR 73.70M		
<b>Environmental Category: B</b>			
<b>Implementing Agencies:</b> Ministry of Equipment and Transport, National Coordination Unit (NCU)			
<b>Cofinanciers and Other External Partners:</b> None			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	09/09/2004	Effectiveness:	08/31/2007	08/31/2007
Appraisal:	03/20/2007	Restructuring(s):		12/11/2014
Approval:	05/24/2007	Mid-term Review:	09/07/2009	10/29/2010
		Closing:	12/31/2011	12/31/2015

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

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

**C.3 Quality at Entry and Implementation Performance Indicators**

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

**D. Sector and Theme Codes**

	Original	Actual
<b>Sector Code (as % of total Bank financing)</b>		
General industry and trade sector	2	2
Other social services	2	2
Ports, waterways and shipping	5	5
Rural and Inter-Urban Roads and Highways	83	83
Sub-national government administration	8	8
<b>Theme Code (as % of total Bank financing)</b>		
City-wide Infrastructure and Service Delivery	29	29
HIV/AIDS	14	14
Injuries and non-communicable diseases	14	14
Municipal governance and institution building	14	14
Rural services and infrastructure	29	29

**E. Bank Staff**

Positions	At ICR	At Approval
Vice President:	Makhtar Diop	Obiageli K. Ezekwesili
Country Director:	Paul Nounba Um	James P. Bond
Practice Manager/Manager:	Nicolas Peltier-Thiberge	C. Sanjivi Rajasingham
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ICR Team Leader:	Vincent Vesin	
ICR Primary Author:	Vincent Vesin	

## F. Results Framework Analysis

### Project Development Objectives (PDO)

In the Project Appraisal Document (PAD) of the Original Project:

The PDO was: “to provide better access and transport services to rural and urban communities especially by improving key rural infrastructure in Mali and urban transport infrastructure in Bamako.”

The PAD also mentioned three specific objectives: “(i) to improve rural access in order to promote growth-supporting rural and agro-industrial business activities in cotton-growing areas; (ii) to facilitate minibus traffic by creating a bus-only lane on Bamako’s Boulevard du Peuple (People’s Boulevard) and reconstructing a dedicated circular road in downtown Bamako; and (iii) to strengthen the capacity of ministries and entities involved in the sector.”

In the Financing Agreement of the Original Project:

The PDO was “to provide access and better transport services to the Recipient’s rural and urban communities through improvement of essential rural infrastructure and important Bamako transport infrastructure.”

In the Project Paper and the Financing Agreement of the Additional Financing:

The PDO was “to provide access and better transport services to the Recipient’s rural and urban communities through improvement of essential rural infrastructure and important Bamako transport infrastructure.”

The PDO from the PAD differed slightly from the PDO from the Financing Agreement. Given this discrepancy, the PDO from the Financing Agreement will be the basis for the evaluation in this report. This PDO did not change at the time of the Additional Financing.

### Revised Project Development Objectives (as approved by original approving authority)

Not applicable

### PDO Indicator(s) – from Project Appraisal Document and Project Paper

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1:</b>	<b>Share of rural population with access to an all-season road (in the project area)</b>			
Value (quantitative or qualitative)	26%  (not set in the PAD but recalculated for this report)	Not set		33%

Date achieved	05/24/2007			12/31/2015
Comments (incl. % achievement)	<p><b>Satisfactory improvement despite lack of defined target.</b>  The project provided access to an all-season road to about 631,400 people (5% of the country's population).  Project area: regions of Kayes, Koulikoro, Sikasso, Ségou, and Mopti.</p>			
<b>Indicator 2:</b>	<b>Average time per km traveled on the roads under performance-based contracts</b>			
Value (quantitative or qualitative)	3 min/km  (not set in the PAD but reported in impact survey in 2015)	Not set	1 min/km  (set at the time of AF in 2011)	1.03 min/km
Date achieved	05/24/2007		12/31/2014	12/31/2015
Comments (incl. % achievement)	<p><b>Achievement: 97%</b>  The project maintained 400 km of unpaved roads under performance-based contracts. Average travel speed increased from 20 km/h to 58 km/h, very close to the target of 60 km/h.</p>			
<b>Indicator 3:</b>	<b>Average time per km traveled on the Badougou-Bafoulabé road</b>			
Value (quantitative or qualitative)	Most sections of the road were impassable for several months of the year. Some sections were impassable all year around.  (not set in the PAD but reported in an impact survey in 2015)	Not set	1 min/km  (set at the time of AF in 2011)	0.8 min/km
Date achieved	05/24/2007		12/31/2014	12/31/2015
Comments (incl. % achievement)	<p><b>Achievement: 125%</b>  This unpaved road was barely passable before the project, even by motorcycle. The project therefore almost consisted in the opening of a new road. Average travel speed at completion was 75 km/h, well above the target of 60 km/h.</p>			
<b>Indicator 4:</b>	<b>Average time per km traveled on the rural roads under periodic maintenance (original project)</b>			
Value (quantitative or qualitative)	2.4-6 min/km	Not set	1.5 min/km	1.64 min/km

qualitative)	(not set in the PAD but reported in an impact survey in 2015)		(set at the time of AF in 2011)	
Date achieved	05/24/2007		12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 93%</b> Before the project, average travel speed ranged between 10 km/h and 25 km/h. After the project, average speed remained above the target of 40 km/h for two years (2012-2013) but then decreased to 37 km/h, just below target.			
<b>Indicator 5:</b>	<b>Average time per km traveled on the Bandiagara-Douentza road</b>			
Value (quantitative or qualitative)	6 min/km (at the time of AF in 2011)	Not set	1.75 min/km (set at the time of AF in 2011)	1.09 min/km
Date achieved	07/05/2011		12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 160%</b> This unpaved road was unpassable for several months of the year, and when it was passable, the average travel speed was less than 10 km/h with a good 4x4 vehicle. At completion, the average speed was 55 km/h, much above the target of 34 km/h.			
<b>Indicator 6:</b>	<b>Average time per km traveled on the rural roads under periodic maintenance (additional financing)</b>			
Value (quantitative or qualitative)	2.4-6 min/km (not set at the time of AF but reported in an impact survey in 2015)		1.5 min/km	1.47 min/km
Date achieved	07/05/2011		12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 102%</b> Before the project, average travel speed ranged between 10 km/h and 25 km/h. After the project, average speed was 41 km/h, just above the target of 40 km/h.			
<b>Indicator 7:</b>	<b>Travel time along the Boulevard du Peuple</b>			
Value (quantitative or qualitative)	35 min	16 min	Not revised	9.4 min
Date achieved	05/24/2007	12/31/2011		12/31/2015
Comments (incl. % achievement)	<b>Achievement: 169%</b> The Boulevard du Peuple is 1.3 km long and is the main boulevard of downtown Bamako. On the Boulevard, the project primarily built a segregated lane dedicated to public transport, which significantly diminished travel time. Furthermore, it repaved/reconstructed the Boulevard du Peuple to improve the level of service.			
<b>Indicator 8:</b>	<b>Accidents on the Boulevard du Peuple</b>			

Value (quantitative or qualitative)	81 accidents	30 accidents	Not revised	Not available
Date achieved	05/24/2007	12/31/2011		12/31/2015
Comments (incl. % achievement)	<b>No evaluation possible due to lack of data.</b> This indicator was essentially dropped at the time of the AF since the AF did not include any urban transport activities.			
<b>Indicator 9:</b>	<b>Roads in good or fair condition as a share of total classified roads</b>			
Value (quantitative or qualitative)	48%		71%	71%
Date achieved	05/24/2007		12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 100%</b> World Bank core indicator introduced at the time of AF in 2011. Mali's total classified road network is about 90,000 km long.			
<b>Indicator 10:</b>	<b>Direct project beneficiaries</b>			
Value (quantitative or qualitative)	0		2,682,000 beneficiaries  (of which: - 2,536,000 under original project - 146,000 under AF)	2,727,000 beneficiaries  (of which: - 2,556,000 under original project - 171,000 under AF)
Date achieved	05/24/2007		12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 102%</b> World Bank core indicator introduced at the time of AF in 2011. It measures the population living in the localities that have benefited from infrastructure financed by the project, including the District of Bamako.			
<b>Indicator 11:</b>	<b>Share of female beneficiaries</b>			
Value (quantitative or qualitative)	0		49.9%	49.9%
Date achieved	05/24/2007		12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 100%</b> World Bank core indicator introduced at the time of AF in 2011.			

**(b) Intermediate Outcome Indicator(s)**

***Component A: Rural Access Improvement***

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1:</b>	<b>Rural roads rehabilitated: Badougou-Bafoulabé road</b>			
Value (quantitative or qualitative)	0 km	210 km	155 km (revised at the time of AF in 2011)	155 km
Date achieved	05/24/2007	12/31/2011	12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 74% (original), 100% (revised)</b> The section Kita-Toukoto (55 km) was dropped from the project because it had already been rehabilitated with funding from the Islamic Development Bank before the project started.			
<b>Indicator 2:</b>	<b>Rural roads rehabilitated: Bandiagara-Douentza road</b>			
Value (quantitative or qualitative)	0 km	140 km	Not revised	140 km
Date achieved	05/24/2007	12/31/2011		12/31/2015
Comments (incl. % achievement)	<b>Achievement: 100%</b>			
<b>Indicator 3:</b>	<b>Rural roads maintained</b>			
Value (quantitative or qualitative)	0 km	1,800 km	2,075 km (revised at the time of AF in 2011)	2,190 km
Date achieved	05/24/2007	12/31/2011	12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 122% (original), 105% (revised)</b> The AF was partly used to scale up the periodic maintenance component of the project, hence the increased target. Among the 2,190 km maintained, 400 km were maintained under performance-based contracts.			
<b>Indicator 4:</b>	<b>Number of local infrastructure constructed or rehabilitated</b>			
Value (quantitative or qualitative)	0	Not set	365 infrastructure (set at the time of AF in 2011)	292 infrastructure
Date achieved	05/24/2007		12/31/2014	12/31/2015
Comments	<b>Achievement: 80%</b>			

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
(incl. % achievement)	It was originally envisaged to build or rehabilitate one small infrastructure (e.g. water well) per village located along the 2,500 km of rural roads improved or maintained under the project. Budget constraints prevented it.			
<b>Indicator 5:</b>	<b>Number of wharves built on the Niger River</b>			
Value (quantitative or qualitative)	0	4 wharves	Not revised	4 wharves
Date achieved	05/24/2007	12/31/2011		12/31/2015
Comments (incl. % achievement)	<b>Achievement: 100%</b> The 4 wharves (river jetties) are located in the Niger inland delta in central Mali. They are used for transport of both passengers and freight on the Niger River, the valley of which is home for much of Mali's population.			

**Component B: Bamako Urban Transport System Improvement**

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 6:</b>	<b>Non-rural roads rehabilitated</b>			
Value (quantitative or qualitative)	0 km	Not set	6.3 km (set at the time of AF in 2011)	8.1 km
Date achieved	05/24/2007		12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 128%</b> The urban roads rehabilitated in Bamako consist of the Boulevard du Peuple (1.3 km), the Sotrama ring road (4.0 km), Rue 1 (0.2 km), Rue 507 (0.5 km), and 10 pedestrian walkways (2.1 km).			
<b>Indicator 7:</b>	<b>Travel time for minibuses on the Sotrama ring road</b>			
Value (quantitative or qualitative)	45 min	Not set	25 min (set at the time of AF in 2011)	19 min
Date achieved	07/05/2011		12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 131%</b> The Sotrama ring road is formed by a series of contiguous streets and avenues in downtown Bamako. Under the project, it was rehabilitated and partially dedicated to minibuses to improve traffic flows in downtown Bamako.			

**Component C: Institutional Strengthening and Project Management**

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 8:</b>	<b>User charges are at least 40% of the road maintenance financing needs by 2008, and 70% by 2011</b>			
Value (quantitative or qualitative)	25%	70%	80% (revised at the time of AF in 2011)	72%
Date achieved	05/24/2007	12/31/2011	12/31/2014	12/31/2015
Comments (incl. % achievement)	<b>Achievement: 103% (original), 90% (revised)</b> Indicator achieved original target, thanks to a steep increase in the fuel levy from 3 to 25 FCFA per liter in 2009. The levy was increased again at the end of 2015 to 35 FCFA per liter.			

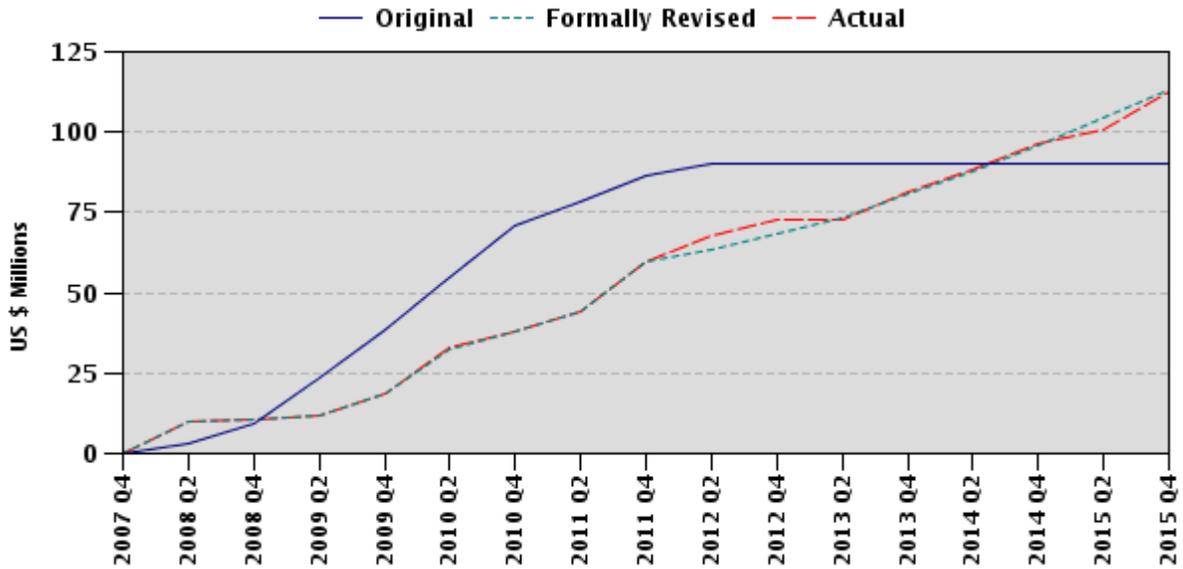
**G. Ratings of Project Performance in ISRs**

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	10/12/2007	Satisfactory	Satisfactory	0.32
2	05/11/2008	Satisfactory	Satisfactory	9.87
3	11/15/2008	Moderately Satisfactory	Moderately Satisfactory	11.54
4	04/25/2009	Moderately Satisfactory	Satisfactory	18.20
5	12/08/2009	Moderately Satisfactory	Satisfactory	29.40
6	04/17/2010	Moderately Satisfactory	Satisfactory	36.59
7	11/04/2010	Moderately Satisfactory	Satisfactory	44.29
8	12/11/2010	Satisfactory	Moderately Satisfactory	44.29
9	06/06/2011	Satisfactory	Moderately Satisfactory	55.24
10	12/18/2011	Satisfactory	Moderately Satisfactory	67.46
11	07/11/2012	Moderately Satisfactory	Moderately Unsatisfactory	72.73
12	02/13/2013	Moderately Satisfactory	Moderately Unsatisfactory	75.46
13	06/20/2013	Moderately Satisfactory	Moderately Satisfactory	79.98
14	12/18/2013	Moderately Satisfactory	Satisfactory	88.38
15	05/20/2014	Moderately Satisfactory	Satisfactory	93.85
16	12/05/2014	Moderately Satisfactory	Satisfactory	99.49
17	05/01/2015	Satisfactory	Satisfactory	108.73
18	11/10/2015	Satisfactory	Satisfactory	112.84
19	12/22/2015	Satisfactory	Satisfactory	112.84

## H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in US\$, millions	Reason for Restructuring & Key Changes Made
		DO	IP		
12/11/2014	–	MS	S	93.75	12-month extension of closing date to 31 December 2015, to allow completion of critical activities.

## I. Disbursement Profile



# 1. Project Context, Development Objectives and Design

## 1.1 Context at Appraisal

### *Country and sector background*

1. At appraisal in 2006, Mali is the largest country in West Africa with a land area of 1.24 million square km. The Sahara in the north accounts for a bit more than half of the country's area. The small population of about 13.3 million is therefore concentrated mostly in the southern regions, including in the capital Bamako (1.7 million). The population is growing rapidly at an annual rate of 3.3%. The rate of urbanization is increasing fast, but Mali's population remains predominantly rural, with nearly 70% living in rural areas. Mali is one of the poorest countries in the world with a GDP per capita of US\$1,380 (based on purchasing power parity and constant 2011 international US\$). Almost half of the population lives below the national poverty line.

2. Mali's recent economic and policy performance has been solid. Despite exogenous shocks, GDP growth in Mali has averaged 5.7% over the last 15 years and poverty has declined. The backbone of Mali's economy is the primary sector. Although the share of this sector is subject to fluctuations resulting from random weather conditions, it represents around 35% of GDP in a typical year. Food crop production accounts for about 45% of the sector, while cotton represents 13%, livestock 28%, and fishing and forestry 14%. The share of the secondary sector increased rapidly from the late 1990s until 2002, owing to the expansion of gold mining, but declining gold output has reduced its share to 27% of GDP in 2005. The services sector accounts for over 38% of GDP in 2005, supported by public services, commerce and the booming telecommunications sector.

3. Mali, as a landlocked country, faces external and internal accessibility issues, exacerbated by its low capacity to manage the transport sector. The resulting high transport costs drive up the prices of inputs, agricultural products, consumer goods, and exports, and thereby adversely affect the welfare of the poor and reduce the competitiveness of Mali's economy. Passengers and freight are transported mostly by road. Over the past two decades, Mali has substantially developed its transport infrastructure, particularly its road network (89,000 km). Nevertheless, its road density remains one of the lowest in West Africa. Insufficient resources allocated to road network maintenance have led to substantial maintenance backlogs and have accelerated the deterioration of the existing network. Some rural communities cannot be accessed by road; the Niger River is the only mode of transport for these isolated communities, but there is no infrastructure to facilitate loading and unloading of passengers and freight.

### *Rationale for World Bank's assistance*

4. The rationale for the World Bank's involvement is that improved rural infrastructure underpin economic growth, poverty alleviation, and regional integration (especially in landlocked countries) by providing rural populations with access to markets, social services, and income-generating opportunities. On urban development issues, the World Bank, through its holistic approach and vast global experience, has a unique comparative advantage for embracing social issues and making balanced investments that can promote sustainable solutions and adequate institutional capacity building.

### *Higher objectives*

5. The Second Transport Sector Project (TSP2) was to contribute to the following higher objectives set by the government: (i) accelerate shared growth; and (ii) improve basic access to quality socio-economic services. These strategic objectives were the key pillars of a government's Transport Sector Program that was being prepared for the period 2008-2015. They were fully anchored and consistent with the government's Growth and Poverty Reduction Strategy Framework for the period 2007-2011, and with the World Bank's new Country Assistance Strategy for FY08-FY11, and were supported by the donor community. The project was also relevant to the government's Transport Policy Letter under preparation for the period 2007-2011.

6. During the implementation of the first Transport Sector Project in Mali (1994-2004), the World Bank prepared another transport project, the Transport Corridors Improvement Project (2004-2009), to address issues related to corridors with a multimodal approach. The TSP2 therefore came as a complement to focus on rural areas and the District of Bamako by helping the government improve access to social and economic services. By improving rural roads and river transport facilities, the project was also to help promote productive sectors.

### **1.2 Original Project Development Objectives (PDO) and Key Indicators**

7. The PDO stated in the Project Appraisal Document (PAD) differs slightly from the PDO stated in the Financing Agreement. Given this discrepancy, the PDO from the Financing Agreement will be the basis for the evaluation in this report.

8. The PDO stated in the Financing Agreement was "to provide access and better transport services to the Recipient's rural and urban communities through improvement of essential rural infrastructure and important Bamako transport infrastructure."

9. The PDO stated in the main text of the PAD was "to provide better access and transport services to rural and urban communities especially by improving key rural infrastructure in Mali and urban transport infrastructure in Bamako."<sup>1</sup> (*Superscripts refer to endnotes.*)

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

10. The PDO was not revised at the time of the AF, which was approved on 5 July 2011. And the discrepancy noted in the PAD was corrected. Thus the PDO stated both in the AF Financing Agreement and in the AF Project Paper is the same as the PDO stated in the Financing Agreement of the Original Project. The specific objectives stated in the PAD were not stated again in the AF Project Paper. At the time of the AF in 2011, several revisions were made to improve the PDO indicators, in particular by setting baselines and annual targets. The details about these revisions are presented in a table in annex 2. A few baseline values were still undefined at the time of the AF but were later reported in the impact surveys conducted at the end of the project.

### **1.4 Main Beneficiaries**

11. The PAD did not identify any primary target group. Nevertheless, one could understand from the PDO that the main beneficiaries would be the rural and urban communities using or living near the infrastructure financed by the project. Direct beneficiaries were expected to exceed 2.6 million at the end of the project. This figure is the sum of the population of Bamako, the population of the

villages located within 2 km of the rural roads targeted by the project, and the population of the four villages where the wharves (river jetties) on the Niger River were built.

## **1.5 Original Components**

12. The original project was approved by the World Bank's Board of Directors on 24 May 2007 for an amount equivalent to US\$90 million at that time.<sup>2</sup> The project's components and sub-components are summarized below:

### **Component A: Rural Access Improvement**

(US\$68.8 million World Bank, 76% of total credit amount)

5 sub-components:

- (a) rehabilitation of about 350 km of rural roads (Bandiagara-Douentza (including the Togo-Tongo section) (140 km) and Kita-Toukoto-Bafoulabé (210 km))<sup>3</sup>;
- (b) periodic maintenance of about 1,400 km of rural roads;
- (c) performance-based maintenance of about 400 km of rural roads;
- (d) implementation of socioeconomic activities proposed by local communities; and
- (e) reconstruction of four wharves along the Niger River.

### **Component B: Bamako Urban Transport System Improvement**

(US\$15.0 million World Bank, 17% of total credit amount)

4 sub-components:

- (a) reconstruction of a 1.3 km bus-only lane on the Boulevard du Peuple;
- (b) reconstruction of a partially dedicated 4.8 km ring road for minibuses (Sotrama<sup>4</sup> ring road) in downtown Bamako to segregate and facilitate minibus traffic;
- (c) rebuilding pedestrian walkways and constructing two pedestrian overpasses; and
- (d) providing institutional support, technical assistance and consultant services to develop traffic management capacity for the city of Bamako.

### **Component C: Institutional Strengthening and Project Management**

(US\$6.2 million World Bank, 7% of total credit amount)

6 sub-components:

- (a) support the implementation of financial and institutional mechanisms to sustain road maintenance;
- (b) implement a rural road access index study;
- (c) management of social and environmental aspects of the project including HIV/AIDS prevention and road safety;
- (d) development of medium-term sector strategies including capacity building for various technical structures and implementation agencies;
- (e) project management and financial and technical audits; and
- (f) establish a monitoring and evaluation system (M&E), including communications activities.

## **1.6 Revised Components**

13. The AF was approved by the World Bank's Board of Directors on 5 May 2011 for an amount equivalent to US\$23 million at that time<sup>5</sup> to fund an unanticipated financing gap and a scale-up of one of the original project's sub-components. More specifically, the AF was to fund the following activities, which all fell under Component A (Rural Access Improvement):

- Rehabilitation of the Bandiagara-Douentza rural road, including the Togo-Tongo section, and excluding the design and supervision consultant services (US\$17.8 million Bank, 77% of total AF amount). This rehabilitation was already included in the original project but could not be funded due to higher than expected bid prices of civil works. This was primarily caused by increases in the price of petroleum products and in the cost of road construction throughout sub-Saharan Africa in 2007-2008, and by poor cost estimation during project preparation. The detailed engineering studies for the two roads had been done in 2004 and had not been updated since; their poor quality and unrealistic unit prices also explained the higher than expected bid prices.
- Periodic maintenance of an additional 275 km of rural roads, excluding design and supervision consultant services (US\$4.4 million Bank, 19% of total AF amount)
- Design and supervision consultant services (US\$0.8 million Bank, 4% of total AF amount)

14. Only two small revisions were made to the project components at the time of the AF in 2011. These revisions concerned the sub-components (a) and (b) of Component A, which became:

(a) rehabilitation of about 295 km of rural roads (Bandiagara-Douentza (including the Togo-Tongo section) (140 km) and Badougou-Bafoulabé (155 km)).

Reason: the Kita-Toukoto-Bafoulabé road was reduced to the Badougou-Bafoulabé road after the section Kita-Koutoko (55 km) was dropped because it had already been improved with funding from the Islamic Development Bank.

(b) periodic maintenance of about 1,675 km of rural roads.

Reason: scale-up.

## **1.7 Other significant changes**

### *Revision of intermediate outcome indicators*

15. At the time of the AF, the results framework was revised to reflect the implementation progress made to date and to include the new activities funded by the AF. It was also improved with regard to the PDO indicators, as already noted, and with regard to the intermediate outcome indicators. The details about these revisions are presented in a table in annex 2.

### *Extensions of closing date*

16. The initial closing date was 31 December 2011; the actual closing date was 31 December 2015. Thus the project lasted 8.5 years instead of 4.5 years as initially planned.

17. The closing date of the project was extended twice: (i) three years (from 31 December 2011 to 31 December 2014) at the time of the AF, and (ii) one year (from 31 December 2014 to 31 December 2015) via a level-2 restructuring approved by the Regional Vice-President on 11 December 2014.

18. The reason given for the second extension was the military coup d'état of 22 March 2012<sup>6</sup>, and the subsequent suspension of the Bank's disbursements to Mali until November 2012. Consequently, all project activities were suspended for about 11 months and then moved slowly for at least the following year, delaying the completion of key activities, in particular the

rehabilitations of the Bandiagara-Douentza road and the Badougou-Bafoulabé road under Component A (Rural Access Improvement). This extension proved effective since all the major project activities have been completed as of 31 December 2015.

## 2. Key Factors Affecting Implementation and Outcomes

### 2.1 Project Preparation, Design and Quality at Entry

19. *Soundness of the background analysis.* The project responded to a study of Mali’s transport sector conducted by the World Bank in 2004.<sup>7</sup> The study found that Mali’s road infrastructure was in poor condition, especially dirt and rural primary and secondary roads, which played a key role in economic integration and poverty alleviation. The study therefore recommended, among other things, focusing on the maintenance and improvement of the rural road network. The project also benefited from the experience and lessons drawn from several previous or ongoing projects that gave the Bank a wide background knowledge of Mali’s transport, agriculture, and rural development sectors.<sup>8</sup> In this context, the project was designed to pursue the improvement of internal accessibility started under the first Transport Sector Project. It was also designed as a multisectoral project targeting road transport, urban transport, river transport, as well as agriculture and rural development aspects.

20. *Adequacy of the government’s commitment.* At preparation, the government showed good commitment to the TSP2. The satisfactory performance of the government<sup>9</sup> during the first Transport Sector Project was a positive sign of its commitment to the success of the follow-up TSP2. In addition, the development of the transport sector was a key developmental priority of the government and its transport sector program for the period 2008-2011 included most of the investments to be funded by the TSP2. Furthermore, the government timely submitted a satisfactory letter of policy for the transport sector for the period 2007-2011, which was a condition of the presentation of the TSP2 to the Board of the World Bank. Finally, the President of the Republic himself chaired the official launch of the project in March 2008; during a press conference, he expressed his personal commitment to the project and gave instructions to the Minister of Transport to accelerate its implementation.

21. *Assessment of risks.* The overall risk of the project was rated moderate at entry. The PAD identified six critical risks (five rated moderate and one rated high) and proposed mitigation measures for each of them. The table below assesses whether the risks materialized and whether the mitigation measures were applied.

<i>Critical risks</i>	<i>PAD</i>		<i>Ex-post assessment</i>
	<i>Rating</i>	<i>Mitigation measures</i>	
Lack of resources for routine and periodic maintenance for the primary road network	High	The government agrees to allocate sufficient resources during the project implementation period to cover maintenance requirements by promoting participation of the beneficiaries and scaling up performance-based contracts.	The risk materialized, as the budget of the Road Agency never covered the funding needs for road maintenance. Only one of the two mitigation measures was applied, namely the participation of beneficiaries via the significant increase of the fuel levy. The other measure, scaling-up of performance-based contracts, was not applied.

Lack of local capacity to manage the program of works	Moderate	The management of road maintenance programs has been delegated to two experienced and qualified implementing agencies (AGETIER and AGEROUTE). The project will also build the capacities in the sector through specific training.	The risk did not materialize since all road works have been completed, although with some delays. Specific training was provided under Component C (Institutional Strengthening and Project Management)
Roadblocks and customs procedures could be the source of petty corruption	Moderate	Programs of sensitization of police and customs officers through training will be implemented within component C of the project.	Petty corruption did not present any particular challenge during implementation, although there is no record of specific training provided to the police and customs.
The relocation plan may be delayed and could affect the civil works implementation schedule for the Boulevard du Peuple and the Sotrama ring road	Moderate	Consultation and sensitization processes have been established with stakeholders by the District of Bamako. These processes are ongoing to define adequate measures to improve understanding and conditions of the relocation plan.	The relocation plan was somewhat delayed but it did not significantly affect the works schedule. The mitigation measures were applied.
Cost overruns may hamper the bidding and implementation of intended works	Moderate	The implementing agencies (AGEROUTE and AGETIER) will handle the procurement aspects.	The risk materialized through higher than expected bid prices for the Bandiagara-Douentza and Badougou-Bafoulabé roads, warranting the Additional Financing. The mitigation measure was applied but proved insufficient.

22. *Assessment of the project design.* Overall, the project design was relatively complex, considering the institutional capacity of the government. The project activities mixed rural, urban, and river transport, and were dispersed over a very large area. The criteria used to select the rural roads essentially ensured that these roads were serving regions producing cash crops, especially cotton and mangoes. There were numerous public entities<sup>10</sup> involved at some level of implementation, which posed a challenge for the national coordination unit (NCU) in coordinating project activities. The urban component was intrinsically complex, given that downtown Bamako is a difficult and congested urban environment, and that the project required the resettlement of about 500 mobile street vendors. The project introduced for the first time in Mali the spot improvement method and performance-based contracts for road maintenance. The institutional strengthening component, though relevant in many respects, was a long list of activities destined for multiple entities. The articulation between the PDO, the components, and the indicators could have benefited from more precise explanations of “access to urban communities” and “better transport services”.

23. *Assessment of quality at entry.* Two major shortcomings weakened quality at entry. First, the detailed engineering studies for the Badougou-Bafoulabé and Bandiagara-Douentza roads, the two most expensive (about 30% of the total project cost) activities of the project, were of poor quality, inconsistent with the reality on the ground, and used unrealistic unit prices. Second, the appraisal

failed to realize that the Kita-Toukoto road section (55 km) should not have been included in the project since this section had already been improved with funding from the Islamic Development Bank. This means that the World Bank and the Borrower did not do basic due diligence in terms of costs and quality of engineering studies for the two project activities having the highest costs and the highest potential socio-economic benefits.

## **2.2 Implementation**

24. *Issues affecting implementation.* During the 8.5 years of implementation, overall implementation progress has always been rated satisfactory or moderately satisfactory in the World Bank's Implementation Status and Results reports (ISR), except in July 2012 and February 2013 after the coup d'état when it was rated moderately unsatisfactory. Overall implementation progress was ultimately rated satisfactory in the final ISR archived on 22 December 2015. This is remarkable considering that, in addition to the coup d'état and the subsequent suspension of all project activities, implementation was hampered by a series of quasi force majeure issues: (i) in 2013 the armed conflict in the north of the country directly impacted a few project locations<sup>11</sup>, (ii) the outbreak of Ebola virus in 2014, (iii) the terrorist attacks in Bamako in 2015; and (iv) the contractor of the Badougou-Bafoulabé road works abandoned the construction site in January 2013 and its contract had to be terminated and re-bid for the balance of works (about 20%).

25. *Project at risk status.* The project was only reported as a high risk project during the suspension of the World Bank's disbursements in 2012-2013.

26. *Mid-term review.* A mid-term review took place in October 2010, which was one year behind schedule. It concluded that the PDO was still fully relevant and substantially achievable by the closing date (then 31 December 2011). It also found that the design and components remained relevant and did not need to be restructured to substantially achieve the agreed objectives. The review did not mention the need to improve the results framework, because at the time the World Bank was already planning an AF and thus preferred to wait until then to revise and improve the framework. The reason for this was to reduce the administrative burden on the Borrower (whose capacity was low) and on the Bank project team.

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

### ***M&E design***

27. The PDO can be decomposed by making a difference between rural and urban communities on one hand, and between access and transport services on the other hand. Hence the following four sub-objectives representing the expected outcomes of the project:

- PDO1: Provide access to the Recipient's rural communities
- PDO2: Provide better transport services to the Recipient's rural communities
- PDO3: Provide access to the Recipient's urban communities
- PDO4: Provide better transport services to the Recipient's urban communities

28. These sub-objectives leave aside the last part of the PDO ("through improvement of essential rural infrastructure and important Bamako transport infrastructure") for this part does not contain any outcomes, only outputs.

29. The project used ad hoc M&E arrangements. As noted earlier, the results framework in the PAD had weaknesses and was much improved at the time of the AF by refining, removing, and

adding indicators. The present assessment is based on the indicators of the AF results frameworks. This table presents the indicators most adequate to monitor progress towards the four sub-objectives.

<i>Sub-objective</i>	<i>Adequate indicators</i>	<i>Comment</i>
PDO1: Provide access to the Recipient's rural communities	- Share of rural population with access to an all-season road	This World Bank's core indicator (rural access index) is perfectly adequate to monitor progress towards the sub-objective
PDO2: Provide better transport services to the Recipient's rural communities	- Average time per km traveled, disaggregated by type of roads	The key here is to understand what was meant by "better transport services". It may have to do with various aspects of transport services: speed, cost, frequency, reliability, comfort, safety, security, etc. The indicator on the left is only adequate to monitor progress on speed.
PDO3: Provide access to the Recipient's urban communities	None	While the notion of "access" was clearly articulated for rural communities thanks to the rural access index, it was not for urban communities, as reflected by the absence of an indicator to measure it. Nevertheless, it is obvious that this access had to do with better infrastructure for road users (through the reconstruction of the Boulevard du Peuple and the Sotrama ring road), and for pedestrians (through the rebuilding of pedestrian walkways and the construction of two pedestrian overpasses).
PDO4: Provide better transport services to the Recipient's urban communities	- Travel time along the Boulevard du Peuple - Travel time for minibuses on the Sotrama ring road - Number of accidents on Boulevard du Peuple	The key here is also to understand what was meant by "better transport services". The indicators on the left are adequate to monitor progress on speed and safety.

30. In conclusion, the M&E design was adequate to monitor progress towards certain aspects of the PDO and would have gained from precise definitions for "access to urban communities" and "better transport services".

### ***M&E implementation***

31. From the AF onwards, the NCU generally collected appropriate data using appropriate collection methods, except for two indicators as explained below. The NCU updated the indicators before each implementation support mission at the request of the Bank, which was not always easy because the NCU had to rely on individual consultants or public entities for data collection. The two indicators that posed a problem were the share of rural population with access to an all-season road and the number of accidents on Boulevard du Peuple.

32. The share of rural population with access to an all-season road was not clearly defined during preparation and was not properly measured during implementation. Nevertheless, for the purpose of this report, the 2008 baseline and the actual value at the end of the project have been eventually calculated, by setting a few principles: (i) the area of measurement had to be the same at the start and at the end of the project; this area would be made of the five regions where the project financed rural road works; (ii) the rural roads targeted by the project were considered as impassable during the rainy season before the project and as all-weather roads after the project; (iii) the population was measured according to the national census of 2009.

33. Regarding the number of accidents on Boulevard du Peuple, it is not known how the baseline (81) and target (30) could be set during the preparation of the original project, since at that time there were no data on the precise location of accidents in downtown Bamako, according to the feasibility study of the urban component. And since such data remained unavailable, no evaluation of this indicator was possible during implementation.

### ***M&E utilization***

34. The NCU and the World Bank used the M&E framework to inform decision-making and resource allocation during the preparation of the AF in 2011. Since the project used ad hoc M&E arrangements, the project did not contribute to strengthen any existing M&E system in the country. For data collection, the NCU depended on individual consultants or public entities of uneven quality. NCU's capacity to manage M&E systems remained weak. This weakness was for example illustrated during the preparation of the ex post economic analysis for this report: it was difficult to obtain reliable inputs. For future projects, M&E arrangements should probably be simplified and NCU's capacity should be reinforced on fundamental issues like economic analysis.

## **2.4 Safeguard and Fiduciary Compliance**

### ***Safeguards***

35. Four safeguards policies were triggered under the original project and maintained under the AF: Environmental Assessment (OP/BP 4.01), Involuntary Resettlement (OP/BP 4.12), Physical Cultural Resources (OP/BP 4.11), and Forests (OP/BP 4.36). The project was classified into category B, meaning that it might have potentially adverse environmental impacts on human populations or environmentally important areas. The Borrower prepared all the required assessment instruments and mitigation plans, which were disclosed in the country and in the Bank's Infoshop.<sup>12</sup>

36. The compliance rating of the project with the Forests and Physical Cultural Resources policies was constantly "satisfactory" because the mitigation activities planned under these policies were completed on time. The mitigation activities planned under the Environmental Assessment and Involuntary Resettlement policies were completed with delay, hence compliance ratings generally "moderately satisfactory" for these two policies and even "moderately unsatisfactory" once for Involuntary Resettlement. The most challenging mitigation measure was the construction of the 500 kiosques required to resettle the mobile street vendors from the Boulevard du Peuple and the Sotrama ring road under the urban transport component. The construction of the kiosques was much delayed for several reasons.<sup>13</sup> Nevertheless, at the end of the project, 515 kiosques have been built, thus surpassing the target of 500.

### *Fiduciary issues*

37. Financial management was rated “satisfactory” in every ISR. External financial audits were submitted on time and gave unqualified opinions, although some issues of internal control were identified. These issues were addressed by the NCU. The financial covenants were complied with. Interim unaudited financial reports were acceptable to the Bank and generally submitted on time. There was no audit recommendation still pending at the end of the project.

38. Procurement was rated “satisfactory” or “moderately satisfactory” in every ISR, except once in November 2008 when it was rated “moderately unsatisfactory”. This rating was justified by the failure to implement the procurement plan and by a 3-month delay to award contracts for technical studies. This issue was solved once the procurement staff of the NCU, AGEROUTE and AGETIER agreed upon guidelines to expedite the procurement of various contract. As a result, within six months, a new procurement plan was implemented smoothly and the quality of the documents sent to the Bank for no objection improved significantly.

### **2.5 Post-completion Operation/Next Phase**

39. At the time of this report, the Bank and the government had started a discussion about a follow-up project that would focus on rural roads to improve further rural access in areas with agricultural potential.

## **3. Assessment of Outcomes**

### **3.1 Relevance of Objectives, Design and Implementation**

#### *Relevance of objectives*

Rating: High

40. The PDO was to provide access and better transport services to rural and urban communities through improvement of essential rural infrastructure and important Bamako transport infrastructure. At the end of the project, this PDO remains relevant to the country’s current development priorities, as well as to the Bank’s current country and sectoral strategies and corporate goals.

41. According to Mali’s latest Growth and Poverty Reduction Strategic Paper for the period 2012-2017, the country’s long- term objective is “to turn into an emerging economy and an agro-pastoral power, with a good quality of life for both men and women.” The paper identifies severe constraints that brake growth and poverty reduction; among them are shortcomings in transport infrastructure. The document stresses the need to modernize and extend the road, airport, and river transport infrastructures. The project’s objectives were therefore relevant to this need.

42. According to the Bank’s latest Country Partnership Framework for the period FY16-FY19, transport remains a key area of intervention in Mali to reach two critical goals for the country, namely to improve the productive capacity and market integration of farmers and pastoralists, and to develop and diversify into value-added agriculture productions. The project’s objectives towards rural communities were aligned with these two goals, themselves in line with the Bank’s corporate twin goals (eliminating extreme poverty and boosting shared prosperity). Indeed, the poorest in

Mali are farmers, and farmers' access to basic services and to markets is hindered by several factors including poor rural transport. Addressing transport constraints, as the project did, helps improve functioning markets to benefit the poorest. Ultimately functioning markets reduce the share of subsistence farmers, who are excluded from the market by definition, and they increase the share of business farmers, who are connected to local, regional, and international markets.

### ***Relevance of design***

Rating: Substantial

43. The lending instrument (a specific investment loan) and the project's components (rural access improvement, Bamako urban transport system improvement, and institutional strengthening and project management) were consistent with the PDO. The components rightly focused on essential urban and rural transport infrastructure, which corresponded to the "access" part of the PDO and were also a necessary condition to the establishment of "better transport services", the second part of the PDO. The design could nonetheless have benefited from a few targeted activities to address more directly issues of transport services. This might have strengthened the results framework, i.e. the causal chain linking the components (outputs) and the objective of providing "better transport services" (outcome), but it would have also added complexity to an already relatively complex design—in hindsight, simplicity and focus of intervention should always prevail in a low-capacity country. For this reason, the relevance of design is rated "substantial", not "high".

## **3.2 Achievement of Project Development Objectives**

44. The basis for the evaluation is the PDO stated in the Financing Agreement: "to provide access and better transport services to the Recipient's rural and urban communities through improvement of essential rural infrastructure and important Bamako transport infrastructure." As already noted, the PDO can be split into four sub-objectives, whose achievement is rated individually below.

### ***PDO1: Provide access to the Recipient's rural communities***

Rating: High

45. The objective was achieved, as demonstrated by the significant increase in the share of rural population with access to an all-season road in the project area—this indicator is a Bank's core indicator defined as the population living within two kilometers of an all-season road. The project increased this share from 26% to 33% between 2007 and 2015, which represents more than a 25% increase. It is a marked improvement for Mali's rural population since the project area (the regions of Kayes, Koulikoro, Sikasso, Ségou, and Mopti) accounts for two thirds of the country's population—but only one third of its size, and most of its cash crop production. About 631,400 people (5% of the country's population) benefited from better road access through the project. This positive outcome resulted from rehabilitation or maintenance road works for about 2,500 km of rural roads, mostly in cotton-growing areas and in two locations especially important for the country, namely the Bamako-Kayes axis and the Dogon plateau.

46. The Bamako-Kayes axis is served by the Badougou-Bafoulabé road (155 km), which was rehabilitated by the project. This road runs parallel to the Dakar-Bamako railway and plays an important role for the opening up of the region of Kayes near the border with Senegal and for the mobility of the population living along the Kayes-Bamako axis. Indeed, this population cannot travel by train anymore: railway passenger services were terminated in 2009, following a privatization of the railway in 2003 that prioritized freight traffic over passenger traffic. The Dogon

plateau, an isolated area in central Mali, is only served by the Bandiagara-Douentza road (145 km), which was also rehabilitated by the project. The plateau is one of Mali's main touristic areas thanks to the presence of the Cliff of Bandiagara, a UNESCO World Heritage site. The road therefore plays a crucial role in the socio-economic development of the area. After the project, the road has become passable all year round and it took only 2-3 hours to cover its entire length. This is a major improvement compared to the 10-12 hours it used to take for a good four-wheel drive vehicle before the project when the road was barely passable

47. As for river transport, the four wharves built on the Niger River generally met the expectations of the rural population and provided better access to isolated and vulnerable communities who sometimes have to rely on the river as their primary mode of transport. In addition to transport infrastructure, the project financed 292 small socio-economic infrastructures (e.g. water wells and solar panels) which improved the quality of life of the population living near the project roads and wharves: see section 3.5 for further details.

***PDO2: Provide better transport services to the Recipient's rural communities***

Rating: High

48. The objective was achieved for road transport services. According to the impact surveys conducted at the end of the project (see list in annex 9), transport services improved in different ways: speed, comfort, frequency, and cost. First, the average speed of vehicles travelling on the 2,500 km of rehabilitated or maintained roads improved notably, from a range of 10-25 km/h to a range of 37-75 km/h depending on the type of roads (for details, see the results framework analysis at the beginning of this report). Second, the comfort of travel has in general improved thanks to smoother road surfaces and more comfortable vehicles. Impact surveys showed that before the project certain roads were only travelled by pickups or 10-ton trucks transporting both passengers and freight, whereas after the project the roads became travelled by all sorts of vehicles, including more comfortable passenger cars, minibuses, and coaches. Third, the volumes of traffic increased manifold after the project (up to thirty times as in the case of the Badougou-Bafoulabé road), which meant more frequent transport services for the population. Fourth, impact surveys also evidenced a sharp decline of the order of about 30% to 50% in transport prices for passengers, cattle, and freight. Overall, impact surveys showed that these improved transport services have contributed to the socio-economic development of the villages located along the project roads, in particular by supporting a growth and diversification of economic exchanges, a better supply of commodity staples, and an easier access to dispensaries (see section 3.5 below for further details). Finally, in addition to road transport services, the project contributed to the betterment of river transport services since the four wharves built on the Niger River facilitated and made safer the loading and unloading of both passengers and freight.

***PDO3: Provide access to the Recipient's urban communities***

Rating: Modest

49. The objective was to a large extent achieved. Despite the political events that shook Mali and Bamako in the past years, and a complex operation to resettle mobile street vendors, access has been improved thanks to the project. Additional positive impacts can be found in the improvement of the working conditions of street vendors. Even though there was no indicator in the results framework to clarify the meaning of "access to urban communities" (contrary to the case of rural communities for which it was about access to an all-weather road), given the outputs expected when the urban component was designed, the objective was to provide "access to a bus-only lane on the

Boulevard du Peuple and to a partially dedicated ring road for minibuses in downtown Bamako”. The project managed to complete the reconstruction road works on the Boulevard du Peuple and on the Sotrama ring road, as well as the construction of complementary infrastructure such as pedestrian walkways and two pedestrian overpasses. Thus the project benefited not only road users but also pedestrians. According to an impact survey, the population appreciated the quality of civil works and the improved drainage during the rainy season. Furthermore, the population appreciated the quality and aesthetics of the 500 permanent kiosques that were built to resettle the mobile street vendors from the Boulevard du Peuple and the Sotrama ring road. The kiosques have also been used by vendors as a bank loan guarantee, and they have eased the work of the tax administration in collecting taxes from vendors.

50. Nevertheless, there are shortcomings. First, the parking lots planned in the original design (7 off-street parking lots with a total capacity of 1,500 vehicles) have not been built; the lack of parking lots causes problems along the Sotrama ring road since minibuses park illegally on the stops that are normally reserved for loading and unloading passengers. Second, the partial dedication of the Boulevard du Peuple and the Sotrama ring road to public transport is hampered by jaywalking, anarchic parking, and partial occupation of the roadway by mobile vendors. This was not the case when the road works were completed in 2011 on both the Boulevard du Peuple and the Sotrama ring road, because the concerned municipality strictly enforced basic traffic rules on both roads. However, the prolonged political crisis that ensued after the coup d’état of March 2012 has led to a lax enforcement that persists today in the streets of Bamako. Third, the dedicated lane on the Boulevard du Peuple is actually not used by any large buses due to an issue out of the control of the project, which is that all companies operating large buses have ceased to operate in Bamako. Public transport is however provided on the Boulevard by minibuses, which have been rightly authorized to use the dedicated lane (they were not supposed to use it in the original design). Finally, maintenance is an issue: some of the small infrastructure installed along the Boulevard du Peuple (concrete barriers used to separate lanes of traffic and metal railings placed parallel to the sidewalks to prevent pedestrians from encroaching on the roadway) have suffered from vandalism in the aftermath of the coup d’état of March 2012 and have not yet been repaired at the time of this report.

51. These are shortcomings mainly related to overall traffic management in the city, which is a complex issue that requires strengthening of the institutional capacity at the local government level and ability to enforce traffic laws and regulations. The political situation, which abruptly deteriorated in Mali and Bamako during the second half of project implementation, made it extremely difficult for the project to make headway on this issue.

***PDO4: Provide better transport services to the Recipient’s urban communities***

Rating: Modest

52. The objective was to a large extent achieved. The project notably reduced travel times of transport services on the Boulevard du Peuple and on the Sotrama ring road. Travel time on the boulevard was almost divided by four, falling from 35 min to 9.4 min, while travel time on the ring road was divided by more than two, dropping from 45 min to 19 min. In both cases, the project delivered better travel times than what was targeted. Yet, travel times could be further enhanced with a proper enforcement of the modified traffic management patterns adopted by the District of Bamako in March 2012 to facilitate the movement of public transport minibuses on the improved Boulevard du Peuple and Sotrama ring road. Nonetheless, without the project, traffic congestion and travel comfort on the Boulevard du Peuple and the Sotrama ring road would have been much worse, probably to the point where the Boulevard du Peuple would have become unpassable by

motorized vehicles. The project has thus delivered much higher travel speeds and smoother rides due to reconstruction of the pavement.

53. There is however no clear evidence of any improvement in traffic safety. The indicator on the number of accidents on the Boulevard could not be measured since no data are collected on the precise location of accidents in downtown Bamako. The impact survey carried out for the urban component reported that safety did not improve as much as expected and remained an issue (although there were no quantitative data to prove it). Well aware that road safety remains an issue, the World Bank launched early 2016 a technical assistance to improve traffic safety in Mali, especially in Bamako. This makes the country the first Francophone African country to benefit financially from the Global Road Safety Facility (GRSF).

### 3.3 Efficiency

Rating: High

54. This rating results from the conclusion of an ex-post economic analysis undertaken for the four project activities with the highest cost (Badougou-Bafoulabé road, Bandiagara-Douentza road, Boulevard du Peuple, and Sotrama ring road), as well as for the combination of Boulevard du Peuple and Sotrama ring road. The table below shows that their ex-post economic internal rate of returns (EIRRs) range from 15.9% to 44.3%, higher than the 12% discount rate, confirming the robust economic justification of the project and therefore its high efficiency. The increase in the investment costs compared to the appraisal estimates was compensated by the observed increase in traffic on the project roads from 2006 to 2015. The methodology and assumptions used for the analysis are detailed in annex 3. Furthermore, impact surveys in project areas evidenced an increase in the supply of transport services and a sharp decline in the order of 30% to 50% in transport rates paid by final customers, a positive sign of a competitive market.

Item	PAD ex ante share of total cost	Expost share of total cost	PAD Ex ante EIRR	Expost EIRR
Badougou-Bafoulabe road	17%	19%	18.0%	15.9%
Bandiagara-Douentza road	12%	11%	11.9%	36.2%
Boulevard du Peuple	5%	6%	26.8%	24.1%
Sotrama ring road	7%	9%	55.3%	44.3%
Boulevard du Peuple and Sotrama ring road combined	12%	15%	36.2%	28.2%

55. Although the project necessitated a US\$23 million AF to cover a funding gap mainly caused by higher than expected bid prices for the Badougou-Bafoulabé and Bandiagara-Douentza road works, the AF was also successfully used to improve the long-term sustainability of project investment as it funded higher technical standards for some of the project road works. More specifically, thanks to the AF, much higher drainage/culvert/bridge standards were adopted for the Badougou-Bafoulabé road, the Bandiagara-Douentza road, and the spot improvement road works. This means that the technical standards of these roads were substantially increasing the design life, passability, and overall sustainability of the later phases of roads works (about 400 km of periodic maintenance works + the Badougou-Bafoulabé and Bandiagara-Douentza road works).

56. Furthermore, despite the deteriorating political and security situation and all the issues that the country faced during the second half of the project implementation period, all the road works contracts funded under the project were completed within budget and before the project closing date. As a matter of fact, the contract of the critical Bandiagara-Douentza road would have been completed six months before the deadline if it was not for additional works on drainage structures to the tune of US\$2 million that were added to further improve sustainability and all-weather passability. Even the terminated and re-bid contract for the Badougou-Bafoulabé road was completed on budget and before the project closing date. This demonstrates that, despite the abrupt change in Mali to a climate of conflict and fragility during project implementation, all project-funded activities were completed, some at a relatively higher cost but with higher technical standards than originally envisaged.

### 3.4 Justification of Overall Outcome Rating

Rating: Satisfactory

56. This table summarizes the sub-ratings assigned in this report so far.

<i>Category</i>		<i>Sub-rating</i>
Relevance	Objectives	High
	Design	Substantial
Efficacy	PDO1 (access for rural pop.)	High
	PDO2 (transport services for rural pop.)	High
	PDO3 (access for urban pop.)	Modest
	PDO4 (transport services for urban pop.)	Modest
Efficiency		High

57. The ratings for efficacy depend on the type of population. Efficacy related to the rural population (PDO1+PDO2) was rated “high”, whereas efficacy related to the urban population (PDO3+PDO4) was rated “modest”. It is assumed that the four sub-objectives were equally important, since there was no explicit mention of their relative importance in the Financing Agreement or the PAD. This balanced split between high and modest achievements leads to an average rating of “substantial” for the PDO, which, combined with high or substantial relevance and efficiency, results in an overall outcome rating of “satisfactory”, as per ICR guidelines. This satisfactory outcome is supported by the analysis of the result framework (see pages vi-xii) showing that most of the targets have been reached, especially for the rural component which represented the bulk of the project. The evaluation of the outcome also takes into account the dramatic series of events (coup d’état in 2012, war in the north from 2013 onwards, Ebola outbreak in 2014, and terrorism in Bamako from 2015 onwards) that struck Mali during implementation. Over the course of the project, Mali turned from a low-capacity country into a fragile and conflict-affected country with even lower capacity. Yet, remarkably, all of the major project activities have been completed.

58. There is no split evaluation in this report because the PDO remained the same throughout the project and the key associated outcome targets did not materially change.

### **3.5 Overarching Themes, Other Outcomes and Impacts**

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

##### *Rural component*

59. According to impact surveys, the improved roads have contributed to a better access to economic and social opportunities, as well as to basic commodities and services. This is illustrated by an increase in the frequentation and the number of rural market fairs; a subsequent multiplication of economic exchanges and a diversification of the economy beyond agriculture (new activities have developed along the roads, generating jobs in gas stations, vehicle repair shops, battery recharging points, hair salons, money transfer stores, micro-credits agencies, butcheries, restaurants, pharmacies, craft industries, sewing rooms, etc.); more frequent interpersonal relations; improved food security through a better supply of commodity staples; and easier access to dispensaries leading to higher attendance rates (especially by women for pre- and post-delivery medical exams) and better survival rates of the sick in case of evacuation.

60. In addition, the project has built or rehabilitated 292 small socio-economic infrastructures that were proposed by the population near the project rural roads and wharves. This sub-component was kind of a bonus enhancing the benefits brought by the roads and the wharves. It included water wells equipped with a manual pump, fences for schools and dispensaries, new rooms or latrines for schools, solar panels furnishing electricity and lighting, and one multifunctional platform.<sup>14</sup> The population was generally very satisfied with these infrastructures, which have improved their quality of life and the cohesion of the community. For example, water wells have solved the problem of water access that many inhabitants faced before the project. Another example, fences have secured and embellished schools; students have become less distracted by passersby or divagating animals; school playgrounds have become cleaner and no longer traversed by motorcycles.

61. Women are by far the main users of the water wells and the multifunctional platform (the ratio women/men varies from 2:1 to 10:1). These infrastructures have a strong positive effect on the life of women as they relieve them from arduous and time-consuming chores. Impact surveys also reported that, in some rural areas where roads have been improved, women have become more active in the economy, for example by opening small stalls to sell their products by the roadside.

62. On the negative side, in some places, villagers complained about: road safety issues due to higher vehicle speed; dust raised by passing vehicles on unpaved roads; the necessity to cut trees to allow road works. But overall these negative effects are largely outweighed by positive effects.

##### *Urban component*

63. In addition to reduced travel time and improved comfort due to the improvement of the roadway on the Boulevard du Peuple and the Sotrama ring road, the population appreciated the new paved, larger, and better drained pedestrian links. The impact survey highlighted an unforeseen positive appreciation of the population for the 500 kiosques that were built by the project to resettle the mobile street vendors from the Boulevard du Peuple and the Sotrama ring road. The kiosques were praised for their aesthetics, their solid construction, and their waterproofness. Vendors have used them as a guarantee when negotiating a bank loan. The municipal tax administration has found it easier to locate and therefore tax vendors. The construction of kiosques has also enhanced the understanding of the World Bank's resettlement policy by the local authorities and population.

## **(b) Institutional Change/Strengthening**

64. The project has strengthened the capacity of Malian institutions in several ways, even though not all the numerous activities initially planned for institutional capacity building could be carried out (see annex 2 for a comparison between planned activities and achieved activities). What follows are the achieved activities.

65. Under Component B: two staff from the District of Bamako's traffic and urban transport regulation directorate were trained by international experts in planning and modelling of urban transport; a theoretical training took place in Canada and a practical one in Mali. A study on air pollution was also carried out in Bamako. The directorate was equipped with two vehicles, computers, urban transport modelling software, road safety software (normally to collect and analyze accident data but, as previously noted, such data remains unavailable for the Boulevard du People and the Sotrama ring road), and a mobile station to monitor air pollution in Bamako and other large Malian cities.

66. Under Component C: 677 people from the public administration, engineering and construction firms, and transport companies were trained at Mali's national institute for training in equipment and transport. The training covered 31 topics all related to road design, construction, and maintenance (see annex 2 for details). The project also financed three vehicles for the National Road Directorate, the preparation of a new set of traffic rules (currently under review by the government), a study to measure the rural road access index (despite this study, the index was not properly measured throughout the project), and a study to design a computer-based tool for the monitoring and evaluation of the project by the NCU (the study was completed in 2010, but the tool was never set up).

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

None

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

67. The main findings of impact surveys have been summarized in the sections 3.2 and 3.5 above. No stakeholder workshops have been organized at the closing of the project.

## **4. Assessment of Risk to Development Outcome**

Rating: High

68. The overall risk to development outcome is high given the probability and likely impact of the various threats described in the table below.

Threat	Likelihood	Impact
Government's commitment: lack of funding for road maintenance and absence of the roads financed by the project in the multi-year maintenance plan of the government	Although the budget of the Roads Agency has increased substantially from FCFA 7.3 billion to FCFA 26 billion in 2015 (thanks to the introduction of a fuel levy and its subsequent increases by the government),	The rural roads funded by the project may deteriorate quickly and therefore not remain all-weather roads for very long.

	<p>this budget remains insufficient to cover all the maintenance funding needs of the road network, estimated at FCFA 35 billion in 2015. In addition, most of the available funding goes to the main paved roads. Therefore, the 2,500 km of rural unpaved roads financed by the project will probably not be all included in the maintenance plan of the government.<sup>15</sup></p>	
<p>District of Bamako's commitment: lack of maintenance of road infrastructure financed by the project and lack of enforcement of traffic rules and modified traffic patterns</p>	<p>High: it is already happening.</p>	<p>These two threats, coupled with rapid population growth in Bamako, could rapidly bring about a return to the deteriorated situation of urban transport that prevailed before the project (roads in poor condition and extremely low travel speed).</p>
<p>Local population' ownership: lack of ownership of the wharves financed by the project on the Niger River</p>	<p>It remains unclear who is responsible for the operation and maintenance of the wharves. In theory, decentralization gives this responsibility to the communes; but in practice, there is few evidence of ownership by the local population.</p>	<p>The wharves may not fulfill the needs of the local population.</p>

## 5. Assessment of Bank and Borrower Performance

### 5.1 Bank Performance

#### (a) Bank Performance in Ensuring Quality at Entry

Rating: Moderately Unsatisfactory

69. During project preparation, the World Bank ensured adequate quality in terms of strategic relevance and approach, implementation arrangements, environmental and social safeguards, financial aspects, fiduciary aspects, and risk assessment. But the Bank performance was marred by the following significant shortcomings, which justify a “moderately unsatisfactory” rating: (1) Technical aspects: (i) Deficient appraisal of the Kita-Toukoto-Bafoulabé road (210 km), one of the most expensive items of the project: the Bank ignored that the Kita-Toukoto section (55 km) had already been improved with funding from the Islamic Development Bank and therefore should not have been included in the project; (ii) Lack of quality control of the detailed engineering studies for the Badougou-Bafoulabé and Bandiagara-Douentza roads, which partially explained the much higher than expected bid prices (x2). The studies were of poor quality, outdated (2004), , sometimes inconsistent with the reality on site, and they used unrealistic unit prices; (iii) Lack of technical guidance to the implementing agencies regarding the innovative approach chosen to improve the rural roads targeted by the project –this approach consisted in the improvement of critical spots only, as opposed to the more traditional approach of treatment of the entire road length. (This lack of understanding was later corrected during implementation.); (2) Monitoring and evaluation

arrangements: significant weaknesses in the monitoring and evaluation framework, in particular vague definitions of the PDO indicators and total absence of baselines and annual targets for these indicators; and (3) Economic aspects: some deficiencies in the PAD annex on economic analysis since it did not present any of the key assumptions, such as the investment costs, traffic, traffic growth, road work type and characteristics of the road before and after the project. The details of the economic analysis have not been recorded in the World Bank's archives either.

### **(b) Quality of Supervision**

Rating: Satisfactory

70. The World Bank put in place a seasoned supervision team both at the headquarters and in Mali with sufficient implementation support funding. The World Bank was proactive during the supervision of project activities, in particular to mobilize the extra resources (AF) required to fully achieve the PDO. The World Bank also overcame several challenges related to financing, procurement, and safeguards, in a difficult environment marked by political and security instability. It ensured very close follow up when required, for example at the time of the disputes related to the resettlement of street vendors in Bamako or the termination of the works contract for the Badougou-Bafoulabé road. Supervision missions were conducted regularly; supervision reports (aide-mémoires and ISR) were submitted on time and generally appear candid and thorough. In 2014, when the Bank extended the closing date by one year, it correctly estimated the extra time needed to complete the project and to disburse the Bank's funds entirely.

### **(c) Justification of Rating for Overall Bank Performance**

Rating: Moderately Satisfactory

71. As per ICR guidelines, since the two above ratings diverge (quality at entry is in the unsatisfactory range, whilst quality of supervision in the satisfactory range), the rating for overall Bank performance depends on the rating for overall outcome. The latter being in the satisfactory range, the overall Bank performance is “moderately satisfactory”.

## **5.2 Borrower Performance**

### **(a) Government Performance**

Rating: Moderately Satisfactory

72. The government showed a good commitment to the success of the project throughout design and implementation. The government provided adequate resources to the two implementing agencies to carry out the project. This led to the completion of all major planned activities, albeit with some delays – but the causes of delay were often outside of the control of the government. The government also increased the fuel levy significantly (from 3 to 25 FCFA per liter), thus achieving important progress in the financing of road maintenance. Nonetheless, the rating is only “moderately satisfactory” because of the following moderate shortcomings: (1) inclusion of the Kita-Toukoto road section in the project, whereas this section had already been improved; (2) approval of deficient engineering studies (especially poor cost estimation) for the Badougou-Bafoulabé and Bandiagara-Douentza roads, and (3) delayed effectiveness of the AF, which took six months, twice the duration initially set in the Financing Agreement.

### **(b) Implementing Agency or Agencies Performance**

Rating: Moderately Satisfactory

73. The two implementing agencies (AGERROUTE and AGETIER) and the NCU coped well with the crisis following the coup of March 2012 and ultimately completed all major activities. Nevertheless, their performance is rated “moderately satisfactory” due to the following moderate shortcomings: (1) preparation of deficient engineering studies (especially poor cost estimation) for the Badougou-Bafoulabé and Bandiagara-Douentza roads; (2) delayed implementing of the resettlement plan (construction of 500 kiosques) for the urban component in Bamako; (3) weaknesses in monitoring and evaluation (e.g. difficulties to measure the rural road access index and to carry out the ex-post economic analysis) and lack of ex-post evaluation of the introduction of the performance-based maintenance contract in the road sector in Mali.

### **(c) Justification of Rating for Overall Borrower Performance**

Rating: Moderately Satisfactory

74. The two above ratings result in a “moderately satisfactory” rating for the overall Borrower performance.

## **6. Lessons Learned**

### **General lessons:**

- (a) In a low-capacity country, project design should focus on one type of intervention (e.g. rural or urban) and should be kept as simple as possible to ensure a high degree of implementability. A strong project management unit should be established. The results framework should contain only a few key indicators, with baselines and targets set before (not after) the beginning of implementation.
- (b) Poor quality of studies and cost estimation for civil works can lead to cost overruns and delays in achieving project objectives.
- (c) Inadequate sensitization and enforcement of traffic management for urban transport infrastructure can lead to lower than expected outcomes.
- (d) Implementation readiness of major transport infrastructure investments is essential to ensure quick implementation results.
- (e) Urban mobility projects or components present unique challenges in terms of implementation of civil works in crowded areas where the expected socio-economic impact is high.

### **Lessons specific to Mali:**

- (f) The innovative road spot improvement approach produced positive results in Mali by maximizing all-weather passability with a reasonable level of riding quality.
- (g) Small socio-economic infrastructure (water wells equipped with manual pumps, fences for schools and dispensaries, new rooms or latrines for schools, solar panels furnishing electricity and lighting, and one multifunctional platform) significantly enhanced the impact of the rural roads investment on the living conditions of the population, including women.
- (h) Long-term sustainability of rural road investments remains an issue in Mali due to a lack of reliable maintenance funding and weak planning capacity. Monitoring and evaluation

(including economic analysis) of transport projects also remains a challenge requiring further capacity building.

- (i) With growing motorization, road safety in Mali has become an issue deserving special and immediate attention; international resources such as the Global Road Safety Facility can help addressing part of this issue.
- (j) For the future rural roads project, the selection criteria of the roads to be financed will need to be revised and more transparent to maximize the impact of the project. Given the current situation in the country, security should be one of these criteria since security issues can seriously impede works and supervision.
- (k) In the case of Mali, given the increasing capacity issues that the country faces, a dedicated, well-staffed, and well-equipped, and project entity is essential to prepare and implement a World Bank-funded transport project.

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

### **(a) Borrower/implementing agencies**

75. There were no issues raised by the Borrower or the implementing agencies. The summary of the Borrower's project completion report can be found in annex 7.

### **(b) Cofinanciers**

Not applicable.

### **(c) Other partners and stakeholders**

Not applicable.

## Endnotes

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<sup>1</sup> There was a discrepancy in the PAD itself between the PDO stated in the main text (page 4) and the PDO stated in the annex 3 (results framework and monitoring). The PDO in the annex was “to provide better access to rural and urban communities by improving in particular key rural infrastructure in Mali and urban transport infrastructure in Bamako.” Thus, the annex did not mention transport services, while the main text did.

<sup>2</sup> In addition, the government was to contribute US\$16.1 million in the form of tax exemption, land acquisition, and compensation activities.

<sup>3</sup> The term “rehabilitation” implied that these two roads had been in good condition at some point in the past. But it had never been the case, so it would have been more accurate to use the term “construction” or “opening”. Besides, the term “construction” was used for the two roads in the government’s list of priority works presented in their 2008-2011 Transport Sector Program.

<sup>4</sup> French acronym for “Société des transports du Mali”, a company created in 1978 that was the first to operate minibuses for public transport in Bamako. The acronym now designates any minibus used for public transport in Bamako.

<sup>5</sup> In addition, the government was to contribute US\$4 million in the form of tax exemption.

<sup>6</sup> The coup d’état was followed by a period of high political and security instability, which saw Tuareg and Islamist rebels take control of the northern half of the country.

<sup>7</sup> Economic and Sector Work, Republic of Mali, Transport Support to Sustainable Economic Growth, Report No. 27669-MLI, 25 June 2004.

<sup>8</sup> These projects were the First Transport Sector Project (1994-2004), the Transport Corridors Improvement Project (2004-2009), the Agricultural Competitiveness and Diversification Project (2005-2015), the National Rural Infrastructure Project (2000-2007), and the First Poverty Reduction Support Credit (2007-2008).

<sup>9</sup> ICR of Mali Transport Sector Project, Report No. 32130, 20 June 2005. Rating later confirmed by the World Bank’s Independent Evaluation Group.

<sup>10</sup> Ministère de l’équipement et des transports, Direction nationale des routes, Autorité routière/Fonds d’entretien routier, Direction nationale des transports terrestres et fluviaux, Direction nationale de l’hydraulique, District de Bamako, Cellule technique d’appui aux communes, Direction de la régulation et du contrôle du transport urbain.

<sup>11</sup> For example, the city of Konna, where a wharf was built under the project in 2011, was bombarded for several days in January 2013; the city of Douentza, at one end of the Bandiagara-Douentza road, was also in the combat zone.

<sup>12</sup> These instruments and plans were : a Resettlement Policy Framework (RPF) for the entire project; a social study and a Resettlement Action Plan (RAP) for the urban transport component; an Environmental and Social Impact Assessment including an Environmental and Social Management Plan (ESIA/ESMP) for the urban transport component; an ESIA/ESMP, an abbreviated RAP and a Physical Cultural Resources Management Plan for the Bandiagara-Douentza road; an ESIA/ESMP and an abbreviated RAP for the Badougou-Bafoulabé road; an Environmental and Social Management Framework (ESMF) for all the other rural roads and subsequent site-specific ESMP for each rural roads subproject in accordance with the ESMF and the RPF, and an ESMF for the wharves.

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<sup>13</sup> Reasons: (i) the difficulty to find appropriate locations in the very densely urbanized center of Bamako to build the kiosques, (ii) a legal dispute between the District of Bamako and an affluent individual opposing the construction of some kiosques near his property, (iii) slow procurement of a contractor and slow construction of the kiosques, (iv) the coup d'état of March 2012, which stopped the construction of the kiosques.

<sup>14</sup> A multifunctional platform is a source of mechanical and electrical energy meant to replace significant quantities of human labor, especially that of women in rural areas. In Mali, it generally consists of a small 8-12 horsepower diesel engine mounted on a chassis, to which various components can be attached, such as: grinding mills, huskers, straw shredders, vegetable or nut oil presses, welding machines, battery chargers and carpentry tools.

<sup>15</sup> The average travel speed on the rural roads maintained during the first half of the project (both under traditional input-based contracts and under performance-based contracts) has deteriorated over the last years: this may be a sign of improper routine maintenance. It may however also reflect a deficient quality of road works, resulting from the lack of understanding of the spot improvement method by the implementing agencies at the onset of the project.



## Annex 1. Project Costs and Financing

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

Project Components	Original project cost (a)			Additional financing (b)			Estimate of revised cost (a+b)			Actual/latest estimate			% of estimate
	IDA	GM	Total	IDA	GM	Total	IDA	GM	Total	IDA	GM	Total	
<b>Component A: Rural Accessibility</b>	68.80	12.20	81.00	23	4	27	91.80	16.20	108.00	65.25	11.52	76.77	70
<b>Component B: Bamako Urban Transport System Improvement</b>	15.00	3.20	18.20	0	0	0	15.00	3.20	18.20	18.55	3.27	21.83	119
<b>Component C: Institutional Strengthening</b>	6.20	0.70	6.90	0	0	0	6.20	0.70	6.90	7.93	1.40	9.33	135
<b>Total Project Cost</b>	<b>90.00</b>	<b>16.10</b>	<b>106.10</b>	<b>23</b>	<b>4</b>	<b>27</b>	<b>113.00</b>	<b>20.10</b>	<b>133.1</b>	<b>91.74</b>	<b>16.19</b>	<b>107.93</b>	<b>81</b>

Exchange rate at approval of original loan (2007): US\$1 = FCFA495

Exchange rate at approval of AF (2011): US\$1 = FCFA441

Exchange rate at closing (2015): US\$1 = FCFA575

Note: the large variation of the US\$/FCFA exchange rate between 2007 and 2015 explains why the total actual cost of the project appears significantly lower (81%) than the estimate of revised cost. In fact, at the end of the project, the totality of the Bank's funds (original loan plus additional financing) were disbursed (see Table A page iv).

**(b) Financing**

Source of Funds	Type of Financing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		16.10		
Borrower at Additional Financing		04.00		
<b>Total Borrower</b>		<b>20.10</b>	<b>16.19</b>	<b>80.53</b>
IDA Credit (IDA – 43030)	Credit	90.00		
Additional IDA Credit (IDA – 49720)	Credit	23.00		
<b>Total IDA Credits</b>		<b>113.00</b>	<b>91.74</b>	<b>81.19</b>
<b>Grand Total Financing</b>		<b>133.10</b>	<b>107.93</b>	<b>81.09</b>

## Annex 2. Revisions of Indicators and Outputs by Component

### Revisions of PDO indicators

<i>PDO indicators in PAD, 2007</i>	<i>Revision made to PDO indicators in AF Project Paper, 2011</i>	<i>Reason for revision</i>
Percentage of rural population with access to all-season roads	Revised Share of rural population with access to an all-season road (in the project area)	Alignment with wording of World Bank's core sector indicator
Time spent to reach specific rural services from home	Dropped.	Indicator difficult to define and measure. The indicators on people with access and the average travel time will cover the main results of the project intervention.
Average time per km traveled (rural/urban)	Revised Average time per km traveled, disaggregated by: - Roads under performance-based contracts - Badougou-Bafoulabé road - Rural roads under periodic maintenance (original project) - Bandiagara-Douentza road - Rural roads under periodic maintenance (AF)	Breakdown per type of road to better capture the improvement due to the project.
	Introduced as a PDO indicator Travel time along the Boulevard du People	Was only an intermediate outcome indicator in the PAD
	Introduced as a PDO indicator Accidents on the Boulevard du People	Was only an intermediate outcome indicator in the PAD
	New Roads in good and fair condition as a share of total classified network (%)	World Bank's core sector indicator
	New Direct project beneficiaries (number), of which female (%).	World Bank's core sector indicator

## Revisions of intermediate outcome indicators

<i>Intermediate outcome indicators in PAD, 2007</i>	<i>Revision made in AF Project Paper, 2011</i>	<i>Reason for revision</i>
<b>Component A: Rural Access Improvement</b>		
Number of km of road rehabilitated	Continued with lower target. Rural roads rehabilitated (km) (final target decreased from 350 km to 295 km)	The Kita-Toukoto section (55 km) was dropped because it had already been improved with funding from the Islamic Development Bank.
Number of km of road maintained	Continued with higher target. (final target increased from 1,800 km to 2,075 km)	Scaling up of the periodic maintenance sub-component with an additional 275 km
Number of local development activities	Continued but renamed. Local infrastructure constructed/rehabilitated (number)	The name of the indicator has been modified to better reflect the nature of the activities since they are limited to minor civil works (e.g. drilling of water wells, minor rehabilitation of schools and dispensaries, etc.)
Number of wharves built.	No change	
<b>Component B: Bamako Urban Transport System Improvement</b>		
Travel time along the Boulevard du People	Removed.	Became a PDO indicator.
Accidents on Boulevard du People	Removed.	Became a PDO indicator.
	New. Non-rural roads rehabilitated (km)	Bank core sector indicator; also introduced to better reflect the outcome of the original project.
	New. Travel time for minibuses on Sotrama ring road	Indicator introduced to better reflect the outcome of the original project.
<b>Component C: Institutional Strengthening and Project Management</b>		
User charges are at least 40% of the road maintenance financing needs by 2008, and 70% by 2011	Continued with a new and higher target (80%) for 2012, 2013, and 2014.	Initial target of 70% had been achieved in 2009.

## Detailed Outputs by Component

Description of outputs by component in Financing Agreement of 27 July 2011	Outputs achieved at completion
<p>1. <u>Rural Access</u></p> <p>(a) Dirt Road Rehabilitation</p> <p>(i) Approximately 155-kilometer section of Badougou--Toukoto-Bafoulabé road, in Kayes region.</p> <p>(ii) Approximately 140-kilometer section of Bandiagara-Douantza-Togo Tongo ramp, in Mopti region.</p> <p>(b) Rural Road Maintenance</p> <p>(i) Approximately 755-kilometer section in Malian Textile Development Company zone, and approximately 520-kilometer section in Upper Niger Valley Agency zone.</p> <p>(ii) Approximately 400 kilometers specifically addressing priority needs of rural communities.</p> <p>(iii) Approximately 400 kilometers, including approximately 190 kilometers of Fana-Dioïla-Massigui-Koualé road and approximately 43 kilometers of Dioïla-Sorokoro road, on basis of long-term performance-based contracts.</p> <p>(c) Socioeconomic Infrastructure and Equipment</p> <p>Financing of small-scale socio-economic community infrastructure, along roads rehabilitated under Part 1 (b) of the Project, such as:</p> <p>(i) school rehabilitation;</p> <p>(ii) construction of cooperative management and training centers and community shops;</p> <p>(iii) equipping of rural markets;</p> <p>(iv) establishment of multifunctional agricultural production platforms, small ferry, and access ramp on Niger River;</p>	<p>1. <u>Rural Access</u></p> <p>(a) Dirt Road Rehabilitation</p> <p>(i) Approximately 155-kilometer section of Badougou--Toukoto-Bafoulabé road, in Kayes region.</p> <p>(ii) Approximately 140-kilometer section of Bandiagara-Douantza-Togo Tongo ramp, in Mopti region.</p> <p>(b) Rural Road Maintenance</p> <p>(i) 800-kilometer section in Malian Textile Development Company zone and 544-kilometer section in Upper Niger Valley Agency zone (of which 332 km from Additional Financing).</p> <p>(ii) 448 kilometers specifically addressing priority needs of rural communities.</p> <p>(iii) 411 kilometers, including 190 kilometers of Fana-Dioïla-Massigui-Koualé road, 43 kilometers of Dioïla-Sorokoro road, and 179 kilometers of Kwala-Nara, on basis of long-term performance-based contracts.</p> <p>(c) Socioeconomic Infrastructure and Equipment</p> <p>Financing of 292 small-scale socio-economic community infrastructure, along roads rehabilitated under Part 1 (b) of the Project :</p> <p>(i) 60 schools have been fenced or have been equipped with new class rooms or latrines ;</p> <p>(ii) 0 construction of cooperative management and training centers and community shops;</p> <p>(iii) 0 equipping of rural markets;</p> <p>(iv) 1 multifunctional agricultural production platform and 1 roadside passenger shelter with sanitation established;</p>

<p>(v) drilling of wells, and provision of related pump equipment; and (vi) Provision of solar energy equipment</p> <p>(d) Wharf Rehabilitation and Reconstruction</p> <p>Rehabilitation or reconstruction of four (4) wharves along Niger River – Diafarabé, Dioro, Konna, and Ténenkou – for purposes of improving fluvial transport and contributing to opening up of isolated rural areas.</p>	<p>(v) 178 wells equipped with manpower pumps; 2 small scale water distribution system equipped with solar pumps; (vi) 9 health centers have been rehabilitated or fenced; (vii) 41 solar energy equipment for health centers and schools.</p> <p>(d) 4 Wharfs constructed Rehabilitation or reconstruction of four (4) wharves along Niger River – Diafarabé, Dioro, Konna, and Ténenkou – for purposes of improving fluvial transport and contributing to opening up of isolated rural areas. In Ténenkou: deepening of the channel connecting the wharf to the river over a distance of 5 km. In Konna: building of a dike-road to connect the wharf to the market over a distance of 2 km.</p>
<p>2. <u>Bamako Transport System</u></p> <p>(a) Works</p> <p>(i) Rehabilitation of <i>Boulevard du Peuple</i> (People’s Boulevard), including: (A) rebuilding of approximately 1.3-kilometer section of road to comprise four (4) lanes, two (2) for high-capacity buses, and two (2) for other road users, and marked sidewalks; and (B) construction of two (2) footbridges.</p> <p>(ii) Building of minibus ring road: (A) construction of approximately 4.8-kilometer closed circular minibus thoroughfare (<i>Anneau Société de Transport du Mali</i> (Mali Transport Company Ring)), including passenger embarkation and disembarkation notches and shelters, around town center; and</p>	<p>2. <u>Bamako Transport System</u></p> <p>(a) Works</p> <p>(i) <i>Boulevard du Peuple</i> (People’s Boulevard), rehabilitated : (A) on 1.3-kilometer section of road to comprise four (4) lanes, two (2) for high-capacity buses, and two (2) for other road users, and marked sidewalks; and (B) construction of two (2) footbridges.</p> <p>(ii) Building of minibus ring road comprising : (A) a 4-kilometer closed circular minibus thoroughfare (<i>Anneau Société de Transport du Mali</i> (Mali Transport Company Ring)), including passenger embarkation and disembarkation notches and shelters, around town center; and</p>

<p>(B) rehabilitation or transformation of certain junctions, reorientation of streets in impact zone of construction activity, development of pedestrian links and bridges, clearly marked and protected pedestrian crossings, conversion of certain two-way roads into one-way, and installation of public lighting, and traffic lights at certain junctions.</p> <p>(iii) Transformation of approximately 1.7 kilometers of downtown streets, including restriction of minibus access, relocation of small business stalls, and building of sidewalks, for purposes of improving pedestrian conditions.</p> <p>(b) Institutional Support</p> <p>Capacity building of Traffic and Urban Transport Regulation Directorate, through provision of technical assistance, carrying out of training, and acquisition of equipment and materials, with respect to:</p> <p>(i) parking and traffic management and regulation;</p> <p>(ii) urban public transportation organization;</p> <p>(iii) air pollution; and</p> <p>(iv) collection, processing, and utilization of road-accident statistics and remedial action with regard to accidents.</p>	<p>(B) rehabilitation or transformation of certain junctions (Av AlQoods, Rond Point Gabriel Touré, Gare Rue 552), reorientation of streets in impact zone of construction activity (Rue IOTA – Rond Point Gabriel Touré, Rue 1 in Medina coura, between rue 14 et Av. Al Qoods, Rue 507 in Bagadadji, alignment of carré des Martyrs), development of pedestrian links on 2.2 km clearly marked and protected pedestrian crossings (concrete blocks on Van Woll Hoven). Rehabilitation of 0.7 km of adjacent streets within Medina coura and Bagadadji (see details after this table).</p> <p>(iii) Relocation of small business stalls, and building of sidewalks, for purposes of improving pedestrian conditions (515 kiosques constructed).</p> <p>(b) Institutional Support</p> <p>(i) and (ii) Two DRCTU staff officers have received training in planning and modeling of urban transport given by an international consulting firm (Canada) in two parts (theoretical and practical) and the acquisition of related software. The theoretical part was carried out in Canada, the practical part in Mali.</p> <p>(iii) Conducting of the study on air pollution in the District of Bamako by a consulting firm in 2014. Acquisition of a mobile station for the continuous monitoring of air pollution in the District of Bamako and the main cities of Mali.</p> <p>(iv) Acquisition by DRCTU of two vehicles, computers and software for road safety component (collection</p>
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	and processing of data on accidents) and office equipment.
<p>3. <u>Institutional Strengthening and Project Management</u></p> <p>(a) Provision of support to Recipient entities, such as National Roads Directorate, National Land, Maritime, and Fluvial Transport Directorate, National Sanitation and Pollution Inspection Directorate, National Hydraulics Directorate, Road Authority, and Traffic and Urban Transport Regulation Directorate, in implementation of financial and institutional mechanisms aimed at sustainable road maintenance.</p> <p>(b) Implementation of Environmental and Social Management Framework Environmental and Social Management Plans, Resettlement Framework, and Resettlement Plans and monitoring of mitigation measures relating to potential adverse environmental and social impacts associated with Project activities.</p> <p>(c) Specific monitoring of transport-sector related HIV/AIDS prevention and sensitization campaigns under Multi-Sectoral HIV/AIDS Project.</p> <p>(d) Development and implementation of medium-term transport sector strategy, including capacity building activities for various Project implementation entities and carrying out of rural road access index study.</p> <p>(e) Project management, including carrying out of financial and technical audits and financing of operating costs.</p> <p>(f) Project monitoring and evaluation.</p>	<p>3. <u>Institutional Strengthening and Project Management</u></p> <p>(a) Equipment of the National Directorate of Roads with 3 vehicles.</p> <p>Training by the National Institute of Training in Equipment and Transport (INFET) of 677 participants on 31 topics related to road transport (details provided at the end of this annex) including:</p> <ul style="list-style-type: none"> <li>- 251 participants from the public administration;</li> <li>- 129 from engineering firms and contractors;</li> <li>- 297 from transport companies.</li> </ul> <p>(b) Adoption and publication of an environmental and social management framework plan for the entire project; then formulation and implementation of an Environmental and Social Management Plan (ESMP) including archaeological aspects and abbreviated resettlement plan (RAP) for each of the main project activities (dirt roads, rural roads, wharves, and urban component) . Compensatory reforestation was implemented in 9 villages along the road Badougou-Toukoto-Bafoulabé.</p> <p>(c) Development, in consultation with the cell of the department in charge of HIV / AIDS, and implementation through contractors of measures of protection and awareness of workers and beneficiaries against HIV / AIDS.</p> <p>(d) Financing of the development of a new traffic law currently being approved by the government.</p> <p>Conducting of the study on the rural access index (rural road accessibility).</p> <p>(e) Project management, including carrying out of financial and technical audits and financing of operating costs. All external audits were satisfactory</p>

	(f) Hiring of a consultant to develop a computer tool for monitoring and evaluation of the project. He delivered a report to UNC in 2010, but the tool has not been installed to date.
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## Details of civil works carried out under urban transport component

### Sotrama ring road

Section	Road description	Physical identification	Length
1	Rue 503	In Bagadadji, from rail-dâ to the grand mosque	581 m
2	Rue 429	In Niaréla from the grand mosque to the green light towards GGB store	492 m
3	Avenue Pasteur	Service road behind ORTM	578 m
4	Rue 310	From BDM to Bol de jade	309 m
5	Rue 309	The front of Dibida Market	344 m
6	Rue 353	In the rear towards Police station	364 m
7	Avenue M. Konaté	Behind BRCTU	238 m
8	Avenue Liberté	Ministry of Education	315 m
9	Rue 552	Dirt path in front of Transrail housing	775 m
Total			3996 m

### Other streets developed

Section	Road Description	Physical Identification	Length
10	Rue 1	In Medina coura, between 14 Street and Avenue Al Qods	204 m
11	Rue 507	In Bagadadji alignment of Martyrs Square	454 m
Total			658 m

### Pedestrian lanes

Route	Start	End	Length
1. Avenue Sikasso	Crossroad INA	Crossroad Av. Sikasso / Rue 136	220 m
2. Rue 136 Bozola	Crossroad Bd Peuple / Rue 136	Crossroad Av. Sikasso / Rue 136	149 m
3. Rue Mohamed V	Crossroad Rue Mohamed V / Rue Baba DIARRA.	Crossroad Rue Mohamed V / Av. République.	461 m
4. Avenue République	Crossroad Av. République / Rue 18 juin	Crossroad Av. République / Bd Peuple	239 m
5. Rue Commandant Lellerain	Crossroad rue Cd Lellerain / Av Sikasso	Crossroad rue Cd Lellerain / Rue 463	371 m
6. Rue 133 Bozola	Crossroad Rue 133 / Av Pasteur	Crossroad Rue 133 / Bd peuple	179 m
7. Rue Famolo Coulibaly	Crossroad Bd Peuple / Rue Fa .C.	Crossroad rue 335 / Rue Fam. C.	121 m
8. Rue Mage	Crossroad Rue 309 / Rue Mage	Crossroad rue Mage / Av Modibo Keita	198 m
9. Rue 326 Shopping Center	Crossroad Rue 353 / Rue 326	Crossroad Rue 326 / Rue 328	157 m
10. Rue 328 Shopping Center	Crossroad Rue 326 / Rue 328	Carrefour Rue 328 / Rue 324	75 m
Total			2170 m

## Details of training provided under institutional strengthening component

	Theme	Participants	Duration	Session	Participants
1	Study on unit prices	Project and construction managers, public procurement staff	5 days	1 session	20 people
2	Preparation of bitumen and asphalt and implementation of pavement: school construction	Team leaders and workers “black products”	5 days	1 session	20 people
3	Maintenance of road construction equipment (old and new types)	Fleet managers, mechanics	5 days	1 session	20 people
4	Review of bidding documents and preparation of submission	Project and construction managers, public procurement staff	5 days	5 session	20 people
5	Road maintenance (identification of pathologies, determination of basic tasks, cost assessment for technical implementation)	Project managers, mission leaders, and construction managers	5 days	1 session	20 people
6	Construction materials and their uses	Sites supervisors, team and squad leaders	5 days	1 session	20 people
7	Small road infrastructures: design, implementation, and maintenance	General managers and equivalent, designers, administration	5 days	3 sessions	60 people
8	Autocad and Covadis	Draftsmen and designers	10 days	1 session	20 people
9	Grader driving, caterpillar bulldozer, loader and excavator, compactor, dump truck and heavy trucks	Machine operators, site managers and team leaders	5 days	1 session	20 people
10	Work quality control equipment	Site supervisors, squad and team leaders	5 days	1 session	20 people
11	Maintenance management	Fleet managers and mechanics	5 days	1 session	20 people
12	Design of civil works engineering structures in Mali	General managers and equivalent, designers, administration	5 days	1 session	20 people
13	Road drainage	General managers and equivalent, designers, administration	5 days	1 session	20 people
14	Sewerage management in property development programs	Architects, real-estate developers and local communities’ technicians	5 days	1 session	20 people

15	Road design software	Project and construction managers	5 days	1 session	20 people
16	Organization and management of road maintenance site	Construction managers	5 days	1 session	20 people
17	Public procurement of contracts for road maintenance	General managers and equivalent, designers, administration	5 days	1 session	20 people
18	Road network monitoring	Designers, administration, and planners	5 days	1 session	20 people
19	Execution of different basic works related to maintenance (implementation techniques and quantities estimations)	Squad and team leaders, site supervisors and time keeper	5 days	1 session	20 people
20	Construction management for road maintenance	Squad and team leaders, and site supervisors	5 days	1 session	20 people
21	Technical regulations for road safety	Drivers and staff of operating agencies	5 days	3 sessions	60 people
22	Vehicles fleet management	Fleet managers of transport companies	5 days	3 sessions	60 people
23	Contracts for road transport	Managers of operating agencies and drivers of transport companies	5 days	3 sessions	60 people
24	Advanced training for driving instructors	Driving instructors	5 days	3 sessions	60 people
25	Economic and financial evaluation of transports projects	DNTTMF department leaders	5 days	1 session	5 people
26	Integrated management of road safety	DNTTMF managers and communal staff	5 days	1 session	20 people
27	National and community road transport regulations	Heads of department and warehouse directors	5 days	1 session	20 people
28	Traffic study	Heads of department and warehouse directors	5 days	1 session	20 people
29	Traffic management	DNTTFM staff	5 days	1 session	20 people
30	Management of a transport company	Managers of transport companies	6 months	1 session	20 people
31	Planning, implementation and monitoring of programs and projects	DNTTMF managers	5 days	1 session	20 people

### Annex 3. Economic and Financial Analysis

1. The PAD presented the economic analysis of four road projects: (i) rehabilitation of the Kita-Toukoto-Bafoulabe earth road; (ii) rehabilitation of the Bandiagara-Douentza earth road; (ii) improvement of the Boulevard du Peuple in Bamako; and (iii) development of the Sotrama ring road in Bamako. The PAD defined the rehabilitation of the two roads to be the rural earth road component of the project and the improvement and development works on the Bamako roads infrastructure the urban component of the project. The analysis was done measuring benefits in terms of reduction of vehicle operating costs and travel times occurring with the project. Costs included capital costs, operation and maintenance costs. Taking into account the low level of traffic on the two earth roads to be rehabilitated, the economic analysis for the earth roads was performed using the Roads Economic Decision (RED) model developed under the Sub-Saharan Africa Transport Policy Program (SSTAP). The economic analysis of the Bamako urban projects was done computing vehicle operating costs based on the Highway Development and Management Model (HDM-4). The PAD economic analysis was done based on traffic counts carried out in 2006 and economic costs adjusted for the impact of taxes, subsidies, and externalities. The table below show the ex-ante Economic Internal Rate of Return (EIRR) presented on the PAD for the four road projects and the combined Bamako urban projects.

**Table 1. PAD Economic Analysis Results**

Road	PAD Ex-Ante EIRR (%)
Kita-Bafoulabe	18.0
Bandiagara-Douentza	11.9
Boulevard du Peuple	26.8
Sotrama ring road	55.3
Boulevard du Peuple and Sotrama ring road combined	36.2

2. The table below shows the estimated investment costs at appraisal of the four road projects, in 2006 FCFA million. In addition, the table shows the estimated investment costs per km.

**Table 2. PAD Road Works Costs**

Road	Length (km)	PAD Estimated Investment (2006 FCFA million)	PAD Estimated Investment per km (2006 FCFA million/km)
Kita-Bafoulabe	205	8,907	43.4
Bandiagara-Douentza	142	6,381	44.9
Boulevard du Peuple	1	2,703	2,079.2
Sotrama ring road	4	3,499	874.9
Total	352	21,491	61.0

3. The table below shows the actual investment costs on the project roads, expressed in 2006 FCFA million, the investment costs per km, considering the change in length of the rehabilitation of the Kita-Bafoulabe road, and the ratio of the actual per PAD costs per km. On average, the actual road work costs per km were 46 percent higher than the appraisal estimates.

**Table 3. Actual Road Works Costs**

Road	Investment Year	Length (km)	Actual Investment (current FCFA million)	Actual Investment (2006 FCFA million*)	Actual Investment per km (2006 FCFA million/km)	Actual/PAD per km Ratio
Kita-Bafoulabe	2015	155	15,083	11,803	76.1	1.75
Bandiagara-Douentza	2015	142	8,937	6,993	49.2	1.10
Boulevard du Peuple	2011	1.3	3,912	3,312	2,547.4	1.23
Sotrama Ring	2011	4	5,629	4,765	1,191.4	1.36
Total		302	33,560	26,873	88.9	1.46

\* deflated using average consumer prices inflation index

4. Due to the very poor condition of the earth roads Kita-Toukoto-Bafoulabe and Bandiagara-Douentza prior to their rehabilitation, their traffic in 2006 was very low. The Kita-Toukoto-Bafoulabe road had an estimated traffic of around 10 vehicles per day and Bandiagara-Douentza road of around 35 vehicles per day. The ex-ante analysis estimated that the normal traffic would grow at 5 percent per year. The actual 2015 motorized traffic of the Kita-Toukoto-Bafoulabe road is 323 vehicles per day and of the Bandiagara-Douentza road is 373 vehicles per day, indicating that the rehabilitation of the roads produced a substantial generated traffic of around 300 vehicles per day. The table below shows the 2006 traffic on the Boulevard du Peuple, indicating that the average traffic was 15,377 vehicles per day in 2006. The ex-ante analysis estimated that the traffic on the Bamako roads would grow at around 1 percent per year.

**Table 4. Boulevard du Peuple 2006 Traffic**

	Square Lumumba - Carrefour Ina	Carrefour Ina - Baba Diarra	Baba Diarra - Carrefour G. Touré	Average
Voitures	4,001	1,286	835	2,041
Bus	67	200	220	162
Sotrama	2,239	7,251	1,186	3,559
Taxis	560	1,596	518	891
Motos	9,648	11,094	4,352	8,365
Pousse-pousse	33	551	284	290
Camions	109	84	17	70
Total	16,657	22,062	7,413	15,377

5. The table below shows the actual 2015 traffic on the Boulevard du Peuple, indicating that the average traffic was 19,240 vehicles per day in 2015, corresponding to an annual traffic growth rate of 2.5 percent, which indicates that for the Bamako projects the actual annual traffic growth rate was more than twice the annual traffic growth estimated at appraisal.

**Table 5. Boulevard du Peuple Actual 2015 Traffic**

	Voie Resrveee	Voie Commune	Total
Moto	10,113		10,113
Charrette	457		457
Vehicule Particuler	4,450		4,450
Caminonnete	575		575

Camion Leger	10	17	27
Camion Lourde	1	1	2
Semi Remorque	0		0
Cisterne	68		68
Minibus		3,072	3,072
Bus		6	6
Other	331	138	470
<b>Total</b>	<b>16,005</b>	<b>3,235</b>	<b>19,240</b>

6. The current average traffic of the road sections of the Sotrama ring road varies from 17,220 (Rue 339 and Rue 335) to 56,785 (Avenue Mamadou and Avenue de la Liberté) vehicles per day, of which on average 58 percent are motorcycles, 18 percent cars and 7 percent utility vehicles.

7. The ex-post economic analysis was done by first replicating in Excel, for each road, the ex-ante economic analysis results based on the ex-ante estimated flow of net benefits found on project files. The economic evaluation was then repeated for each road, this time adopting the actual investment costs and the actual traffic growth observed on the project roads from 2006 to 2015. The table below shows the ex-post economic analysis results. The ex-post EIRRs range from 15.9 to 44.3, higher than the 12 percent discount rate, confirming the robust economic justification of the project. The increase in the investment costs compared to the appraisal estimates was compensated by the observed increase in traffic on the project roads from 2006 to 2015.

**Table 6. Ex-Post Economic Analysis Results**

Road	Ex-Post EIRR (%)
Kita-Bafoulabe	15.9
Bandiagara-Douentza	36.2
Boulevard du Peuple	24.1
Sotrama ring road	44.3
Boulevard du Peuple and Sotrama ring road combined	28.2

8. Concluding remarks:

- The overall PAD economic evaluation annex was somewhat deficient because it did not present any of the key assumptions made for the economic evaluation, such as the investment costs, traffic, traffic growth, road work type and characteristics of the road before and after the project.
- To perform a proper ex-post evaluation of the road projects was only possible because the feasibility studies were found, which is not always the case.
- Not doing an ex-post analysis for the wharves is not of great importance since the wharves' total actual cost is less than 4% of the total project cost. Nevertheless, the actual traffic on the wharves is much higher than the 2006 traffic and the actual costs do not differ much from the estimated costs, thus, there is high confidence that the economic justification of the wharves remains satisfactory.

## Annex 4. Bank Lending and Implementation Support/Supervision Processes

### (a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
<b>Lending</b>			
Nestor Coffi	Lead Operations Officer	GGODR	
Renee M. Desclaux	Senior Finance Officer	WFAFO	
Mahine Diop	Senior Municipal Engineer	GSURR	
Yvette Laure Djachechi	Senior Social Development Spec	AFTCS - HIS	
Jocelyne O. Do Sacramento	Operations Analyst	AFTTR - HIS	
Jean-Noel Guilloso	Program Manager	GTIDR	
Amadou Konare	Senior Environmental Specialis	AFTN1 - HIS	
Alberto Ninio	Deputy Gen. Counsel, Operation	LEGVP	
Pierre Rucquoy	Consultant	AFTS4- HIS	
Siele Silue	TTL/Sr Transport. Spec.	GTIDR	
Hang N. Sundstrom	Language Program Assistant	AFTTR - HIS	
Cheick Traore	Senior Procurement Specialist	GGODR	
<b>Supervision/ICR</b>			
Salamata Bal	Senior Social Development Spec	GSURR	
Zie Ibrahima Coulibaly	Senior Infrastructure Speciali	GSURR	
Mamadou Diarrassouba	Monitoring & Evaluation Spec.	AFTDE - HIS	
Mahine Diop	Senior Municipal Engineer	GSURR	
Papa Mamadou Fall	Transport Specialist	AFTTR - HIS	
Maimouna Mbow Fam	Sr Financial Management Specia	GGODR	
Siaba Guindo	Driver	AFCW3	
Amadou Konare	Senior Environmental Specialis	AFTN1 - HIS	
Alain L. Labeau	Consultant	GTI01	
Rokhayatou Sarr Samb	Procurement Specialist	AFTPE – HIS2014	
Siele Silue	Sr Transport. Spec.	GTIDR	
Fily Bouare Sissoko	Senior Operations Officer	AFCW3	
Aoua Toure Sow	Program Assistant	AFCW3	
Cheick Traore	Senior Procurement Specialist	GGODR	
Fabio Galli	TTL/Lead Transport Specialist	GTI05	
Cheick Omar Tidiane Diallo	Transport Specialist	GTI05	
Vincent Vesin	Sr. Transport Specialist	GTI05	
Rodrigo Archondo-Callao	Sr. Highway Engineer	GTI03	
Khalid Boukantar	Program Assistant	GTI05	

**(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)
<b>Lending</b>		
FY05	11.53	64.78
FY06	8.79	55.86
FY07	37.76	224.63
FY08	-0.55	-0.92
<b>Total:</b>	57.53	344.35
<b>Supervision/ICR</b>		
FY05	0	0.00
FY06	0	0.00
FY07	0	6.19
FY08	18.99	73.71
FY09	31.71	106.16
FY10	25.05	114.01
FY11	34.86	129.57
FY12	18.37	76.19
FY13	13.17	79.80
FY14	18.87	108.05
FY15	26.53	93.39
FY16	16.4	53.31
<b>Total:</b>	203.95	840.41

## **Annex 5. Beneficiary Survey Results**

Not applicable

## **Annex 6. Stakeholder Workshop Report and Results**

Not applicable

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

### **a) Aperçu du projet**

1. Le second Projet Sectoriel des Transports (PST-2) est un Projet d'appui de la Banque Mondiale à la mise en œuvre du programme sectoriel de transport du gouvernement. Il a été conçu pour compléter d'autres projets financés par l'IDA (Association pour le Développement International) tels que le Projet National d'Infrastructure Rurale, (PNIR), le projet de diversification et de compétitivité de l'agriculture (PCDA) et le Crédit N°1 de soutien à la Réduction de la pauvreté (CSR-1).

2. Ainsi, le projet contribue aux objectifs élevés établis par le gouvernement pour la réduction de la pauvreté et qui sont (i) d'accélérer la croissance partagée et (ii) d'améliorer l'accès aux services socio-économiques de base. Il se focalise sur les zones rurales à forte propension économique et le district de Bamako en aidant le gouvernement à améliorer l'accès aux services socio-économiques. En améliorant les pistes rurales et les infrastructures de transport fluvial, le projet a aidé aussi à promouvoir les secteurs de production.

3. Le PST-2 qui comprend deux composantes Techniques, A, B et une composante C (gestion du Projet), a été mis en œuvre à travers des agences d'exécution et sous la tutelle technique du département en charge des transports.

### **b) Les objectifs du PST-2**

4. Le PST-2 a pour objectif de développement de faciliter l'accessibilité des communautés rurales du Mali et dans le District de Bamako, à travers l'amélioration des infrastructures de transport rural routier, des services de transport fluvial ainsi que le transport urbain dans le centre-ville de Bamako.

5. Les objectifs spécifiques poursuivis par le projet sont:

- a) Améliorer l'accessibilité rurale, y compris par les principaux ports fluviaux, en vue de promouvoir les activités de soutien à la croissance en milieu rural et à l'agro-industrie dans les zones cotonnières ;
- b) Faciliter la circulation des minibus et la mobilité des piétons par la création d'une voie propre dédiée aux grands bus sur le Boulevard du Peuple et la construction d'un anneau circulaire réservé aux Minibus SOTRAMA dans le centre-ville de Bamako ;
- c) Renforcer la capacité des ministères et autres structures impliquées dans le secteur.

### **c) Les activités du projet**

6. Les activités prévues au titre du PST-2 et du FA ont été exécutées à travers trois composantes principales qui sont :

**Composante A : Amélioration de l'Accessibilité Rurale** qui a porté sur les réalisations suivantes :

- La réhabilitation de deux routes de terre pour 295 km (Badougou-Toukoto-Bafoulabé (155 km) et (Bandiagara-Douentza, y compris la bretelle Togo-Tongo sur 140 km).

- L'entretien de 2192,3 km de pistes rurales par la méthode d'amélioration des points critiques ; (cf détails en annexe) ;
- L'entretien de pistes à travers des contrats basés sur la performance (**GENIS**).
- La construction de 4 quais fluviaux dans le delta intérieur du Fleuve Niger à Dioro, Diafarabé, Ténenkou, et Konna.
- La réalisation de 292 infrastructures socio-économique le long de ces routes et pistes à la demande des communautés (Cf détails en annexe).
- **Mesures environnementales et sociales mises en œuvre**  
Elles sont basées essentiellement sur :
  - La restauration des sites d'emprunts utilisés pendant les travaux de réhabilitation des routes ;
  - La sensibilisation sur le VIH/SIDA et la sécurité routière ;
  - La réalisation d'infrastructures socio-économiques (hangars, clôtures d'écoles, centre de santé, forages)
  - L'élaboration et la mise en œuvre de PAR au niveau des routes Badougou-Toukoto-Bafoulabé et Bandiagara-Douentza ;
  - Les activités de sensibilisation, et de protection de sites culturels d'intérêt local, menacés par les travaux de réhabilitation de la route Bandiagara-Douentza. Les sites concernés sont essentiellement des lieux historiques, culturels et de mémoire.

**Composante B : l'amélioration du système de transport urbain de Bamako** qui comprend les sous-composantes :

- Création d'un site propre de transport sur le boulevard du peuple d'environ 1,3 km ;
- Développement d'une route circulaire pour les minibus (Anneau SOTRAMA) longue de 4,8km;
- Création de trottoirs et de mesures d'accompagnement ;
- Soutien institutionnel à la direction de la Régulation de la circulation et du transport urbain (DRCTU).
- Le déplacement et la reconstruction d'une nouvelle mosquée située dans la rue 552 ;
- L'aménagement de sites d'accueil, de voies piétonnes et de passerelles en vue d'améliorer la fluidité de la circulation routière, renforcer la mobilité et la sécurité des usagers dans le centre-ville de Bamako ;
- La construction de 515 kiosques en parpaing pour la réinstallation des commerçants affectés et attribués par une Commission de réinstallation mise en place au niveau de la Mairie du District.

Il convient de signaler que l'élaboration et la mise en œuvre du PAR ont été faites conformément aux directives de la Banque Mondiale et au Cadre réglementaire de Recasement et de Compensation des populations affectées par les travaux d'infrastructures de transport adopté en octobre 2006 par le Ministère de l'Équipement et des Transports. Toutes les activités se sont déroulées à travers un dialogue constructif et une implication effective des différentes parties prenantes au processus.

**Composante C : Renforcement institutionnel et gestion du projet** qui inclut

- L'appui pour la mise en œuvre des mécanismes financiers et institutionnels pour soutenir l'entretien des routes ;

- L'exécution des plans de gestion sociale et environnementale et le suivi des mesures d'atténuation pour les impacts environnementaux et sociaux,
  - Le suivi de la prévention du VIH/SIDA et les campagnes de sensibilisation incluses dans les activités du projet à travers les contrats des travaux d'ingénierie et les travaux de supervision (les activités du VIH/SIDA seront entreprises sous le cadre du MAP) ;
  - La définition et l'exécution d'une stratégie du secteur à moyen terme, y compris le renforcement de capacités pour les différentes structures techniques et les agences d'exécution et une étude d'indexe d'accès aux pistes rurales ;
  - Les audits financiers et techniques sur la gestion du projet, et
  - Le suivi-évaluation y compris les activités de communication.
- **Etude sur la pollution de l'air dans le District de Bamako qui a fait des propositions relatives aux principaux axes d'actions ci-dessous :**
- 1 La sensibilisation qui doit cibler, dans un premier temps, les cadres, les ingénieurs, les architectes, les personnels médicaux, les enseignants, et tous les intermédiaires culturels pouvant agir pour un changement des comportements de la population ;
  - 2 Le perfectionnement des conducteurs à la conduite économique ;
  - 3 Le revêtement (pavage ou bitumage) des voiries en terre ;
  - 4 La fluidification du trafic urbain ;
  - 5 La réduction de la teneur en soufre des carburants ;
  - 6 Le développement des foyers améliorés ;
  - 7 La création d'un centre de traitement des déchets aussi bien solides que liquides.
  - 8 L'acquisition et l'utilisation d'un laboratoire mobile de contrôle de la pollution de l'air dans le District de Bamako.

#### d) Durée du projet

7. La durée de vie du PST2, officiellement lancé le 11 mars 2008, couvrait initialement la période d'août 2007 au 31 décembre 2011. Elle a été prorogée au 31 Décembre 2014 suite au Financement Additionnel, puis au 31 Décembre 2015 pour permettre l'achèvement de certains travaux importants.

#### e) Coût du projet

8. Le PST2a été financé pour un coût global équivalent à 133,1 Millions \$US (environ 63 milliards de FCFA) y compris les taxes et imprévus. Ce financement a été réalisé par deux crédits de l'IDA (N°43030 et N°4972) totalisant l'équivalent de 113 millions \$US et des contreparties du gouvernement pour environ 20 millions \$US représentant le montant de la TVA et des activités de cession de terre et de compensation.

**Tableau du financement du projet par composante et par source**

Composantes du projet	Coût du projet original			Financement additionnel			Coût révisé		
	IDA	GM	Total	IDA	GM	Total	IDA	GM	Total
A. Amélioration de l'accessibilité rurale	68,8	12,3	81,1	23	4	27	91,8	16,3	108,1
B. Amélioration du système de transport urbain de Bamako	15	3,1	18,1	0	0	0	15	3,1	18,1

C. Renforcement institutionnel et gestion du projet	6,2	0,7	6,9	0	0	0	6,2	0,7	6,9
TOTAL :	90	16,1	106,1	23	4	27	113	20,1	133,1

#### f) Impacts du PST2

9. Les activités initiées dans le cadre du PST2 ainsi que le processus de leur mise en œuvre ont eu des impacts multiformes et significatifs autant sur les acteurs que sur les populations bénéficiaires :

- ❖ Renforcement de l'esprit d'équipe et de la collaboration entre les spécialistes de l'UNC, les agents des services techniques, des agences d'exécution et les experts de la Banque Mondiale ;
- ❖ L'Opération pilote GENIS a permis de doter le Mali d'une expertise nationale dans ce domaine.
- ❖ Promotion des secteurs de production notamment dans les zones CMDT, OHVN et d'implantation des quais fluviaux à travers l'accroissement des trafics et la réduction des temps de parcours sur les routes et pistes d'interventions ;
- ❖ Accroissement des revenus par la création de nouvelles activités économiques aussi bien en milieu rural qu'urbain (nouvelle boulangerie à Dioro, autres activités sur les plateformes des quais, bordures des routes et pistes, des digues, etc.)
- ❖ Augmentation de la productivité des services de transport urbain suite à la réduction des engorgements dans la circulation (temps de parcours réduit) sur le boulevard du Peuple et la sécurité routière dans le centre-ville de Bamako a été améliorée.
- ❖ Amélioration des conditions sociales de vie des populations bénéficiaires (amélioration de l'accès aux services sociaux de base, amélioration des relations interpersonnelles et inter-village, électricité solaire, etc.)

#### g) Les enseignements tirés

10. La mise en œuvre du projet a enregistré des succès mais également des faiblesses qui constituent une somme d'enseignements à tirer en vue de servir de base pour améliorer les projets similaires dans le futur. Les principaux enseignements que l'on peut en tirer sont :

11. **En termes d'acquis:** les principales expériences jugées positives sont:

- (i) La pertinence des objectifs et des activités du projet par rapport aux besoins réels et actuels du pays ;
- (ii) la création et le renforcement de l'expertise nationale en matière d'exécution de projets Banque Mondiale;

- (iii) l'introduction de l'approche du traitement des points critiques particulièrement adaptée aux routes à faible trafic ne justifiant pas des investissements lourds ;
- (iv) possibilité de combiner les approches GENIS et HIMO avec les populations bénéficiaires pour assurer l'entretien des routes en terre et des pistes de manière plus efficace et moins coûteuse.
- (v) Privilégier la dynamique de réseau dans la sélection des pistes à entretenir afin de réaliser le désenclavement d'un éventail plus large de localités.
- (vi) La connaissance de l'ampleur et de la nature de la pollution dans le District de Bamako,
- (vii) Le renforcement de la capacité matérielle et technique pour le contrôle de la pollution dans le District de Bamako,
- (viii) La réalisation des activités socio-économiques le long des pistes rurales à entretenir dans le cadre du projet.

12. **En termes d'insuffisances à corriger:** la mise en œuvre du projet a donné lieu à des constats d'insuffisances et de faiblesses diverses qui méritent d'être améliorées à l'avenir. Il s'agit entre autres:

- (i) Des procédures de passation de marchés jugées trop longues ayant des conséquences négatives sur les délais de réalisation des travaux ;
- (ii) Le non-respect des délais contractuels constaté dans la conduite de certains travaux et de certaines études, imputable en grande partie à la mauvaise organisation et au manque de moyens matériels adéquats et humain de certaines PME;
- (iii) La difficile mise en œuvre des mesures d'accompagnement appropriées afin de garantir une durabilité de certains investissements réalisés.
- (iv) La faible importance donnée à la formation continue des intervenants sur le projet ;
- (v) Les attentes démesurées par rapport aux objectifs du projet (bateaux au quai de Dioro, traitement continu sur les pistes, etc.)
- (vi) Les difficultés relatives à la mise en œuvre d'un mécanisme de reboisement compensatoire dans certaines zones d'intervention du projet.

## ANNEXE 1 Répartition des infrastructures socioéconomiques par région

Régions	Nombre par type d'infrastructures					
	Scolaires	Hydraulique	Santé	Solaire	Autres	Total
Kayes	2	11	2	7		22
Koulikoro	28	69	3	16	3	119
Sikasso	26	51	4	16	1	98
Ségou	1	11		1		13
Mopti	3	36		1		40
<b>Total</b>	<b>60</b>	<b>178</b>	<b>9</b>	<b>41</b>	<b>4</b>	<b>292</b>

Source : UNC/PST2, décembre 2015

## ANNEXE 2 Répartition du linéaire des pistes entretenues et du coût des travaux par région

Régions	Km/Région	Coût/Région(CFA)
Kayes	338	504252758
Koulikoro	927	2991153842
Sikasso	705	5000848411
Ségou	110	412086178
Mopti	113	856849660
<b>Total</b>	<b>2192</b>	<b>9765190848</b>

Source : UNV/PST2, décembre 2015

## **Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders**

Not applicable

## Annex 9. List of Supporting Documents

1. The World Bank (2007), Project Appraisal Document on a Proposed Credit in the Amount of SDR59.9 million (US\$90 million equivalent) to the Republic of Mali for the Second Transport Sector Project, Report No: 39308-ML, April 30, 2007.
2. The World Bank (2011), Project Paper on a Proposed Additional Credit in the Amount of SDR14.2 million (US\$23 million equivalent) to the Republic of Mali for the Second Transport Sector Project, Report No: 59947-ML, May 25, 2011.
3. The World Bank (2014), Restructuring Paper on a Proposed Project Restructuring of the Second Transport Sector Project, Report No: RES17435, December 11, 2014.
4. World Bank's aide-mémoires of supervision missions 2007-2015.
5. World Bank's Project Implementation Status Reports and Project Files
6. Etude de faisabilité technique, économique, et sociale, d'un transport collectif sur site propre de transport en commun et d'une voie réservée pour minibus dans le district de Bamako, Volet 1 - Eléments de base, March 2007.
7. Impact surveys conducted by the NCU at the end of the project:
  - Etude d'évaluation des impacts des travaux réalisés dans le cadre du Second Projet Sectoriel des Transports, Travaux de construction de la route Badougou-Toukoto-Bafoulabé, December 2015.
  - Evaluation des impacts des travaux réalisés dans le cadre du PST2, Volet travaux de réhabilitation de la route Bandiagara-Douentza, December 2015.
  - Evaluation des impacts des travaux réalisés dans le cadre du Second Projet Sectoriel des Transports, Volet travaux de réhabilitation de 9 pistes rurales dans les régions de Koulikoro et Sikasso, December 2015.
  - Evaluation des impacts des travaux réalisés dans le cadre du Second Projet Sectoriel des Transports, Volet GENIS, December 2015.
  - Etudes d'évaluation des impacts des travaux réalisés dans le cadre du PST2, Travaux de construction des 4 quais fluviaux de Konna, Diafarabé, Dioro, et Ténenkou, December 2015.
  - Evaluation des impacts des travaux réalisés dans le cadre du PST2, Travaux de construction du Boulevard du Peuple et de l'Anneau Sotrama, December 2015.



