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IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-33540 IDA-3354A)

ON A

CREDIT

IN THE AMOUNT OF 52.2 SDR MILLION
(US\$95 MILLION EQUIVALENT)

TO THE

REPUBLIC OF SENEGAL

FOR AN

URBAN MOBILITY IMPROVEMENT PROGRAM

March 27, 2009

Water and Urban II
Country Department AFCE1
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective March 27, 2009)
Currency Unit = FCFA
SDR 1.00 = US\$1.51
US\$1.00 = FCFA 485

FISCAL YEAR
January - December

ABBREVIATIONS AND ACRONYMS

AATR	Autonomous Road Work Agency (<i>Agence Autonome des Travaux Routiers</i>)
AFD	French Development Agency (<i>Agence Française de Développement</i>)
AFTU	Urban Transport Financing Group (<i>Association de Financement des Transports Urbains</i>)
AGETIP	Public Works Executing Agency (<i>Agence pour l'Exécution de Travaux d'Intérêt Public</i>)
APL	Adaptable Program Loan
CAS	Country Assistance Strategy
CETUD	Executive Council for Urban Transport in Dakar (<i>Conseil Exécutif des Transports Urbains de Dakar</i>)
CR	Mini-bus (<i>Car Rapide</i>)
DCA	Development Credit Agreement
ERR	Economic Rate of Return
FDTU	Development Fund for Urban Transport (<i>Fonds de Développement des Transports Urbains</i>)
GIE	Economic Interest Group (<i>Groupement d'Intérêt Economique</i>)
IDA	International Development Association
KPI	Key Performance Indicator
MECTRANS	Mutual Saving and Loan Association for Transport Companies of Dakar (<i>Mutuelle d'Épargne et de Crédit Des Transporteurs de la Région de Dakar</i>)
MTR	Mid-Term Review
NDF	Nordic Development Fund
PAMU	Urban Mobility Improvement Project (<i>Programme d'Amélioration de la Mobilité Urbaine à Dakar</i>)
PDO	Project Development Objective
PTB	Suburban Train (<i>Petit Train de Banlieue</i>)
SNCS	National Railroad Company (<i>Société Nationale de Chemins de Fer du Sénégal</i>)
SSATP	Sub-Saharan Africa Transport Policy Program
TA	Technical Assistance
TTL	Task Team Leader

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REPUBLIC OF SENEGAL
URBAN MOBILITY IMPROVEMENT PROGRAM

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MAP IBRD 30877

A. Basic Information			
Country:	Senegal	Project Name:	URBAN MOBILITY IMPROVEMENT PROJECT
Project ID:	P055472	L/C/TF Number(s):	IDA-33540, IDA-3354A
ICR Date:	03/25/2009	ICR Type:	Core ICR
Lending Instrument:	APL	Borrower:	GOVERNMENT OF SENEGAL
Original Total Commitment:	XDR 52.2M	Disbursed Amount:	XDR 49.6M
Environmental Category: B			
Implementing Agencies: CETUD, SNCS (TRANSRAIL)			
Cofinanciers and Other External Partners: French Development Agency (<i>Agence Française de Développement - AFD</i>) Nordic Development Fund (NDF)			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	02/02/1999	Effectiveness:		05/14/2001
Appraisal:	01/28/2000	Restructuring(s):		
Approval:	05/25/2000	Mid-term Review:		01/29/2004
		Closing:	12/31/2005	09/30/2008

C. Ratings Summary			
C.1 Performance Rating by ICR			
Outcomes:	Moderately Unsatisfactory		
Risk to Development Outcome:	Substantial		
Bank Performance:	Moderately Unsatisfactory		
Borrower Performance:	Moderately Unsatisfactory		
C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Unsatisfactory	Government:	Unsatisfactory
Quality of Supervision:	Moderately Satisfactory	Implementing Agency/Agencies:	Moderately Satisfactory
Overall Bank Performance:	Moderately Unsatisfactory	Overall Borrower Performance:	Moderately Unsatisfactory

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

D. Sector and Theme Codes		
	Original	Actual
Sector Code (as % of total Bank financing)		
Railways	21	14
Roads and highways	64	56
Sub-national government administration	15	30
Theme Code (Primary/Secondary)		
Access to urban services and housing	Primary	Primary
Municipal governance and institution building	Secondary	Secondary
Other urban development	Primary	Primary
Pollution management and environmental health	Secondary	Secondary

E. Bank Staff		
Positions	At ICR	At Approval
Vice President:	Obiageli Katryn Ezekwesili	Callisto E. Madavo
Country Director:	Habib M. Fetini	Mahmood A. Ayub
Sector Manager:	Eustache Ouayoro	Letitia A. Obeng
Project Team Leader:	Christian Diou	Patrick Bultynck
ICR Team Leader:	Christian Diou	
ICR Primary Author:	Joseph W. B. Bredie	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

The Project Development Objective was to improve the safety, efficiency and environmental quality of urban mobility in the Dakar metropolitan area and road safety in Thiès and Kaolack. Special attention to improving mobility for the urban poor by: (i)

promoting public transport services; and (ii) ensuring the safe movement of pedestrians and road users.

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

The Project Development Objective remained unchanged throughout the life of the project.

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Reduction in traffic congestion and travel time for commuters			
Value quantitative or qualitative	Amount of time lost in traffic on four selected axes: 1,527.07 hours /day or 16,851 veh.hour/day: A: 3401 B: 5705 C: 2431 D: 5314	Time lost: - 10% A: 3231 B: 5420 C: 2309 D: 5048		A: 4110 B: 7581 C: 3141 D: 6103
Date achieved	05/04/2000	12/31/2005		05/2008
Comments (incl. % achievement)	By these measures commuters lost an average of 30% more hours in traffic in 2008 compared to 2000. Although the target is not met, the situation improved after 2005 when urban road upgrading programs neared completion.			
Indicator 2 :	Increase in market share of public transport and percentage of customers satisfied with service			
Value quantitative or qualitative	73.1%	+5%		Declined to 59.6% in 2008 (-18.5%).
Date achieved	05/04/2000	12/31/2005		05/2008
Comments (incl. % achievement)	Target not reached. The market share of public transport fell short by 18.5%, compared to the original target (78.1%). However: (i) market share has remained almost stable since end-2005, at which time it was 61.9%; and (ii) in absolute terms there is a strong increase of the number of public transport trips in the recent years (+12% from 2007 to 2008).			
Indicator 3 :	Reduced levels of air pollution			
Value quantitative or qualitative	Est. prod. CO: 25 223 T/year (adjusted) Est. prod. NOx : 18 458 T/year (adjusted) Est. prod. HC: 3 932 T/year (adjusted)	Est. prod. CO: - 1% Est. prod. NOx : - 1% Est. prod. HC: - 1%		Est. prod. CO: 37 274 T/year (+48%) Est. prod. NOx: 28 955 T/year (+57%) Est. prod. HC : 6 764 T/year (+72%)
Date achieved	05/04/2000	12/31/2005		05/2008
Comments (incl. % achievement)	Target not reached. Estimates of levels of air pollution in 2008 need to take into account the surge in the number of vehicles registered in Dakar (from 40,042 in 1997 to 98,243 in 2007 or +145%) and the annual increase in the number of			

	kilometers/vehicles (+8.5% between 1999 and 2008).			
Indicator 4 :	Reduced accidents per capita			
Value quantitative or qualitative	Accidents per 1000 veh: 61,4% (BAC 97) Deaths per 1000 veh: 2.1 (BAC 97)	Accidents: - 5% Deaths: - 10%		Accidents per 1000 veh: 22,6% (GMAT 08) Death per 1000 veh: 0.56 (GMAT 08)
Date achieved	05/04/2000	12/31/2005		05/2008
Comments (incl. % achievement)	Target exceeded. Injuries dropped by 40% and deaths by 68%.			
Indicator 5 :	Cost of externalities			
Value quantitative or qualitative	Direct and indirect costs of congestion: CFAF108 billion (3.5% of 1998 GNP) including environmental externalities	Cost of congestion: - 10% (CFAF97.2 billion)		CFAF142.9 billion +32% (est. 2.2% of 2008 GNP)
Date achieved	05/04/2000	12/31/2005		05/2008
Comments (incl. % achievement)	Target not met. Since the methodology used to calculate cost at appraisal was not specified, the use of a different methodology from 2004 onwards makes results incomparable. The cost of time lost in congestion alone, measured by a well-defined methodology, actually declined by 10% between 2004 and 2008, reflecting a reduction of congestion and a better control over the sector during the time when works were implemented and going back to 2000 level. However, the overall result for the entire period of the project was an increase in direct and indirect costs of congestion by 32%, but with the ICR team unable to attribute this increase to either the increase in externalities between 2000 and 2004, during which time no works were completed, or to the changed methodology. In order to obtain comparable results, the baseline would have to be adjusted using the 2004-2008 methodology, but the raw baseline data is not available to carry out this analysis.			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Increased throughput (in terms of passengers) of public transport corridors			
Value (quantitative or qualitative)	Commercial speed Collective transport: 10.66 km/h to 23.23 km/h on selected axes	+10%		Commercial speed Collective transport: 8.18 km/h to 22 km/h on selected axes.
Date achieved	05/04/2000	12/31/2005		05/2008
Comments (incl. % achievement)	Target not met. Commercial speed decreased by about 30 %.			

achievement)				
Indicator 2 :	Strengthened CETUD management capacity			
Value (quantitative or qualitative)	None	Strengthening of CETUD as a regulatory institution		CETUD regulates public transport fares, routes and stops, and coordinates policy and financial aspects of public transport with other agencies.
Date achieved	05/04/2000	12/31/2005		03/16/2009
Comments (incl. % achievement)	Target partially met. CETUD has been strengthened in terms of capacity, staff, and mandate. All planned TA activities were implemented, but further effort is needed in order to consolidate project achievements.			
Indicator 3 :	Improved effectiveness and efficiency of the urban roads			
Value (quantitative or qualitative)	None	Urban road network and urban transport infrastructure in Dakar rehabilitated, maintained, and redesigned to promote public transport and assure pedestrian safety		50 kilometers of urban road network and infrastructure including 27 intersections have been rehabilitated, and redesigned. In addition, two vehicular and 13 pedestrian overpasses have been constructed. Maintenance of the road network in general and that of traffic lights and signs in particular is inadequate.
Date achieved	05/04/2000	12/31/2005		03/16/2009
Comments (incl. % achievement)	Target evaluated as 95% achieved, compared to the works program laid out at appraisal.			
Indicator 4 :	Urban transport leasing scheme			
Value (quantitative or qualitative)	None	300 new or 600 second-hand minibuses		505 new mini-buses replacing the same number of old ones.
Date achieved	05/04/2000	12/31/2005		01/06/2009
Comments (incl. % achievement)	168% achieved, since 505 new mini-buses were provided vs 300 planned. . The indicator was flexible to allow mini-bus operators to choose between new and second-hand mini-buses. Reimbursement rate is 100% for loans to mini-bus operators.			

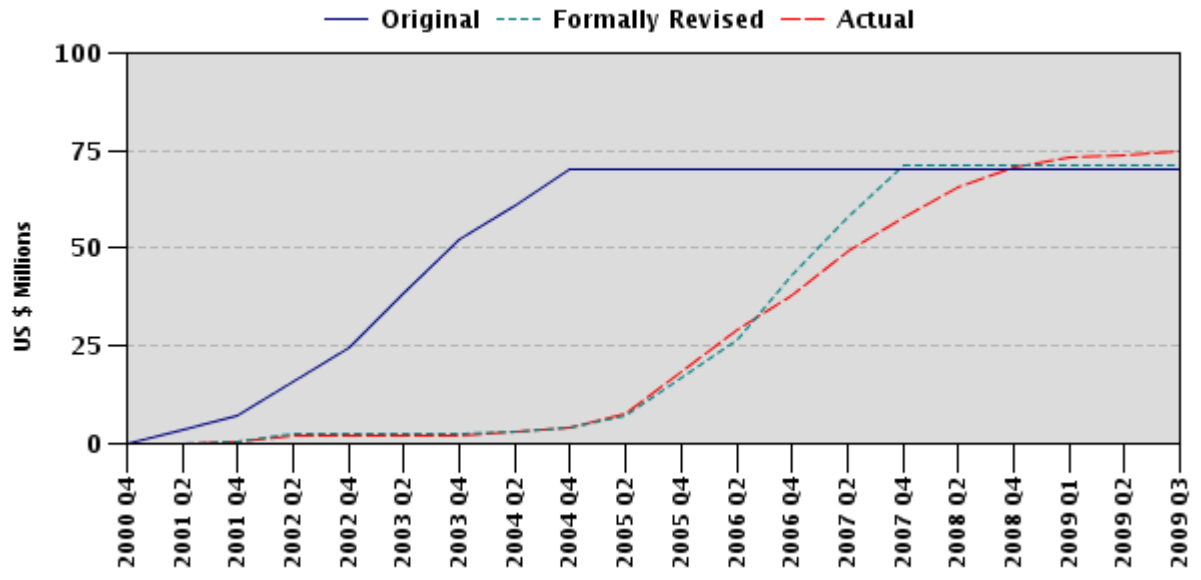
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	06/28/2000	Highly Satisfactory	Highly Satisfactory	0.00
2	12/21/2000	Satisfactory	Satisfactory	0.00
3	02/07/2001	Satisfactory	Satisfactory	0.00
4	10/30/2001	Satisfactory	Satisfactory	0.36
5	03/28/2002	Satisfactory	Unsatisfactory	2.18
6	04/30/2002	Satisfactory	Unsatisfactory	2.18
7	12/12/2002	Unsatisfactory	Unsatisfactory	2.31
8	05/30/2003	Unsatisfactory	Unsatisfactory	2.31
9	06/27/2003	Unsatisfactory	Unsatisfactory	2.31
10	12/01/2003	Unsatisfactory	Unsatisfactory	3.05
11	06/02/2004	Unsatisfactory	Satisfactory	4.22
12	11/24/2004	Unsatisfactory	Satisfactory	7.47
13	04/25/2005	Unsatisfactory	Moderately Satisfactory	12.11
14	06/30/2005	Moderately Satisfactory	Satisfactory	18.58
15	12/21/2005	Moderately Satisfactory	Satisfactory	29.12
16	06/22/2006	Moderately Satisfactory	Satisfactory	37.98
17	12/22/2006	Moderately Satisfactory	Satisfactory	49.06
18	06/22/2007	Moderately Satisfactory	Satisfactory	57.96
19	10/29/2007	Moderately Satisfactory	Satisfactory	64.16
20	04/29/2008	Moderately Satisfactory	Moderately Unsatisfactory	68.87
21	09/29/2008	Moderately Unsatisfactory	Moderately Unsatisfactory	73.28

H. Restructuring

Not Applicable

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. **Crisis Level Traffic Congestion, Pollution, and Accidents in Dakar.** At appraisal in early 2000, the Greater Dakar transport system was marked by severe traffic congestion and high levels of pollution and road accidents. The main causes were lack of investments in road infrastructure in the face of rapid population growth (4 percent annually), very high increase in the number of vehicles (21 percent annually) and informal vendors encroaching on roads, railways, and sidewalks. Congestion was particularly bad in the narrow Pikine-Guediawaye transit corridor, which connects Dakar city, the port, and the main railway terminal with suburban areas and the rest of the country.

2. It was estimated at appraisal that 16,850 hours per day were lost in traffic on many of the most critical road sections in Dakar and that the commercial speed of public transport vehicles had been reduced to 10-20 kilometers per hour. Pollution from vehicles caused an estimated one third of all air pollution in the city and was further exacerbated by the fact that up to 55 percent of vehicles were more than 15 years old. The effect on respiratory diseases was evident: Dakar had an annual average of 25,150 cases of respiratory related sickness (excluding tuberculosis) representing 5.4 percent of the area's total sickness incidence. Persons living in congested areas such as bus and taxi stations, markets, schools, or near heavily traveled roadways were found at high risk.

3. In 1997, almost 2,500 people were injured in traffic accidents brought on by the poor state of maintenance of vehicles, including public transport. Moreover, there was no separation between fast and slow moving traffic (including along the suburban railway through the densely populated Pikine-Guediawaye transit corridor) and sidewalks were in disrepair or occupied by vendors, who also often shared the railway tracks and right-of-way with the trains.

4. At appraisal, these problems substantially affected the productivity and efficiency of the national economy. It was estimated that reducing Dakar's traffic congestion by 10 percent would result in an increase of the efficiency of the urban transport system valued at US\$5.4 billion annually.

5. **The Government's Urban Transport Policy** was adopted in September 1996, providing a framework for rehabilitating the urban transport sector through a comprehensive approach, which would address institutional, regulatory, financial, managerial, and social aspects of the crisis.

6. **Bank Support for the Urban Transport Policy.** In early 1997, at the request of the Government of Senegal, the Bank agreed to support the Urban Transport Policy through a Transport Reform and Capacity Building Technical Assistance Project. At closing in 2001, the technical assistance (TA) project had achieved minor improvements in the institutional and regulatory framework, coordination between national and local

government and the private sector, involving stakeholders in decision-making, and developing road safety action plans and improving traffic management. However, the scope of the TA was not commensurate with the scale of the problems and the Government and the Bank agreed that the severity of the situation warranted the preparation of a free-standing Urban Mobility Improvement Program (*Programme d'Amélioration de la Mobilité Urbaine - PAMU*).

1.2 Original Project Development Objectives (PDO) and Key Indicators

7. **The Project Development Objective** was to improve the safety, efficiency, and environmental quality of urban mobility in the Dakar metropolitan area and road safety in the Thiès and Kaolack areas. Special attention was to be paid to improving mobility for the urban poor by: (i) promoting public transport services, and (ii) ensuring the safe movement of pedestrians and road users.

8. **The key performance indicators** were:

- (i) Reduction in traffic congestion and travel time for commuters;
- (ii) Increases in market shares of public transport and percentages of customer satisfaction with services;
- (iii) Reduction in relative level of emissions generated by motorized vehicles;
- (iv) Reduction in the number of fatalities caused by traffic accidents along the project's main road corridors; and
- (v) Decrease in the costs of externalities generated by motorized transport as a percentage of GDP.

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

The PDO was not revised.

1.4 Main Benefits and Target Population

9. **Beneficiaries and benefits.** The project aimed at improving the safe mobility and immediate environment of the urban poor, as those most affected by the persistent urban transport crisis in Dakar and mostly relying on collective transport. Increasing accessibility to public transport services to people living in remote locations from downtown Dakar was going to benefit the poor segments of the population.

10. **Other Project Benefits.** The society at large would benefit from the economic, social, and environmental benefits of the project through: (i) reduced vehicle operating costs and travel time; (ii) reduced air pollution; (iii) improved pedestrian safety in the Dakar metropolitan area; (iv) improved value-for-money for public spending on roads; and (v) increased employment opportunities in the mass transport industry (mini-buses – CR (*Car Rapides*)). The overall economic productivity and the quality of life were expected to improve in the Dakar metropolitan area.

1.5 Original Components

11. **Part A: Road Infrastructure, Road Safety, and Traffic Management.** (i) Rehabilitation and construction of road infrastructure primarily for the development of public transport and pedestrian safety in the Dakar metropolitan area; (ii) design and implementation of a road safety action plan for the Dakar, Thiès, and Kaolack areas (including management of accident-prone junctions, improvement of user friendliness and safety infrastructure, and implementation of awareness campaigns targeted at transport users and operators); (iii) development and implementation of traffic management strategies to improve key transit points for persons and goods, and preparation of a comprehensive Urban Mobility Plan for the Dakar area and a plan to increase public transport services' commercial speed; and (iv) technical and advisory services.

12. **Part B: Pedestrians' Movement and Traffic Security along the Suburban Railway Line.** (i) Upgrading of suburban railway infrastructure by increasing existing capacity, implementing major security works along the main transport corridors targeted by the project and relocating the freight terminal outside downtown Dakar; and (ii) technical and advisory services to the concessioning of the suburban railway services.

13. **Part C: Leasing:** (i) Implementation of a leasing mechanism to accompany the renovation of mini-buses (CR), including inter alia support for strengthening the technical and management capacity of the operators; and (ii) facilitating access to credit for private transit operators to enable them to renew their fleet, and acquisition, with a view to leasing, by the Urban Transport Financing Group (*Association de Financement des Transports Urbains - AFTU*) of vehicles that meet safety and emissions standards.

14. **Part D: Urban Air Quality Management.** Carrying out of a program of actions aimed at improving air quality in the Dakar metropolitan area including: (i) construction of automobile monitoring centers; (ii) establishment of an observatory to track urban pollution; (iii) support for the introduction and supervision of an urban air quality action plan; and (iv) instituting awareness campaigns and consultations with road users and the transport industry.

15. **Part E: Capacity-Building and Institutional Strengthening.** (i) Technical advisory services and training to strengthen sectoral capacity with regard to air pollution, road safety, inter-modal policy and promotion of mass transport, urban planning, and tools and techniques for evaluating performance; (ii) carrying out ad-hoc studies and assessments consistent with the evolving context, as well as feasibility studies to prepare the second phase of the program; and (iii) carrying out institutional reform of the sector and support to the Executive Council for Urban Transport in Dakar (*Conseil Exécutif des Transports Urbains de Dakar - CETUD* in its capacity as project executing agency and regulatory authority for urban transport.

1.6 Revised Components

The components were not revised.

1.7 Other significant changes

16. **Extensions of the Closing Date.** The Credit closing date was extended three times. At the third extension, approved on November 21, 2007, the original closing date of December 31, 2004 was extended to September 30, 2008. The extensions were necessary to make up for delays with (i) the lengthy process of restructuring of CETUD initiated in 2000; (ii) works on the urban railway line and the air quality component; and (iii) the delivery of vehicles under the lease component.

17. **Amendment of the Development Credit Agreement.** Part B of the project was to be implemented by the National Railroad Company (*Société Nationale des Chemins de Fer du Senegal* - SNCS). In 2003, the Government decided to privatize the SNCS and the Development Credit Agreement (DCA) was amended in October 2004 to enable the new operator, TRANSRAIL, to manage this component.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

18. Surveys and studies carried out under the Urban Transport and Capacity Building TA project were used to prepare the PAMU. CETUD, working with stakeholders and the Bank: (i) identified the congestion bottlenecks and accident hot-spots; (ii) determined the improvements necessary to integrate the suburban railway line with other mass-transit systems; (iii) designed the lease scheme for the renewal of the CR fleet; and (iv) prepared the measures to manage traffic and air quality. These proposals were approved, in principle, by the CETUD assembly (government, local authorities, private sector) and thus had wide support among stakeholders. The regional experiences from the sub-Saharan Africa Transport Policy Program (SSTAP) were used as to select appropriate technical solutions based on simple technology.

19. The PAMU was designed to address the crisis in the urban transport sector in Dakar in a comprehensive manner. During preparation, the Government and the Bank agreed that, in view of the urgent needs and the incomplete technical readiness of some investments, the PAMU should be designed as the first phase of a two-phase Adaptable Program Loan (APL). The indicative cost was US\$103 million, of which the Bank was to finance about 68 percent. The rest would be financed by the French Development Agency (*Agence Française de Développement* - AFD), the Nordic Development Fund (NDF), the Government, and others (municipalities and transport operators). The second phase of the APL, estimated to cost US\$31.4 million, was to be implemented if specific triggers related to satisfactory implementation of activities under the first phase were met.

20. Quality-at-entry is rated unsatisfactory as preparation was not sufficiently advanced in relation to procurement and financing of maintenance arrangements. The preparation had a number of shortcomings in the analysis of the role, capacity, and mandate of CETUD to manage a project of this scale. These issues were not addressed in the design as a result. This was highlighted by the Quality Assurance Group in the

October 2002 Quality of Supervision Assessment (QSA5) report. Further, the CR/mini-bus operators were not ready to participate in the leasing scheme. The involvement of several donors and the resulting complications for project management contributed to increasing the complexity of the project. This issue was also not sufficiently addressed. As a result, the project was not ready for implementation at Board approval.

2.2 Implementation

21. Implementation of the PAMU went through three phases. Implementation was very slow from effectiveness to January 2004 at the mid-term review (MTR), due to delays in: establishment of project management capacity for CETUD, effectiveness of the NDF agreement and fine-tuning the CRs leasing scheme. Project implementation improved significantly after the MTR when most of the results were achieved. Bank supervision teams, faced with very low initial disbursement, worked with CETUD to implement road works, get the air quality component on track, and mobilize CR operators. Unfortunately, implementation went back to a standstill after 2007 due to lack of counterpart funds which prevented the completion of the remaining civil works including the suburban railway line.

22. **Delays with assuring CETUD's project management capacity.** CETUD had only three technical staff comprising the secretariat when it was made responsible for implementing the PAMU. The new Government, elected in May 2000, decided to restructure CETUD and this decision delayed the recruitment of project implementation staff. A new President and Director General were finally appointed in January 2002, but delays in recruiting the technical and financial staff pushed back the launching of the road works until late 2003 and limited CETUD's role in its efforts to privatize the national railway and the Dakar bus company (SOTRAC). This in turn delayed upgrading work on the suburban railway line. The selection of the Autonomous Road Works Agency (*Agence Autonome des Travaux Routiers - AATR*) and Public Works Executing Agency (*Agence pour l'Exécution de Travaux d'Intérêt Public - AGETIP*) to oversee procurement of works and goods under the road component was acceptable to the Bank, but took until 2003 to be operational.

23. **Delays with the NDF-financed air quality activities.** Although the NDF agreement was signed in December 2002, it was not until January 2004 that the Government produced a legal opinion to enable effectiveness of this agreement and the launch of the air quality activities. Moreover, securing the sites for the automobile monitoring centers took until 2008 and procurement of equipment for the air quality laboratory, initially restricted to Nordic countries, took almost two years to complete. Because of all these delays, it was decided to scale down proposed activities from three monitoring centers to one, and to drop all five air quality measuring stations and keeping only the central laboratory.

24. **Delays with the participation of the CR operators in the leasing scheme.** Meetings to mobilize the independent CR/mini-bus operators started in 1999 under the TA project and continued to take place in the early years of PAMU. In addition, the registration of operators into Economic Interest Groups (*Groupement d'Intérêt*

Economique - GIE) which started early on in the project took longer than anticipated because of the informal nature of the CR operators and their lack of collateral which held up procurement of mini-buses since operators were unable to provide the initial deposits and commercial banks declined to lend funds to these operators. These deposits were intended to confirm operators' commitment and be part of the financial mechanism to guarantee against operators defaulting on their repayments. The leasing mechanism took off in November 2003 when the first contract for new mini-buses was signed. The leasing mechanism operated at full speed after May 2005 when the GIEs created their own micro-finance institution.

25. Eventual Acceleration of Activities but Project Closure with Unfinished Works. Due to tighter supervision and Government engagement, progress with implementation accelerated after the MTR. By completion (September 30, 2008): (i) most of the improvement works in the roads and intersections in Dakar was completed; (ii) 505 new mini-buses were in operation under the leasing scheme; (iii) the laboratory for air quality was appropriately staffed and had started initial operations; and (iv) 90 percent of the upgrading works on the suburban railway line were completed.

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

26. Design. The key performance indicators had been selected with the intent to show progress towards achieving the PDO of improving urban mobility. Specifically, improvements in the quality and use of public transport would be measured by: (i) increased commercial speed of public transport; (ii) reduction in time lost in traffic; (iii) increase in the number of passengers using public transport; (iv) decrease in pollutant emissions; and (v) reduction in accidents. Other indicators included improvements in the sector's financial capacity and decrease in the costs of externalities.

27. However, the selected indicators did not provide a good indication of achievement of the PDO and they were overly complex and difficult to measure. In addition, the targets were beyond reach. For instance, it was unrealistic to expect that replacement of part of the fleet of old CRs and suburban railway's rolling stock would reduce the emission of pollutants by one percent for Dakar as a whole. Similarly, reductions in time-lost-in-traffic, increases in commercial speed of public transport vehicles and in the ridership on public transport, and cost of externalities (the aggregate of the individual indicators), were not only difficult to measure, but unlikely to be achieved in the face of the continuous rapid increase in the number of vehicles.

28. Implementation. The indicator targets were based on a static environment and should have been updated, since they did not take into account e.g. the increase in total traffic, which was beyond control of the project. It was envisaged to change the indicators to make them more relevant to the PDO after the MTR but the operation did not materialize. While outcome indicators of the project could not be met partially due to overly optimistic targets, it was clear when visiting Dakar that the project has made strides in improving mobility in the city although this could not be captured by the current indicators.

29. **Utilization.** Continuous measurement of the project indicators was not possible due to the lack of specification of baseline methodology, the level of data gathering involved and the cost of monitoring. As a result, the five indicator measurements carried out (the last time in May/June 2008, just before the closing date of the project) did not allow taking the appropriate corrective measures. These issues prevented the use of indicators for project management and operational purposes.

2.4 Safeguard and Fiduciary Compliance

30. **Safeguard Compliance.** The project complied with Bank safeguard policies. OP4.12 on Involuntary Resettlement was triggered mostly due to civil works on the suburban railway component, necessitating the resettlement of informal shops and vendors along the right-of-way of the railway. Supervision reports confirmed that about 80 people affected by the road component were resettled in compliance with Bank safeguard policies. Another resettlement operation for the PTB at Thiaroye was adequately prepared, but was put on hold due to lack of counterpart funds needed to implement the resettlement action plan. The project did not have major negative environmental impacts and environmental related clauses were systematically included in work contracts. Finally, safeguard policies concerning Cultural Heritage (OP 4.11) were complied with when the railway station in Rufisque –a cultural monument from the colonial period– was rehabilitated.

31. **Fiduciary Compliance.** The project complied with Bank fiduciary safeguards in spite of problems with the quality of project management. At appraisal, the financial management, procurement, and reporting capacity of CETUD were in need of strengthening. A six-month action plan was put together to address the deficiencies which remain difficult to correct despite efforts from Bank supervision teams. However, financial management and post procurement reviews did not reveal any irregularities.

2.5 Post-completion Operation/Next Phase

32. Post-completion operation remains at risk. Firstly, municipalities and the Government are responsible for maintenance and periodic cleaning of roads and sidewalks, but lack the technical capacity and funds to do so. The Road fund which was intended to finance urban road maintenance has not been set up by the Government. Secondly, CETUD's capacity in the area of coordination and sector financing needs to be further reinforced. CETUD has prepared a first version of the Urban Mobility Plan for the Dakar area and uses the plan to monitor mobility and identify remaining problems. Thirdly, uncompleted works due to counterpart funding issues, including upgrading the suburban railway, closing the right-of-way wall, the pedestrian and vehicular overpasses, and access roads to the freight and road/rail feeder stations need to be completed to deliver the full project benefits to the population and it is not clear if resources will be made available considering the current strained fiscal situation of the country.

33. The main triggers for the second phase of the APL are not fully met, since appropriate financing for maintenance is not available and CETUD's role as a regulator is not yet firmly established.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design, and Implementation

34. **Objective.** The objective of the PAMU remains highly relevant in light of the continued pressure on transport infrastructure in Dakar. Moreover, urban/rural synergies and growth/wealth creation pillars of the current Country Assistance Strategy (CAS) makes urban mobility improvement in Dakar more relevant than ever.

35. **Project Design.** The project was not ready for implementation. PAMU's design was appropriate in that it targeted the major physical and institutional shortcomings of the urban transport system and aimed to improve air quality management and institutional capacity. However, the design did not sufficiently take into account the existing organizational weaknesses and the need to build on dedicated solutions to these problems. The risk analysis was a major shortcoming of the project, the M&E framework was not able to provide useful information for project management purposes, and the client was not fully committed to the project as proved by the long delay in the air quality study and the lack of actions to address weak capacity in CETUD.

36. **Implementation.** Some of the shortcomings were addressed during implementation, but despite concerted efforts, not all problems could be overcome. The Government and supervision missions initially failed to resolve the issues with CETUD's management capacity, the delayed air quality activities, and the leasing scheme in a timely manner until the new TTL took over at the MTR. Lack of counterpart funding led to the closure of the project before the completion of works.

3.2 Achievement of Project Development Objectives

37. **Achievement of the PDO.** The PDO to improve the safety, efficiency, and environmental quality of urban mobility in the Dakar metropolitan area and road safety in the Thiès and Kaolack areas has been partially achieved.

38. Analysis of achievement of each of the PDO's major objectives - safety, efficiency, and environmental quality – indicates that while safety objectives were met, those for efficiency and environmental quality were not fully realized.

39. **Safety.** The PDO indicator relating to safety (reduced accidents) was met. Injuries per 1,000 vehicles dropped from 61 in 2000 to 23 in 2008 and that of death from 2.1 to 0.6 per 1,000 vehicles. Pedestrian crossings installed with traffic lights at busy intersections and new overpasses now provide safe crossings for pedestrians. In addition, sidewalks have been constructed, repaired or widened, and road median dividers and speed bumps have been installed at schools, hospitals, and other locations where people congregate. However, lack of counterpart funds halted work on some of the overpasses which cannot be used and access to several train stations remains inadequate, unregulated, and unsecured as a result.

40. Traffic management has improved with the creation of the traffic police corps (not initially planned under the PAMU). The 362 agents now employed in metropolitan Dakar

to manage traffic have received equipment and training financed under the PAMU. The corps daily deployment contributes both to improved safety as well as more efficient flow of traffic.

41. **Efficiency.** Overall efficiency strongly decreased from 2000 to 2004, with increased traffic congestion and delays in investment, but improved slightly after 2004. Three key performance indicators (KPIs) related to the efficiency of transport include (see project datasheet for details): (i) time-lost-in-traffic actually increased by 30 percent compared to a targeted reduction by 5 percent; (ii) the market share of public transport declined by 13.5 percent against a targeted 5 percent increase; and (iii) the cost of externalities shows a 32 percent increase. It is worth mentioning measuring the cost of externalities was difficult to assess accurately, as the methodology used to measure this indicator at appraisal was not available. As a result, a new methodology was developed at the time of the MTR to measure the cost of time lost in traffic as a proxy of congestion. On that basis, the economic analysis demonstrates that cost of time lost in congestion alone was stable from CFAF 41.4 billion in 2000 (base 1998) to CFAF 36-42.9 billion in 2008. The lack of achievement of the first two indicators can be attributed in part to the overall increase in vehicle traffic, but the M&E framework does not allow us to attribute specific results to the project interventions.

42. The leasing scheme has achieved the objective of partly renewing the aging fleet of CRs, and improving operations and passenger comfort. This scheme - a first in the Africa Region - replaced 505 old CRs with new, more efficient ones (about one-fifth of the mini-bus fleet). Acquisition of these new mini-buses has dramatically changed the face of the urban transport industry in Dakar. CR routes and stops have been formalized and passengers are satisfied with the quality of transport services (see Annex 5). A study of the leasing scheme reports that although the fares for CRs formally increased by 10 percent in 2005, the services of the new CRs are cheaper for the traveler in actual terms, as the practice of charging higher unofficial fares has stopped. As a result of the new business model implemented for the new vehicles, revenues for owners have increased while fare increases have been kept to a minimum through negotiations with CETUD. Studies show that the leasing scheme is sustainable and the reimbursement rate is 100 percent.

43. **Environmental Quality.** The KPI related to environmental quality was not achieved, since air pollution increased rather than declined. However, the KPI could not fully measure progress made by the project as the end target did not take into account the overall dramatic increase in vehicle-kilometers in the city. Initial steps have been taken to arrive at a better management of environmental quality with the establishment and staffing of the air quality laboratory and deployment of a mobile measuring vehicle. The air quality management system needs to be developed and staff trained in use of equipment. The anticipated reduction in pollution from the mines and cement factory through the use of new and sealed TRANSRAIL freight cars has also not been achieved. Dust and leaks from freight trains pollute the air and the tracks used by the suburban railway. However, CETUD has managed the introduction of unleaded gasoline in

Senegal supported by the Bank's Clean Air Initiative, which has eliminated lead pollution from traffic.

3.3 Efficiency

44. **Cost-Benefit at appraisal and closing.** The economic analysis at appraisal examined the cost-benefit of “without project” and “with project” for: (i) the road rehabilitation; (ii) the leasing scheme; and (iii) the pedestrian and traffic safety along the suburban railway.

45. **The Economic Rate of Return (ERR).** At appraisal, the ERR of the road rehabilitation component was estimated at 37 percent. At closing, the ERR of the road rehabilitation investments under PAMU (vehicle operating cost only) was equal to, or greater than, 67 percent except in one US\$800,000 investment in Petit Mbao where it was only 9 percent (small portion with low traffic but high social impact).

46. **Benefits from reduced accidents.** At appraisal, the reduction in deaths and injuries to persons and damage to cars was estimated to have a Net Present Value (NPV) of US\$7.58 million. A full calculation of NPV was not done for the ICR. However, at closing, the costs incurred from injuries and deaths between 1997 and 2007 were estimated to have decreased by 26.8 percent, or almost three times the estimate of 10 percent used at appraisal.

47. **Benefits from Reduced Congestion.** Based on the estimate at appraisal that one million hours were lost in traffic as a result of congested roads, the benefits from reducing the average travel time in Dakar by five percent resulted in a NPV of US\$39.6 million. The cost of congestion was estimated at CFAF108 billion in 1998. At closing, a study concluded that the cost of congestion was estimated to CFAF142.9 million in 2008. Although this represents an increase of 32.3 percent, the result at closing cannot be compared to the appraisal estimate as the parameters, especially for health and environmental externalities, were not specified.

48. **Leasing Scheme.** A study of the leasing scheme reports that the services of the new CRs are cheaper than the ones of the old CRs for most journeys as practices of short-tripping and use of unofficial fare stages stopped. In the same time, revenues for owners have increased while fares have remained affordable for commuters as a result of the updated business model implemented for the new vehicles. Studies show that the leasing scheme is sustainable and the reimbursement rate is 100 percent.

49. **Efficiency loss from incomplete works.** Although the Suburban Train (*Petit Train de Banlieue* – PTB) received new trains and locomotives under PAMU, the incomplete work on the third track and the poor condition of the infrastructure means that the train carries only about a 18,000 passengers a day compared to its potential of 75,000 passengers daily.

3.4 Justification of Overall Outcome Rating

Rating: Moderately Unsatisfactory

50. The outcome is rated moderately unsatisfactory, primarily because the project could not achieve targets for three out of five outcome indicators. Target indicators were not met for air quality, share of public transport and reduction in time lost in traffic, while the target was met for safety. The indicator related to the cost of externalities was difficult to assess accurately due to methodological problems. So while progress has been achieved under the project in resolving part of the severe traffic congestion in greater Dakar, which at the time of appraisal had reached crisis proportions, outcomes are not commensurate with expectations at appraisal. Further, the capacity of CETUD remains problematic and funding for maintenance of roads is not available, jeopardizing project achievements. This moderately unsatisfactory rating is further substantiated by the evaluation of project relevance and efficiency. Although the project objective continues to be highly relevant, the unsatisfactory quality at entry and notably efficiency losses due to incomplete works pull the rating downwards.

3.5 Overarching themes, other outcomes and impacts

(a) Poverty impacts, gender aspects, and social development

51. **Better public transport for the informal sector.** Many rural-urban migrants initially stake out an economic existence in the rapidly expanding informal markets and shops along the railway or near the rail and bus stations. Public transport facilitates access to these markets and shops, which provide employment to the poor segments of the urban population.

(b) Institutional Change/Strengthening

52. **Stakeholder participation in urban transport.** CETUD's tripartite plenary has been instrumental in helping renew the fleet of CR, and has improved coordination among the many agencies active in the transport sector in Dakar including DDD, PTB, the municipalities and the mini-buses' operators. This arrangement has made it possible to rationalize bus routes, achieve some level of integration between rail and road commuter transport, and keep public transport affordable.

(c) Other unintended outcomes and impacts (positive or negative)

53. In parallel with the PAMU, the Government has financed additional mobility improvements, including major civil works to rehabilitate and expand the primary road network (North highway, Airport access highway and Corniche) and launched the construction of the region's first six-lane toll highway crossing the narrow Pikine-Guediawaye corridor. The primary network improvements financed by the Government has enhanced the impact of PAMU-funded overpasses and the rail/road feeder stations because these facilities were connected to the six-lane highway.

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

NA

4. Assessment of Risk to Development Outcome

(Rating: Substantial)

54. **Financial and Economic Risks.** Counterpart funding and financing of maintenance of urban infrastructure, initially planned through the Development Fund for Urban Transport (*Fonds de Développement des Transports Urbains - FDTU*) was not available. The Government's inability to pay counterpart funds starting in 2007 and continuing in 2008, as well as the failure of most municipalities and operators to make their contribution to the FDTU, puts the outcomes of PAMU at a significant risk. The urban infrastructure constructed and or rehabilitated is showing early signs of degradation in some locations for lack of maintenance. Lack of repair and maintenance of roads, traffic lights, and protective barriers at pedestrian crossings are lessening the recent gains in mobility and safety. The current level of financing of the FDTU is insufficient to fund infrastructure maintenance and implementation of the formal agreement to fund urban road maintenance from the second generation road fund has yet to take place.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry (Rating: Unsatisfactory)

55. **Problems with Readiness and QAE.** Preparation of the project was not totally ready at the time of appraisal. However, the Bank approved the project in May 2000. Procurement was not sufficiently advanced, financial management capacity was inadequately assessed and mitigation measures were not in place, and arrangements for the leasing scheme and the air quality management component were not strong enough. There were real gaps in readiness and as a result effectiveness was delayed until May 2001.

(b) Quality of Supervision (Rating: Moderately Satisfactory)

56. **Ineffective Initial Supervision.** Supervision missions initially did little to get implementation going. The missions did not effectively address CETUD's inadequate project management capacity in the fiduciary and sector coordination areas, nor did they effectively help the CR operators find ways to meet the conditions of the proposed leasing scheme. The Government's proposals for restructuring CETUD and for financing the new bus company, Dakar Dem Dikk (DDD), led to discussions to restructure the project in late 2002, due to concerns with the proposed arrangements. However, this was not done, as no agreement could be reached with the Government. While the road component took off only after 2003, supervision missions in the first years of project implementation did little to speed up implementation and the reasons for such lack of proactivity from the Bank remain unclear.

57. **Significant improvements in Supervision.** Even efforts by management had little effect until the replacement of the first TTL and the organization of the well-

prepared MTR. The new TTL, appointed in November 2003, got the supervision team to address outstanding issues with the leasing scheme, the air quality component, and CETUD's capacity. The bulk of implementation took place after 2004 when fiduciary capacity and compliance improved and supervision missions included safeguard specialists. Supervision was satisfactory from 2004 till closing in 2008.

(c) Justification of Rating for Overall Bank Performance

Rating: Moderately Unsatisfactory

58. **Uneven Bank Performance.** The Bank did not diligently appraise the project to ensure it was ready and of satisfactory quality. Furthermore, the first few years of supervision were largely ineffective in solving implementation problems with the majority of the components. It is worth noting that the appointment of a new Government following the 2000 general elections at the time of effectiveness and several changes in some of the transport and institutional policies were responsible for implementation delays. The Bank's performance was satisfactory after the MTR when more than 90 percent of the project was implemented. The issue of counterpart funding begun during the second half of 2007 but became a key structural issue in 2008. Considering the fiscal position of the country, the Bank decided not to grant another extension requested by the Government to complete the project which closed in September 2008.

5.2 Borrower Performance

(a) Government Performance

Rating Unsatisfactory

59. **Uneven Borrower Performance.** Preparation of the PAMU by the Government was not complete and the capacity of CETUD as the implementing agency was inadequate. Just when the PAMU was approved in 2000, the new Government began formulating its policies and structuring its institutions in the sector. CETUD underwent too many changes. Delays in recruitment of project management and fiduciary staff subsequently delayed project implementation. The Government was, however, committed to resolving the urban mobility crisis in Dakar by financing the construction of a number of major infrastructure works which led to major improvements in urban mobility in Dakar. The Ministry of Equipment and Transport was very helpful to get implementation off the ground and provided assistance to CETUD. However, the Government's inability to provide counterpart funds left PAMU's supported works program incomplete at closing.

(b) Implementing Agency or Agencies Performance

Rating: Moderately Satisfactory

60. CETUD had gained experience with the implementation of the TA project, but was in need of strengthening when it was given the responsibility of implementing the PAMU. The new Government's insistence on restructuring CETUD was beyond the agency's control. Delays with staff recruitment was also mostly beyond CETUD control. CETUD's management was slow to address the agency's weak fiduciary capacity and it

took more time than needed for CETUD to focus on its core planning and coordinating functions. Procurement, financial management, and reporting remained weak until well into 2004 (the original closing date). However, CETUD's management did improve after MTR, its organizational chart was adjusted to its core functions and staff focused more on urban mobility issues. A good job was accomplished on the urban infrastructure upgrading work, the leasing scheme, and support to the creation of the traffic police. CETUD has been less effective in assisting with efforts to privatize the former bus company SOTRAC and PTB. It has also been less effective in ensuring maintenance and in addressing the many issues associated with the upgrading and integration of the suburban railway line – a task made difficult by the poor performance of TRANSRAIL.

(c) Justification of Rating for Overall Borrower Performance

Rating: Moderately Unsatisfactory

61. The Borrower almost achieved full implementation of PAMU with resulting improvements in urban mobility, safety, and air quality. It used the Credit for the intended purposes, and allocated until 2007 counterpart funds for the project. The Borrower's commitment to urban mobility went beyond the PDO of PAMU when it made substantial additional investments to improve urban mobility. Although some of the initial delays with implementation were a normal consequence of the review of policies and institutions by a new Government, the length of the delay and the lingering problems associated with CETUD took too long to be resolved and affected negatively the project. The lack of counterpart funds, linked to the global financial crisis, was a major set-back to the project and has to be attributed to the Government.

6. Lessons Learned

62. **The challenging urban mobility needs of rapidly developing urban centers in SSA require the establishment of well-staffed and well-managed lead agency to coordinate the activities of multiple stakeholders, including the central Government.** In sprawling urban centers experiencing rapid growth of their population and increased poverty, transport needs and management of transport issues can be very challenging in the face of weak capacity at the central and local government levels and a mushrooming informal transport sector. Fleets of old transport vehicles compounded with lack of investment in the road infrastructure are causes of poor quality of transport services, congestion, increased road accidents and poor safety of the road users. Having a dedicated agency able to coordinate the needs of all the stakeholders in order to improve urban mobility is a critical step in the right direction for coordinating urban transport management, for policy formulation and implementation, and for consensus building among actors.

63. **Indicators that are simple and easy to measure are critical for reviewing changes in urban mobility and for crafting effective responses to the urban transport crisis in SSA.** PAMU's key performance indicators were innovative and far-reaching as they included monitoring of congestion, use of public transport, levels of pollution, incidence of accidents and cost of externalities. But the indicators were sourced

from several different studies, the methods and calculations of values were complicated and, in some cases, such as the cost of externalities, were based on untested assumptions. Other variables related to mobility could not be captured by the indicators, such as major changes in the primary road network or in traffic management regulations. Baseline values were established at appraisal and agreed upon, but few if any agencies could actually monitor the indicators. Monitoring over the life of the project became difficult and the findings were contested by transport specialists. This experience suggests that it is better to select simpler, measurable indicators that have proven to reflect the relevant results to be monitored. The Bank has financed a large number of urban projects and it should be possible to find effective indicators in these projects. Capturing these indicators and making them available to staff will improve preparation and supervision of new projects in urban mobility, in particular with regard to realistic targets and their measurement.

64. **Innovative leasing schemes can address problems created by an aging vehicle fleet of informal urban transport operators.** PAMU took an innovative approach to get informal transport operators to replace their old polluting vehicles with ones that are newer, safer, and less polluting. The leasing scheme developed under the PAMU was successful because it was designed with operators' input, provided strong TA programs for operators and drivers, and included an operational restructuring of the CR network. The Bank's leasing scheme achieved the much-needed replacement of about 20 percent of the existing fleet. The experience has been analyzed in detail in the "Dakar Bus Financing Study" including lessons and potential applications in the region. Notable in the Dakar experience is the commitment from operators to sign-up, make payments, and organize themselves in mutual benefit associations to spread risks.

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

(a) Borrower/implementing agencies

65. The report prepared by the Borrower was received. A summary was prepared and is attached in Annex 7. The quality of the preparation is deemed satisfactory, as well as the implementation phase in spite of the lack of counterpart funds. Notwithstanding its weaknesses, the project has globally responded to the expectations of the authorities.

(b) Cofinanciers

66. AFD focused on the construction of Cyrnos and Malick Sy interchanges (est. US\$13.5 million grant). The works started in 2004 and faced important technical difficulties linked to changes in project design and unexpected water and sewerage networks on the sites. This had negative impact on the implementation schedule and the final cost. However the positive impact of these investments is important on the quality of life of the population and economic activity, especially in terms of: lower travel cost, lower level of pollution, and improved safety, for both people and goods. The works implemented under the Project will represent a sustainable contribution to the PDOs only if the progress made under the Project in reorganizing the public transport system is further developed, in particular with an integrated approach combining all modes.

67. NDF has suggested a number of changes to the write up in the paragraphs dealing with the air quality component. These have been incorporated.

(c) Other partners and stakeholders

(e.g. NGOs/private sector/civil society)

68. AFTU was created on April 3, 2001 within the framework of the PAMU and is one of the beneficiaries of the Project. With the financing provided by IDA through the Government, AFTU was able to set up the mechanism for the minibuses leasing scheme as planned. Thanks to this achievement, 250 operators were able to replace 505 old Cars Rapides for brand new vehicles, compliant with safety requirements and comfort of users. The financing conditions, with a low interest rate and simplified guarantee requirements (unlike the usual requirements from the formal banking system), are particularly well received by the operators. AFTU greatly appreciates the operational support received from stakeholders for better management, monitoring and impact of activities. AFTU also strongly supports the efforts made by the Government and CETUD to further expand the leasing scheme by using the reimbursements made under the current scheme to finance additional minibuses.

69. The new Road Safety Association (*Nouvelle Prévention Routière du Sénégal*, NPRS) was created in 2002 to develop safety activities against car accidents. Close cooperation between NPRS and CETUD was developed under the PAMU, with regard to training of professional drivers linked to the new CRs, as well as various sensitization actions in the regions of Dakar, Thiès and Kaolack. The NPRS thanks the CETUD for its support and wishes that these very constructive actions will be further supported to strengthen the positive impact witnessed on road safety in urban areas.

Annex 1. Project Costs and Financing

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

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
CONSTRUCTION AND REHABILITATION OF ROAD INFRA.	37.54	87.74	233%
TRAFFIC SAFETY ALONG THE RAILWAYS	18.60	22.22	119%
FINANCIAL SUPPORT FOR THE LEASING MECHANISM	21.90	24.64	117%
URBAN AIR QUALITY MANAGEMENT	7.50	9.07	130%
CAPACITY BUILDING AND INSTITUTIONAL SUPPORT	4.80	12.92	254%
Total Baseline Cost	90.34	156.59	173%
Physical Contingencies	8.40	0.00	
Price Contingencies	3.70	0.00	
Total Project Costs	102.44	156.59	
Front-end fee PPF	0.56	0.33	59%
Total Financing	103.00	156.92	152%

(b) Financing (in USD Million equivalent)

Source of Funds	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
FRANCE: French Agency for Development	17.30	13.52	78%
International Development Association (IDA)	70.00	75.71	108%
Nordic Development Fund (NDF)	7.60	8.91	117%
FOREIGN SOURCES (UNIDENTIFIED)	4.50	0.00	
Government of Senegal	3.60	58.78	

Annex 2. Outputs by Component

Part A: Road Infrastructure, Road Safety and Traffic Management:	Outputs
<p>1. Rehabilitation and construction of road infrastructure, including drainage improvements, primarily for the development of public transport and pedestrian safety in the Dakar metropolitan area.</p> <p>2. Design and implementation of a road safety action plan for the Dakar, Thiès, and Kaolack areas, including inter alia: (i) management of accident-prone junctions identified as traffic accident hot-spots; (ii) improvement of road infrastructure, inter alia, through construction of pedestrian sidewalks, pedestrian bridges over roads with heavy traffic, installation of upright and surface signing, lighting, and markings, installation of speed-reducing devices at busy locations such as schools and hospitals, protection of non-motorized traffic through the construction of paths separated from motorized traffic, construction of road median dividers; and (iii) carrying out awareness campaigns aimed at transport users and operators about road safety and the provision of training of traffic police.</p> <p>3. Development and implementation of traffic management strategies to make better use of existing facilities for movement of persons and goods including: (i) construction and management support of terminals for mass transit vehicles and road-rail feeder stations at selected urban locations; (ii) construction of bus stop areas to enable mass transit vehicles to load and unload passengers safely; (iii) construction of road terminals for mass transit vehicles at selected urban areas; (iv) construction of stations on the outskirts of Dakar to alleviate downtown congestion from interurban traffic and heavy vehicles; (v) construction of taxi terminals and parking facilities; (vi) preparation of an Urban Mobility Plan for Dakar area (<i>Plan de Déplacement dans l'Agglomération de Dakar</i>) for inter-modal transport, urban planning, and housing, including the purchase of mapping equipment;</p>	<p>1. Approximately 27 km of roads have been upgraded, including resurfacing, installing or repairing drains, and widening of feeder roads. Work was completed in 2007/8.</p> <p>2. Approximately 50 km of sidewalks have been repaired or constructed. In addition, fences, footbridges, and pedestrian crossings have been installed to improve safety. Works also included installing traffic lights and lighting of the major thoroughfares in Dakar. At places where people congregate, speed bumps, medians and other safety measures have been installed to slow traffic and improve security. Safety awareness campaigns have been organized in schools and on the radio.</p> <p>3. Several terminals for busses and mini-buses have been upgraded and equipped with signs. A number of new stations have been installed in the outlying suburbs. Several rail way stations, including the one at Rufisque, have been upgraded. Two railroad feeder stations have been constructed and equipped with parking areas for taxis, and overpasses for vehicles and pedestrians. A dynamic version of the urban mobility plan for the Dakar area has been prepared by CETUD. The plan is being used to monitor traffic flows and pollution.</p>

<p>and (vii) preparation of a plan to increase public transport services commercial speed.</p> <p>4. Provision of technical advisory services for the implementation of engineering studies, and supervision works.</p>	<p>4. Studies have been undertaken to analyze traffic flows, vehicle speed, public transport fares, speed of public transport and other vehicles on major roads, time-lost-in-traffic, pollution, evolution of vehicular and pedestrian traffic, and accidents.</p>
<p>Part B: Pedestrian Movement and Traffic Security along the Suburban Railway Line:</p>	<p>Outputs</p>
<p>1. Upgrading of suburban railway infrastructure through, inter alia, (i) construction of a third track between the localities of Hann and Fass Mbao; (ii) fencing of the railway right-of-way between Cyrnos and Fass Mbao (24 kilometers) as well as in densely-populated areas such as Mbao and Rufisque and construction of about 15 footbridges; (iii) elimination of the most-trafficked railroad-level grade crossings through construction of four overpasses and underpasses in Hann, Marché aux Poissons, Thiaroye, and Rufisque, and the improvement of other level grade crossings between Dakar and Rufisque; (iv) transfer of the freight terminal from its present location in Dakar center to a new location in Bel Air; (v) rehabilitation of the signaling between Dakar and Rufisque; (vi) rehabilitation of the central railway station of Dakar and the railway station of Rufisque; and (vii) implementation of studies, engineering, and supervision tasks related to the activities described above.</p> <p>2. Acquisition of technical advisory services required for implementing the process of concessioning of suburban railway services including, pre-selection of potential strategic shareholders in the concession company, preparation of Requests for Technical Proposals, preparation of Requests for Financial Proposals, evaluation of technical and financial proposals, and supervision of the implementation of the concession.</p> <p>3. Provision of technical advisory services including studies, engineering, and supervision tasks in connection with the activities carried out under 1 and 2 above.</p>	<p>1. The following upgrading has been achieved: (i) the third track between Hann and Fass Mbao has been constructed; (ii) a wall or fence has been constructed on both sides of the rails between Dakar and Rufisque, a length of 24 kilometers, as well as 13 footbridges; (iii) only one of the four overpasses has been built; only two of the most-trafficked railroad-level grade crossings have been repaired; (iv) the freight terminal has been transferred/constructed at Bel Air but can not be used because access roads have not been built; (v) a few signaling systems have been rehabilitated; (vi) the Dakar station is no longer used for rail travel since June 2006 (it is to be converted into a cultural center); the station of Rufisque has been rehabilitated; and (vii) studies have been undertaken and the work has been supervised.</p> <p>2. Studies for the concessions of the suburban railway line have been done. Concessioning was postponed with Bank agreement to allow for a full implementation of the upgrading program.</p> <p>3. Technical and engineering advisory services have been provided.</p>

Part C: Leasing:	Outputs
<p>1. Implementation of a leasing mechanism necessary for the renovation of mass transit vehicles (<i>Car Rapides</i> - CR), including inter alia support to strengthen the technical and management capacity of the mass transit vehicle operators and their professionalization.</p> <p>2. Provision of financing to enable mass transit private operators to have access to credit facility to renew their fleet, and acquisition by the <i>Association de Financement</i> (AF) of approximately 300 new vehicles or 600 rehabilitated and refurbished vehicles which meet safety and toxic emissions standards, for leasing.</p>	<p>1. The leasing mechanism has been established, CR operators have organized themselves in economic groups and they have established a savings and association to handle lease and insurance payments. About 17% of the CR fleet is participating in the scheme.</p> <p>2. The Credit has been used to finance the procurement of 505 mini-buses. Operators decided to lease only new vehicles. The reimbursement rate was 100 percent at closing.</p>
Part D: Urban Air Quality Management:	Outputs
<p>Carrying out a program of actions aimed at improving air quality in the Dakar metropolitan area including: (i) construction of three automobile monitoring centers: the Diamniadio pilot station, the Keur Massar station, and the Ex-TPSOM station; (ii) establishing an observatory to track urban pollution; (iii) support for the introduction and supervision of an urban air quality action plan including, but not limited to, the gradual introduction of unleaded gasoline, support for decentralization of some administrative centers to the outskirts of the city, public awareness campaigns targeting users and sector specialists (e.g., automobile and fuel distributors), and a toxic emissions control program for motorized vehicles; and (iv) awareness campaigns and consultation meetings with road users and the transport industry, including the fuel dealers.</p>	<p>Action programs have been conducted to create awareness of pollution from traffic, including from unleaded gas, and of the associated health issues: (i) only one automobile station at Ex-TPSOM is in the planning stage, the site has been acquired; (ii) the observatory has been established at the Ministry of the Environment; (iii) the action plan has been prepared and unleaded gasoline has been introduced; (iv) a few awareness campaigns have been conducted, and consultations with road users and the transport industry are being held as part of the CETUD's plenary meetings.</p>
Part E: Capacity-Building and Institutional Strengthening:	Outputs
<p>1. Strengthening of sectoral capacity with regard to addressing air pollution, road safety, inter-modal policy and promotion of mass transport, urban planning, and tools and techniques for evaluating performance and supervising the project, through the provision of technical advisory services and training.</p>	<p>1. The capacity for reducing air pollution has been created with the establishment of the observatory. Capacity for addressing road safety, intermodal policy, and promotion of mass transport has been created within CETUD. Technical assistance for the evaluation and supervision of project activities and programs has been provided.</p>

<p>2. Carrying out ad-hoc studies and assessments of urban transport, air pollution, urban planning, consistent with the Dakar's growth and land-use master plan, as well as feasibility studies to prepare the second phase of the program.</p> <p>3. Carrying out of sectoral institutional reform and support CETUD in its capacity as project executing agency and regulatory authority for urban transport in the Dakar metropolitan area.</p>	<p>2. Studies on urban transport, pollution, urban planning, and to some extent land use have been carried out.</p> <p>3. Studies analyzing the role and mandates of CETUD and the government-owned bus and rail companies have been done.</p>
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Annex 3. Economic and Financial Analysis

Etude D'Analyse de L'Impact Economique des projets D'Infrastructure Routières du PAMU, Rapport Final Consultant: Ibrahima Ndiaye, Economiste des Transports, Septembre 2008.

- 1. Cost-Benefit at Appraisal and Closing.** The economic analysis at appraisal examined the cost-benefit of without and with the project investments for: (1) the road rehabilitation – specifically: (a) the benefits of cost savings resulting from improvements in the transport system; and (b) improvements in health from reduced pollution; (2) the leasing scheme – specifically: (a) the value of improved passenger safety; and (b) the actual payments by operators; and (3) the pedestrian and traffic safety along the suburban railway.
- 2. The Economic Rate of Return (ERR).** At appraisal, the ERR of the road rehabilitation component was estimated at 37 percent. At closing, the ERR of the urban infrastructure investment under PAMU was equal to, or better than, 67 percent except in one US\$800,000 investment in Petit Mbao where it was only 9 percent (small portion with low traffic but high social impact) according to the consultant's economic analysis using the RED model).
- 3. Benefits from Reduced Accidents.** At appraisal, 10 percent reduction in accidents - specifically from reduced deaths and injuries - and 20 percent in damage to cars from accidents was estimated to have a Net Present Value (NPV) of US\$7.58million at a 12 percent discount rate. A full calculation of NPV was not done for the ICR. However, at closing, the costs incurred from injuries and deaths between 1997 and 2007 were estimated to have decreased by 26.8 percent, or almost 3 times the estimate of 10 percent used to calculate the NPV at appraisal, indicating a substantially higher actual NPV.
- 4. Benefits from Reduced Congestion.** At appraisal it was estimated that people in vehicles were losing 1.02 million hours as a result of congested roads. Based on this estimate, the benefits from reducing the average travel time in Dakar by 5 percent - at half the value of the average hourly wage of FCFA246 - resulted in a NPV of US\$39.6 million at a 12 percent discount rate. At closing, the consultant estimated that the cost of congestion had decreased from FCFA172.9 million in 2004 to FCFA142.9 million in 2008, but cost of congestion baseline data was estimated to CFAF108 million for 1998. However, the benefit can not be compared to the appraisal estimate as it used different parameters. Similarly, at appraisal the benefits from reduced vehicle operating cost, based on reduced travel time, and maintenance and repair costs, assuming a one percent reduction in operating costs at the end of the project (2004), produced an NPV of US\$21.65 million at a 12 percent discount rate. However, the consultants did not come up with either a confirmation of this estimate or a new calculation of benefits from reduced vehicle operation cost.

5. **Other Improvements in Efficiency.** Among the project objectives was to keep public transport affordable for the poor. The affordability of public transport and the ability to pay would be monitored. A study of the leasing scheme, financed by the Bank¹ reports that although the fares for CRs increased by 10 percent in 2005, the services of the new CRs, which issue color coded tickets identifying the stages the passenger paid for, are cheaper for most journeys. Fares have been kept low through negotiations by CETUD and range from FCFA100 minimum to FCFA240 maximum for a trip from the center to Diamniado. Although the price of fuel has increased and the operators want a FCFA25 increase per stage, the Government has not yet agreed and CETUD is reviewing the rate structure at this time.

6. **Technical and Social Efficiency Impacts.** The project used only simple low-technology measures such as traffic lights, markings, sidewalks, and food bridges based on experiences with the Sub-Saharan Africa Transport Policy Program (SSATP). These benefits have not been quantified. However, while the key performance indicators and other assessments of these measures show a positive impact on mobility, the consultant's economic analysis noted problems with the functioning of traffic lights, drainage on low-lying roads, and posters on traffic signs. These problems, if not resolved, could lower the gains in mobility. Municipalities responsible for maintenance do periodic cleaning of roads and sidewalks, but seem to lack capacity or funds to maintain traffic lights and signs. The project improved access to markets, schools, and places of employment, as well as road safety for the poor, especially women. The evidence for this is the increase in the share of public transportation especially by CRs and buses at affordable costs.

7. **Environmental Impact.** The project had a positive impact on the environment. Flora and fauna were protected during construction and afterwards. Trees, plants and grasses have been planted along some of the strategic thoroughfares upgraded under the project. Environmental standards had been included and enforced in works contracts. On the other hand, pollution from the mines and cement factory has not been reduced by using new and sealed freight cars, as dust and powder leaking from trains continue to pollute the air and the tracks used by the suburban railway. Although some (illegal) structures were taken down when the wall was built along the railway right-of-way and for a few urban roads, resettlement was done in accordance with OP 4.12. Where justified, people and businesses have been compensated. Finally, the rehabilitation of the Rufisque station was done in accordance with the Bank's policy on Cultural Heritage (OP 4.11).

¹ Dakar Bus Financing Study, IBIS – Transport Consultants, Final Report, June 2008.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Supervision/ICR			
Christian Diou	Sr. Municipal Engineer	AFTU2	TTL
Brahim Ould Abdelwedoud	Municipal Engineer	AFTU2	Road component
Karim-Jacques Budin	Sr. Railway Consultant	MNSSD	PTB component
Bourama Diaite	Sr Procurement Spec.	AFTPC	Procurement
Saidou Diop	Financial Management Specialist	AFTFM	Financial Management
Yvette Laure Djachechi	Sr. Social Development Specialist	AFTCS	Safeguards
Osva Rocha Andrade Romao	Financial Management Specialist	AFTFM	Financial Management
Fily Sissoko	Sr Financial Management Specialist	LCSFM	Financial Management
Claude P. Sorel	Consultant	AFTU2	Leasing component

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY99		76.10
FY00	52	175.56
FY01		0.00
FY02		0.00
FY03		0.00
FY04		0.00
FY05		0.00
FY06		0.00
FY07		0.00
FY08		0.00
Total:	52	251.66
Supervision/ICR		
FY99		0.00
FY00		0.00
FY01	19	71.22
FY02	21	154.76
FY03	25	129.26
FY04	33	133.88

FY05	20	82.89
FY06	16	97.40
FY07	12	89.13
FY08	10	58.09
FY09	1	0.00
Total:	157	816.63

Annex 5. Beneficiary Survey Results

English Summary of two articles from the Newspaper “*SOLEIL*” of February 10, 2006 concerning the new mini-buses (Car Rapides) introduced under PAMU’s Lease scheme.

A conductor interviewed by the reporter states that passengers now purchase tickets that correspond to their trip and then sit down comfortably to be taken to their destination. He also says that the drivers are no longer asked to bribe police since their permits and routes are regularized and the police have no reason to stop the (new) CRs. He also says that the use of tickets makes it easier to settle with the owner at the end of the day.

The driver says that the new CR is much easier to drive and that he gets less tired than with the old CRs he used to drive.

A passenger expressed his satisfaction with the service of the new CRs, the use of tickets and fixed routes and would like to see all old CRs replaced with the new ones. Another passenger also says that the new CRs are more comfortable and faster.

Annex 6. Stakeholder Workshop Report and Results

NA.

Annex 7. Summary of Borrower's ICR

I. Project Description

1. Political, Economic, Urban Mobility Status, Problems, and Institutional Context. As part of the 1996 Letter of Sector Policy, the Government of Senegal initiated four reforms – institutional and regulatory, financial, public transport reform, and human resources development – to improve the transport system in Dakar. It created CETUD in 1997, co-financed the Transport Reform and Capacity Building Technical Assistance Project, and beginning in 2001 - the Urban Mobility Improvement Project (PAMU). PAMU was to be financed by the Government, the Bank, AFD, and NDF at an estimated cost of US\$ 157 million in two phases.
2. Project Objectives. PAMU's long term objectives were: to improve the capacity of transport institutions; the engagement of stakeholders and investments; to develop private sector initiative; and improve the effectiveness of the government's services and infrastructure. This was to be achieved by institutional, legal, financial, public transport reforms, and human resources development. In the short-term, PAMU was to: improve the safety, efficiency, and environmental quality of urban mobility in the Dakar, with special attention paid to improving mobility for the urban poor, by promoting public transport services and ensuring the safe movement of pedestrians.
3. Project Components. PAMU's five components were: (i) Road Infrastructure, Road Safety and Traffic Management; (ii) Pedestrians' Movement and Traffic Security along the Suburban Railway Line; (iii) Leasing; (iv) Urban Air Quality Management; and (v) Capacity-Building and Institutional Strengthening.
4. Project Implementation. CETUD was made the implementing agency and signed management contracts with AATR and AGETIP for the road works and with SNCF for the suburban railway.

II. Design, Implementation and Impact

5. Assessment of the Project's Design. The design was satisfactory and addressed the problems identified in sector policy. The cost of the infrastructure works and the operating costs of CETUD were unfortunately underestimated and corrective measures had to be taken – increased Government's financing – to achieve the results.
6. Major Results Achieved by Component. The results of the infrastructure works (Component 1) have been evaluated by an independent firm and the economic rate of return has been calculated by a consultant. The consultant stated that overall mobility has improved substantially because of improved use of road infrastructure, investments in infrastructure, and the increased share and quality of public transport. Infrastructure rehabilitation in the suburbs, for instance, in Keur Massar, has led to investments in housing. Economic return on the 24 km of rehabilitated or constructed roads, 40

intersections, and 50 km of sidewalks is high, ranging from 160 percent to 75 percent for the five slices of work.

7. Other results include the leasing of 505 new minibuses through the PAMU scheme, despite initial delays. Operators and passengers are pleased with the improvements in quality and services. Environmental regulations have been enhanced in the transport sector, and the vehicle monitoring station, though delayed, is being planned. Importantly, road safety has improved, substantially reducing accidents and death. Returns would have been higher if the Government-financed works on the Baux Maraichers railway station had been completed, rather than halted for lack of funds. ADF financed two intersections and roads around the port. Unfortunately, traffic lights are out at most intersections due to poor maintenance. Most of the work on the suburban railway line – 12 km of rails, 24 km of enclosing wall, and 15 overpasses – has been done but remains incomplete for lack of funds.

8. Project Coordination and Management. CETUD's project management was globally satisfactory. It had to deal with cost increases and poor preparation but these were addressed after the appointment of the Director for Administration and Finance.

9. Project Impact on Sector Policy and Poverty Alleviation. Traffic flow has improved in Dakar as a result of the road works under PAMU. Sector policies have been moved to center stage. Improvements in the public bus company equipment and services have helped mobility.

III Assessment of the Role of the Bank, the Government, and Executing Agencies

a. Role of the Bank. The Bank has financed about half of the cost and coordinated works financed by other donors. The change in task management at mid-term was positive and supervision in general has helped to address implementation constraints.

b. Role of the Government. The Government has financed counterpart funds, additional infrastructure works (US\$30 million), the deposit for the leasing scheme, and contributed to FDTU for maintenance. It took additional efforts to improve mobility including ANOCI, PCRPE and the toll road Dakar-Diam Nadio. The difficulties at the Treasury halted the work on the suburban railway and led to stop the works under implementation by CETUD.

IV Economic and Financial Evaluation

10. Project Costs. Project costs increased by 52 percent to US\$157 million. The Government contribution increased from US\$26 million to US\$59 million; IDA's contribution grew from US\$70 million to US\$76 million; and that of ADF and FND grew from US\$7 million to US\$22 million. The Government also undertook additional

infrastructure works to improve mobility. Unfortunately it was unable to finance counterpart funds in 2007 and 2008.

11. Recurrent Costs. The works on the classified roads will be transferred to AATR; works on local roads will be transferred to municipalities; and works on the suburban railway will be transferred to PTB. These agencies will be responsible for recurrent maintenance costs.

12. Institutional Impact. CETUD's continued policy and coordinating role are in danger as a result of the Government's financial crises.

V. Sustainability of Project Outcomes.

13. The results of PAMU need to be safeguarded by an adequate system of maintenance, effective infrastructure management, and further training and improvements in the transport cadre. To achieve this CETUD needs to be strengthened.

VI. Conclusions

14. The infrastructure and leasing scheme of PAMU have been achieved and led to improvements in mobility. The air quality component has been delayed and that of the suburban railway has not been completed. The Bank and the Government have done their part even though the lack of counterpart funds led to the incompleteness of the project. Notwithstanding that, the project has globally responded to the expectations of the authorities.

15. CETUD has undertaken five surveys by consultants to measure the Key Performance Indicators. The findings of each survey have been compared to the 2000 baseline values and the 3rd-year and 4th-year targets, respectively, after project effectiveness. The findings have been used to decide if and what further improvements need to be undertaken.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

In addition to the text in 7(b), AFD provided the following statements:

“The PAMU is much more than a technical achievement. It concerns the daily life of all inhabitants in Dakar and gives them a better access to the economic activities of the capital city. The impact of the Project is likely to be important on the quality of life of the population, with regard to reduced travel time, increased safety and lower pollution.

Beyond these effects, the expected impact is economic. The improvement of urban traffic management will ease the transport of people and goods, and will support the development of the economic activity as a whole.

Construction of the interchanges will contribute to meeting the PDOs only if various other actions supporting the urban transport sector are implemented. Some of them were supported under the Project. Further strengthening of public transport supply forms and their transformation in a global network integrating all public transport modes are needed for a better efficiency to benefit all users.

The Government confirmed, though the content of the approved Urban Transport Scheme, that priority should be given to the development of a system which should answer mobility needs of the population and answer to economic, social and environmental challenges of an area sheltering one quarter of the total population of Senegal. Short term decisions by the Government to substantiate this priority are needed, like the confirmation of the location of the Dakar Railway Terminal in the center of the city to fully integrate cultural functions and accessibility to the site.”

Annex 9. List of Supporting Documents

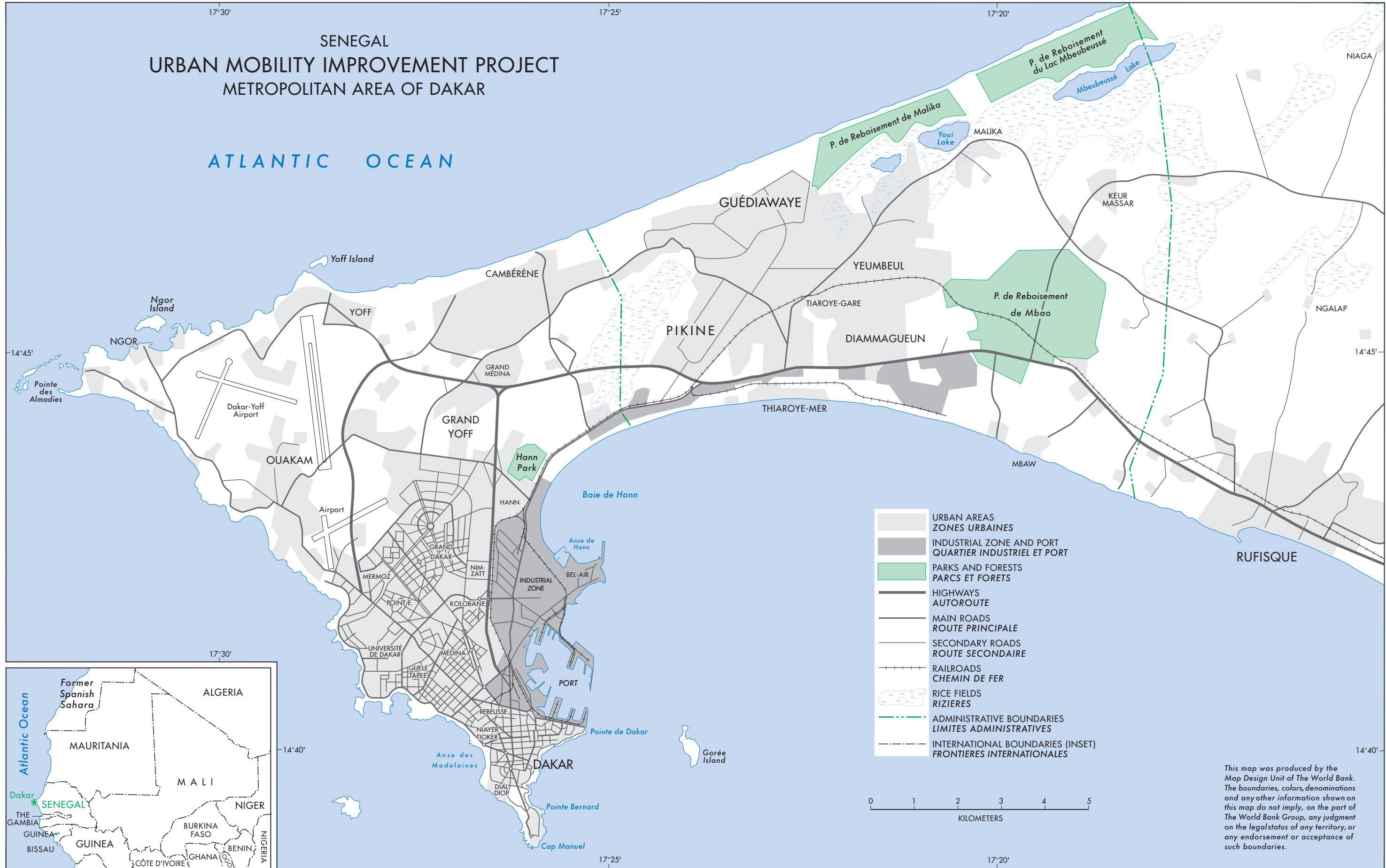
1. Country Assistance Strategy (CAS), Report No. 17269-SE, December 29,1997
2. Development Credit Agreement (Urban Mobility Improvement Project) between Republic of Senegal and International Development Association, dated July 5, 2000, Credit Number 3354-SE
3. Project Agreement (Urban Mobility Improvement Project), between International Development Association and Société Nationale de Chemin de Fer du Senegal, July 5, 2000, Credit Number 3354-SE
4. Implementation Completion Report on a Credit in the Amount of US\$6.6 million (SDR4.9 million) to the Republic of Senegal for an Urban Transport Reform and Capacity Building Technical Assistance Project, December 14, 2001, Urban and Water II, Country Department 14, Africa Region
5. Quality of Supervision Report (QSA6)
6. NDF Nordic Development Fund – Annual Report 2007
7. A Methodology for Rapid Assessment of Rural Transport Services, Paul Starkey. Sub-Saharan Africa Transport Policy Program, SSATP Working Paper No.87-A, October 2007
8. Roads Economic Decision Model Software User Guide & Case Studies, Rodrigo Archondo-Callao, Sub-Saharan Africa Transport Policy Program SSATP Working paper No.78, Africa Region The World Bank, July 2004
9. Memorandum of the President of the International Development Association to the Executive Directors on a Country Assistance Strategy of the World Bank Group for the Republic of Senegal, December 29, 1997
10. “Dakar Bus Financing Study” – IBIS Transport Consultants, Final Report, June 2008
11. République du Sénégal, Ministère des Infrastructures, Transports Terrestres et Transports Aériens. Conseil Exécutif des Transports Urbains de Dakar (CETUD) – Programme d’Amélioration de la Mobilité Urbaine a Dakar (PAMU) – « Rapport d’Exécution aux 30 Septembre 2008 » Rapport présenté par le CETUD
12. République du Sénégal, Ministère des Infrastructures, Transports Terrestres et Transports Aériens. Conseil Exécutif des Transports Urbains de Dakar (CETUD) – Programme d’Amélioration de la Mobilité Urbaine a Dakar (PAMU) – « Composante 4 du PAMU : Gestion de la Qualité de l’Air : Mission de Supervision du FND, octobre 2008
13. République du Sénégal, Ministère des Infrastructures, Transports Terrestres et Transports Aériens. Conseil Exécutif des Transports Urbains de Dakar (CETUD) – Programme d’Amélioration de la Mobilité Urbaine a Dakar (PAMU)- «Une Étude sur les Perspectives de Développement de DDD et PTB » Rapport Final de Phase 2, SYSTRA-IDC, Mai 2008
14. République du Sénégal, Ministère des Infrastructures, Transports Terrestres et Transports Aériens. Conseil Exécutif des Transports Urbains de Dakar

(CETUD), « Mesures des Indicateurs de Performance du PAMU – Campagne de mai/juin 2008 – PAMU – Composante 5 – Crédit No3354/SE, Contrat notifié le 14 mai 2008, GMAT, Aout 2008

15. République du Sénégal, Conseil Exécutif des Transports Urbains de Dakar, Programme d'Amélioration de la Mobilité Urbaine à Dakar (PAMU), «Etude d'Analyse de l'Impact Economique des Projets d'Infrastructures Routières du PAMU» Rapport Final, Consultant : Ibrahima Ndiaye, Economiste des Transports. septembre 2008
16. Evaluation Environnementale du Project d'Amélioration de la Mobilité Urbaine à Dakar, Conseil Exécutif des Transports Urbains de Dakar (CETUD), Tractebel, Development Engineering, mai 2000.

SENEGAL URBAN MOBILITY IMPROVEMENT PROJECT METROPOLITAN AREA OF DAKAR

ATLANTIC OCEAN



- URBAN AREAS
ZONES URBAINES
- INDUSTRIAL ZONE AND PORT
QUARTIER INDUSTRIEL ET PORT
- PARKS AND FORESTS
PARCS ET FORETS
- HIGHWAYS
AUTOROUTE
- MAIN ROADS
ROUTE PRINCIPALE
- SECONDARY ROADS
ROUTE SECONDAIRE
- RAILROADS
CHEMIN DE FER
- RICE FIELDS
RIZIERES
- ADMINISTRATIVE BOUNDARIES
LIMITES ADMINISTRATIVES
- INTERNATIONAL BOUNDARIES (INSET)
FRONTIERES INTERNATIONALES



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