



**AFRICAN DEVELOPMENT
BANK GROUP**

PROJECT: NAIROBI RIVERS REHABILITATION AND RESTORATION PROGRAM: SEWERAGE IMPROVEMENT PROJECT

COUNTRY: KENYA

PROJECT APPRAISAL REPORT

Date: July 2010

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Currency Equivalents

June 2010

UA 1.00	=	KES	117.408
UA 1.00	=	USD	1.47433
UA 1.00	=	EURO	1.19051

Fiscal Year

1st July- 30th June

Weights and Measures

1 metric tonne	=	2204 pounds (lbs)
1 kilogramme (kg)	=	2.200 lbs
1 metre (m)	=	3.28 feet (ft)
1 millimetre (mm)	=	0.03937 inch (“)
1 kilometre (km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres

Acronyms and Abbreviations

ADB	African Development Bank	M&E	Monitoring & Evaluation
ADF	African Development Fund	MIS	Management Information System
		MoPHS	Ministry of Public Health and Sanitation
AFD	Agence Française de Développement	MTEF	Mid Term Expenditure Framework
AWSB	Athi Water Services Board	MTR	Medium Term Review
BADEA	Arab Bank for Economic Development in Africa	MWI	Ministry of Water and Irrigation
CSP	Country Strategy Paper	NEMA	National Environmental Agency (Kenya)
DHS	District Health Surveys	NGO	Non-governmental Organisation
CCN	City Council of Nairobi		
DP	Development Partner	NPV	Net Present Value
EA	Executing Agency	NWSC	Nairobi Water and Sewerage Company
EIRR	Economic Internal Rate of Return	OPEC	Oil Producing and Exporting Countries
ESIA	Environmental and Social Impact Assessment	O&M	Operation & Maintenance
ESMP	Environmental and Social Management Plan	QPR	Quarterly Progress Report
FAO	Food and Agriculture Organisation	PCR	Project Completion Report
FIRR	Financial Internal Rate of Return	PIP	Project Implementation Plan
GoK	Government of the Republic of Kenya	PEFA	Public Expenditure and Financial Accountability

GTZ	German Technical Cooperation	RMC	Regional Member Countries
GHG	Green House Gases	TOR	Terms of Reference
HAC	Harmonisation, Alignment and Coordination	UA	Units of Accounts
HIV	Human Immuno Deficiency Virus	UFW	Un-accounted for Water
IA	Implementing Agency	UNEP	United Nations Environment Program
IDA	International Development Assistance	WARIS	Water Regulatory Information System
IT	Information Technology	WASREB	Water Services Regulatory Board
		WB	The World Bank
IWRM	Integrated Water Resources Management	WSP	Waste Stabilisation Ponds
JICA	Japan International Cooperation Agency	WSS	Water Supply and Sanitation
KfW	Kreditanstalt fur Wiederaufbau	WSTF	Water Services Trust Fund
KENAO	Kenya National Audit Office	WWTP	Wastewater Treatment Plant
KEFO	Kenya Field Office		
MDG	Millennium Development Goals		
MEMR	Ministry of Environment and Mineral Resources		

Loan Information

Client's information

BORROWER: Republic of Kenya

EXECUTING AGENCY: ATHI WATER SERVICES BOARD

Financing plan

Source	Amount (UA million)	Instrument
ADF	35.00	Loan
GOK	4.87	Contribution
TOTAL COST	39.87	

ADF's key financing information

Loan / grant currency	UA/US\$
Interest type*	N/A
Interest rate spread*	N/A
Commitment fee*	0.5% (50 basis points)
Other fees*	0.75% (service charge)
Tenor	600 months
Grace Period	120 months
EIRR, NPV (base)	20.2%, NPV Kshs 2.7 billion

**if applicable*

Timeframe - Main Milestones (expected)

Concept Note approval	May 2010
Project approval	October 2010
Effectiveness	January 2011
Last Disbursement	December 2015
Completion	December 2014
Last repayment	December 2060

Project Summary

1.0 Project Overview

1.1 The proposed Nairobi Sewerage Improvement Project addresses the sewage cleanup in the city of Nairobi through collection, conveyance and treatment of wastewater. It fits within the Government of Republic of Kenya (GOK) Vision 2030, its 2008-2013 Medium Term Plan and is part of the Nairobi River Rehabilitation and Restoration Program. The GOK recognizes the importance water and sanitation plays in the performance of key sectors of the economy and the livelihoods of Kenyans. The GOK hence in the Vision 2030 and its associated first Medium Term Plan (MTP) for the period 2008 – 2012 underscores the importance of investing in water supply and sanitation services (WSS) as a fundamental need for productive livelihoods. In addition, the Vision 2030 and the MTP advocate reducing hazards related to an unhealthy environment by reducing disposal of untreated wastewater and solids from domestic and industries to ensure a clean, healthy and secure environment. The Nairobi Rivers Rehabilitation and Restoration Program aim at enhancing the ecological integrity and social-economic value of the rivers and is designed to undertake a major clean up of the rivers. With the objective to improve access, quality, availability, capacity and sustainability of wastewater services in Nairobi through the rehabilitation and extension of sewerage services and wastewater treatment facilities, the project serves i) the Government's long term development agenda to improve the health and quality of life and provide cleaner environment through provision of safe and sustainable water and sewerage services as well as ii) the sector goal to achieve total coverage of water supply and improved sanitation services throughout the country.

1.2 The people living within the entire catchment of the sewerage system in Nairobi (approx. 3.5 million), including the people living down stream of the Athi river, will benefit from the project as it will rehabilitate and extend the sewerage system in these areas, where wastewater are currently being disposed without treatment. Most of the beneficiaries are expected to participate in the general promotion of improved sanitation and hygiene to be carried out throughout the city, while the urban poor, will be targeted to participate in the promotion of ablution blocks and hygiene education in selected localities. In particular, the urban poor, mainly women and the children will be trained in improvement of personal hygiene.

2. Needs Assessment

The sewerage infrastructure in Nairobi apart from covering a very limited area is run down and of low capacity due to lack of investments and poor maintenance. Consequently the sewerage system can only treat less than 50% of the wastewater generated. The sewerage infrastructure also covers less than 40% of the population of Nairobi. Consequently the majority of the people in the city rely on poorly managed on-site sanitation or have nothing at all. The effluent is discharged into drains and rivers degrading the environment. The increasing incidences of water and sanitation related diseases, and degradation of the environment in and around Nairobi are a manifestation of the City's poor sanitation. Sanitation related diseases are among the top three causes of child mortality and morbidity in Nairobi. The project is therefore urgently required to improve the living conditions of the population of Nairobi and surrounding areas.

3 Bank's Added Value

The Africa Development Fund (Fund) being the second largest Development Partner (DP) in the water sector in Kenya plays an important role in the country and within the Water Sector

Development Partners Group. The Fund has a long experience in the development of water and sanitation sector in the country and in the region hence has a good understanding and appreciation of the sector's issues, constraints and needs. The Fund through the investment will optimise the benefits in terms of employment creation, poverty reduction and healthier society. The project will benefit from the continued improvement in performance of the Fund portfolio in Kenya, as a result of close follow-up during implementation and strong involvement by the Kenya Country Field Office (KEFO). By supporting the project, the Fund demonstrates its commitment to engage with GoK in prioritizing and addressing environmental and sanitation challenges.

4. Knowledge Management

The proposed project is unique in that it is the first large scale sanitation development in the country. As part of its support for the sector, the AfDB would draw out experience and knowledge gained from the implementation of the program. The knowledge gained would enrich the Fund's continued learning process, and its support to the Regional Member Countries (RMC).

All this knowledge will be captured in the various project documents including Quarterly Progress Reports (QPR), audit reports, midterm review and completion reports. The knowledge will be shared with other complexes of the Fund and also with the other RMC, through international forums, seminars and workshops.

Results Based Logical Framework

HIERARCHY OF OBJECTIVES	1. EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<p><u>Goal:</u></p> <p>To improve the health and quality of life through provision of safe and sustainable water and sewerage services.</p>	<p><u>Impact:</u></p> <ul style="list-style-type: none"> * Increased access to improved water and sanitation *Improved water quality in the Nairobi rivers *Improved health of the population 	<p><u>Beneficiaries:</u></p> <p>Kenya's population</p>	<p><u>Impact Indicators:</u></p> <ul style="list-style-type: none"> * Coverage of improved Water and Sanitation *Incidences of water and sanitation related diseases * Under 5 mortality rate 	<p><u>Progress anticipated in the long term: - Timeframe:</u></p> <p><u>Long term Progress:</u></p> <ul style="list-style-type: none"> * Access to improved sanitation in urban towns in Kenya increased from 55% in 2008 to 77.5% by 2015 and 100% by 2030 * Under 5 mortality rate decreased from 74/1000 in 2008-2009 to 33 in 2015 and 15/1000 by 2030. *Increase the no. of households with access to safe water from 60% in 2008 80% by 2015 and 100% in 2030. <p><u>Sources:</u> Baseline data; monitoring system; DHS; economic survey; National Water Services strategy and pro-poor implementation plan; Health and demographic report 2008; Unicef Kenya annual report 2008; The second National Health sector strategic plan of kenya 2005-2010.</p>	<p><u>Assumption statement:</u></p> <p><u>Assumptions</u></p> <ul style="list-style-type: none"> * Political Stability *GOK continued support and prioritisation of water and sanitation sector. <p><u>Risks</u></p> <ul style="list-style-type: none"> *GoK failure to sustain commitment to water sector reforms <p><u>Mitigation</u></p> <p>Extensive awareness creation and regular GoK/DP discussions. Continued GOK support to the sector.</p>

<u>Project purpose:</u>	<u>Outcomes:</u>	<u>Beneficiaries:</u>	<u>Outcome indicators:</u>	<u>Progress anticipated in the medium term: - Timeframe:</u>	<u>Assumption statement:</u>
To rehabilitate and expand sewerage services management of Nairobi city for sustainable environment.	<p>*A.1 Improved living environment of people around the Nairobi rivers</p> <p>* A.2 Improved access to sewerage services</p> <p>*A.3 Improved public health among population in Nairobi living along the river basins</p>	<p>*3.5 million people in Nairobi city and the population of the surrounding areas</p> <p>* People downstream of the treatment works along Athi river basin have reuse of improved wastewater effluent for agriculture</p> <p>- MEMR AWSB NWSC</p>	<p>* A. 1 Quality of water of the Nairobi rivers Quality of wastewater effluent discharged into the Nairobi rivers</p> <p>*A.2 Percentage of population in surrounding areas with access to Sewerage facilities</p> <p>*A.3 Incidence of waterborne diseases Percentage of residents in the surrounding areas practising good hygiene</p>	<p>* A.1 Effluent BOD₅ from 300mg/l in 2009 to < 30mg/l in 2014</p> <p>Effluent BOD₅ from 57mg/l in 2009 to < 30mg/l in 2014 (Dandora) Effluent BOD₅ from 231mg/l in 2009 to 30mg/l in 2014 (Kariobangi plant)</p> <p>* A.2 Sewerage access increased from 40% in 2009 to 59% in 2014 in Nairobi</p> <p>* A.3 Reduction in incidence of waterborne diseases/ diarrhoea from 52 % in 2004 to 40% in 2010 and 20% by 2015</p> <p>Increase in residents in the surrounding areas practicing good hygiene from 25 % in 2009 to 37 % by 2014</p> <p><u>Source:</u> Baseline data; monitoring system; DHS; Kenya Bureau of Statistics; National water services strategy and pro-poor implementation plan; Health and demographic report 2008; Unicef Kenya annual report 2008; The second National Health sector strategic plan of Kenya 2005-2010.</p>	<p><u>Assumption</u></p> <p>* Increase sustainability of sewerage systems and ensuring investments have systematically a waste water component</p> <p><u>RISKS:</u></p> <p>* Cost reflective tariff charged for sewerage.</p> <p>*Resettlement Issues (Illegal settlers & related activities on riparian zone)</p> <p>* Implementation delays</p> <p>* Customer lack of willingness to pay</p> <p>* Low connectivity to new sewers</p> <p>* Cost overruns</p> <p>*Construction & Operation risks</p> <p><u>Mitigation</u></p> <p>*Early commencements of consultations and negotiations, on the project's impacts, and mode of compensation for the affected parties. *Use experience from similar projects</p> <p>* Budget for compensation</p>

<u>Inputs and activities:</u>	<u>Outputs:</u>	<u>Beneficiaries:</u>	<u>Output indicator:</u>	<u>Progress anticipated in the short term: - Timeframe:</u>	<u>Assumption statement:</u>									
<p>*Sewerage construction</p> <p>*Public ablution blocks construction</p> <p>*Tree planting along the river riparian zone</p> <p>*Institutional support</p> <p>* Health & hygiene sensitisation campaign</p> <p>Inputs/Resources (in millions)</p> <table border="0"> <tr> <td>ADF Loan</td> <td>UA</td> <td>35.0m</td> </tr> <tr> <td>GOK/AWSB</td> <td>UA</td> <td>4.9 m</td> </tr> <tr> <td>Total</td> <td>UA</td> <td>39.9 m.</td> </tr> </table>	ADF Loan	UA	35.0m	GOK/AWSB	UA	4.9 m	Total	UA	39.9 m.	<p>*Sewer lines, treatment plants,</p> <p>*Public ablution blocks</p> <p>*Trees planted</p> <p>*Capacity buildings in sewerage management</p> <p>* Population sensitized on Health & Hygiene</p>	<p>The approximately 3.5 million people in Nairobi and surrounding areas, including people living downstream.</p> <p>150 staff of NWSC and AWSB</p>	<p>*Length of trunk lines and reticulation lines laid</p> <p>*Volume of waste water treated</p> <p>*Quality of water of the Nairobi rivers</p> <p>*Number of public ablution toilets</p> <p>* Number of trees planted</p> <p>*Number of NWSC/AWSC staff trained</p> <p>*Number of sensitisation campaigns in health & hygiene practices</p> <p>Source:</p> <ul style="list-style-type: none"> ▪ AWSB Reports <p>Nairobi master plan for sewer, sanitation and drainage, Validation Report of Sewerage Master Plan</p>	<p>*Additional 54km of trunk sewers and 40km of reticulation laid by 2014. The implemented as follows; 10.4 km laid by 2011, 27km laid by 2012, 43.2km laid by 2013 and 54km laid by 2014.</p> <p>* Additional 40,000m³/d treatment capacity at Dandora by 2014 and Kariobangi restored capacity from 11000m³/d in 2009 to 32,000m³/d in 2014 Effluent Quality meeting NEMA standards</p> <p>*Sewerage connection as follows; 3,627 in 2011, 10,883 in 2012, 18,138 in 2013 and 72,553 in 2014.</p> <p>*100 Ablution blocks constructed in informal settlements and run by CBO's. 20 no. by 2011, 50 no. by 2012, 80 no. by 2013 and 100 no. by 2014.</p> <p>* 11,000 Trees planted</p> <p>*About 150 staff of which 40% are women of AWSB and NWSC trained to manage sewerage by 2014. The staff will be trained as follows 60 no. by 2011, 135 no. by 2012 and 150 no. by 2013.</p> <p>*16 No. Health & hygiene sensitization campaigns targeting 24,000 people of whom at least 50% will be women. The target as follows 6,000 by 2011, 12,000 by 2012, 18,000 by 2013 and 24,000 by 2014</p>	<p>a). Risk of implementation delays to be mitigated through AWSB experience in implementing projects of this type and size</p> <p>b). civil works and installations to be contracted out in lots</p> <p>c). recruiting experienced engineers to supervise the works</p> <p>d). close supervision of by the EA and the Bank during project implementation</p>
ADF Loan	UA	35.0m												
GOK/AWSB	UA	4.9 m												
Total	UA	39.9 m.												

Project Timeframe

NAIROBI RIVER SYSTEM: SEWRAGE PROJECT: WORK PLAN

Component	2011				2012				2013				2014				2015	
	Qtr1	Qtr2	Qtr3	Qtr4	Qtr1	Qtr2	Qtr3	Qtr4	Qtr1	Qtr2	Qtr3	Qtr4	Qtr1	Qtr2	Qtr3	Qtr4	Qtr1	Qtr2
1. Wastewater Infrastructure																		
Treatment Works		—————	—————	—————	—————	—————	—————	—————										
Trunk lines				—————	—————	—————	—————	—————	—————	—————	—————	—————						
Reticulation				—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————		
Environmental & Social Management Plans		- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -			
2. Community Sanitation																		
Supervision				—————	—————	—————	—————	—————	—————	—————	—————	—————						
Hygiene Promotion					- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -						
Ablution Blocks & Connectors					—————	—————	—————	—————	—————	—————	—————							
3. Project Management & Supervision																		
Supervision	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————				
Training	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -				
Office Equipment	—————	—————	—————															
Laboratory equip					—————	—————	—————	—————										
4. Project Reporting																		
Progress Reports		- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -		
Audit Report					—————				—————				—————				—————	
Middle Term Review									—————									
Project Completion Report																		—————

REPORT AND RECOMMENDATION OF THE MANAGEMENT OF THE ADB GROUP TO THE BOARD OF DIRECTORS ON A PROPOSED LOAN TO KENYA FOR THE NAIROBI RIVERS REHABILITATION AND RESTORATION PROGRAM: SEWERAGE IMPROVEMENT PROJECT

Management submits the following Report and Recommendation on a proposed loan for UA 35.00 million to finance the Nairobi Rivers Rehabilitation and Restoration Program: Sewerage Improvement Project in Kenya.

I – STRATEGIC THRUST & RATIONALE

1.1. Project Linkages with Country Strategy and Objectives

1.1.1 The Government of the Republic of Kenya acknowledges the importance water plays in the performance of key sectors of the economy and the livelihoods of Kenyans. The GoK hence in the Vision 2030 and its associated first Medium Term Plan (MTP) for the period 2008 – 2012, acknowledges that fact and underscores the importance of investing in Water Supply and Sanitation (WSS) services as a fundamental need for productive livelihoods. Under the economic and social pillars of the Vision and MTP, improved access to safe water and sanitation in both rural and urban areas, has been given prominence with the rehabilitation and expansion of water supply and sanitation services in urban centres identified among the flagship projects.

1.1.2 The Vision 2030 and the MTP further highlight the need for strong policy and effective environmental management in the light of rapid industrialisation in order to sustain economic growth. Rapid urbanisation is exerting immense pressure on the declining natural resources, limited utility services and the fragile environment. Therefore the Vision 2030 advocates reducing hazards related to an unhealthy environment as the main goal under this thrust. This entails reducing disposal of untreated wastewater and solids from domestic and industries to ensure a clean, healthy and secure environment. The proposed Nairobi Rivers Rehabilitation Program - Sewerage improvement Project also falls within the pillar I of the Bank's current 2008 – 2012 CSP for Kenya, which focuses on supporting infrastructure for enhanced growth.

1.2. Rationale for Bank's Involvement

1.2.1 Despite good progress in the water supply sub-sector, sanitation remains a major challenge in Kenya. However, it is recognized that improved sanitation is crucial to the attainment of MDGs of other sectors like education and health, and indeed crucial to poverty eradication as elaborated in Vision 2030. The project will contribute to the provision of improved sewerage services, and contribute to creating a clean environment particularly along the river basins.

1.2.2 In accordance with its Medium Term Strategy and the Integrated Water Resources Management (IWRM) policy, the Fund is already participating in the development of this sub-sector as part of its ongoing operations in the country i.e. the Rift Valley Water Supply and Sanitation Project, the Water Services Boards Support Project and the Small and Medium Towns

Water Supply and Sanitation Project. With its long experience in sanitation development in the country and elsewhere on the continent, the Fund is well placed to support the proposed sanitation project for Nairobi. Financing the project will further consolidate the Fund's strong partnership and support for the sector and contribute towards the achievement of Kenya's development goals, MTP and Vision 2030.

1.3. Donors Coordination

Sector or subsector*		Size		
		GDP	Exports	Labor Force
Water and Sanitation		Na	Nr	na
Players - Public Annual Expenditure (average)**				
Government		Donors	[Donor 1]	[%]
UA m	[UA m]	[UA m]	[Donor 2]	[%]
	111	27		
	80%	20%	<i>AFD</i>	15%
			<i>AFDB</i>	17%
			<i>Danida/Sida</i>	5%
			<i>EU</i>	4%
			<i>World Bank</i>	28%
			<i>GTZ/Kfw</i>	11%
			<i>IFAD</i>	3%
			<i>JICA</i>	3%
			<i>UNICEF</i>	3%
			<i>BADEA</i>	5%
			<i>Kuwait</i>	3%
			<i>Opec</i>	1%
			<i>Italy</i>	2%
Level of Donor Coordination				
Existence of Thematic Working Groups				Yes
Existence of SWAPs or Integrated Sector Approaches				No
ADF's Involvement in donor coordination***				Yes, Member

* as most appropriate ** Years [2006/7 to 2008/9] *** for this sector or sub-sector

**** L: leader, M: member but not leader, none: no involvement

1.3.1 The GoK and donors group in Kenya established in 2003 a harmonization, alignment, and coordination (HAC) group to better harmonize, align, and coordinate their activities, in line with the objectives of the Paris Declaration. The HAC group expanded to 17 donor partners, with the African Development Bank (AfDB) coming on board in January 2007. The Bank has taken up leadership of the different thematic groups within the HAC. KEFO has also been instrumental in engaging with various groups and increasing Bank Group presence and visibility. The DP's active in the water sector currently have a cumulative commitment of over USD 1 billion towards water and sanitation projects including institutional support. Most of these come from the World Bank, EC, KfW, Danida/Sida, BADEA, Japan, AfDB and AFD. Collaboration between donors has been scaled up with the establishment of the Water Sector Technical Group (WSTG), which meets once every two months and currently being chaired by Italian Cooperation.

II – PROJECT DESCRIPTION

2.1. Project Components

2.1.1 The Government's long term development agenda is to improve the health and quality of life and provide cleaner environment through provision of safe and sustainable water and sewerage services. The sector goal is to achieve total coverage of water supply and improved sanitation services throughout the country. The project objective is to improve access, quality, availability, capacity and sustainability of wastewater services in Nairobi through the rehabilitation and extension of sewerage services and wastewater treatment facilities.

2.1.2 The Sewerage Improvement Project is part of the Nairobi Rivers Rehabilitation and Restoration Program. The project has been elaborated in the Nairobi Sewerage Master Plan study (1998), and further detailed in the feasibility study completed in June 2010. The project focuses on the sewerage infrastructure in Nairobi so that the wastewater being generated in the city is collected and directed to treatment facilities without being an environmental hazard. The project will include rehabilitation and expansion of treatment plants, old trunk lines and laying new ones in some areas with secondary and tertiary reticulation. Community sanitation has been included in the informal settlements and low income areas where trunk lines will be installed.

2.1.3 The project has three main components, i.e. a) Waste Water Infrastructure – covering rehabilitation and expansion of the Sewerage System, b) Sanitation, Hygiene and Social Environmental Support, and c) Institutional Development Support. A brief description of the project is given in Table 2.1 below, while more details are provided in Annex B2.

Table 2.1: project components

	COMPONENT NAME	Est. Cost UA '000	COMPONENT DESCRIPTION
1	Wastewater Infrastructure	33,532	<p>Extension of trunk sewers (54km) within Nairobi, Ngong, Mathare and Kiu River Basins. This is in areas where sewer lines are non-existent; Laying 40km of reticulation in areas with new trunk lines in medium, low income and informal settlements; Duplication of trunk sewer lines in places where the sewer lines capacity is low or has been encroached; The increase reticulation will result in over 73,000 households being connected and many more to the trunk lines. Immediate connections are important to avoid blockage of new sewer lines. The trunk and reticulation sewer lines have been divided into four lots.</p> <p>Rehabilitation of Kariobangi conventional wastewater treatment plant as a lot on its own. The plant has facility for gas generation and power from the gas as well as solid waste; Extension of Dandora waste stabilisation ponds by two series of 9 ponds and duplication of inlet works to accommodate increased flow. The works will increase capacity by 40,000m³/day. This is lot 6;</p> <p>Consultancy services for design, supervision and commissioning of the works;</p> <p>Consultancy services for designing Phase III of Dandora waste stabilization ponds.</p>
2	Sanitation, Hygiene and Social Environmental Support	3,273	<p>Construction of 100 ablution blocks and collector sewer lines as lot 7; hygiene education & community education, Specialised in selected informal settlements. Consultant services to supervise implementation of the ablution blocks, collector sewers and undertake hygiene education. Environmental safeguards, including compensations and public consultations</p>
3	Institutional Support and Project Management	3,064	<p>Training for AWSB & NWSC staff in sewerage systems operation and maintenance management, Training, Studies, Study Tours; Provision of office and laboratory equipments; Payments for loss of assets on way leave(GoK); Project management and co-ordination as well as engineering services.</p>
	Total	39,870	

2.2. Technical Solution Retained and Other Alternatives Explored

2.2.1 The sewerage facilities schemes are based on technical solutions retained on functional options relating to settlement patterns, the topography, current practices and challenges of the existing systems in Nairobi. The project will focus on rehabilitation and extension of the existing treatment works and trunk sewer lines, constituting 84% of the project cost, to restore their lost

capacity and provide for additional treatment capacity through new constructions. Of all the infrastructure works 75% is in conveyance and distribution. The civil works at Kariobangi are still sound while the treatment works require mainly electro-mechanical equipment, therefore for cost consideration it will be cheaper to rehabilitate than develop new ones. The construction of new WSP will be undertaken as next least cost option.

The Nairobi Sewerage Master Plan carries a recommendation for wastewater stabilisation ponds (WSP) system for secondary treatment of wastewater for the following reasons:

- Simplicity in construction, operation and maintenance;
- Low cost of construction, operation and maintenance, less need for expensive imported electromechanical equipment which is expensive to maintain,
- Very efficient in removing organic matter, suspended matter and the wide range of excreta pathogens found in wastewater,
- WSP are extremely robust due to their long hydraulic retention time, they can withstand both organic and hydraulic shock loads,
- The effluent from WSP can readily and reliably be used for agriculture and aquaculture

AWSB has large piece of land around the current WSP at Dandora to accommodate future expansions. Ease of interconnectivity and centralised location for easy maintenance was the other reason. New conventional treatment plants and other compact treatment options have not been chosen for cost reasons. A summary of the technical options considered for the project is presented in the below table.

Table 2.2 Summary of Alternative Technologies Considered

SITE	WASTEWATER TREATMENT PLANT OPTIONS	REASONS FOR REJECTION/SELECTION
<u>DANDORA</u>	i) Conventional (mechanical) sewerage treatment works. ii) Compact treatment plant iii) Waste water stabilisation ponds	Third option chosen. Others rejected on account of higher capital cost and higher operation and maintenance costs. Stabilization ponds were chosen due to their low capital and operation and maintenance costs. Power supply is erratic in Kenya. Furthermore there is already available land for the construction of more ponds at Dandora
<u>KARIOBANGI</u>	(i) Rehabilitation of the existing conventional sewerage treatment works (ii) Compact treatment plant (iii) waste stabilisation ponds	The option to rehabilitation the existing plant is much cheaper and than the option of constructing new facilities, which is far more expensive and there is no land for waste stabilisation ponds around Kariobangi.

2.3. Project Type

2.3.1 The proposed project is part of a larger program - the Nairobi River Rehabilitation and Restoration Program which is aimed at improving the environment of Nairobi city and in particular the polluted rivers. The project was identified and framed within the Nairobi Rivers Rehabilitation and Restoration Program. The possibility of a basket fund from several donors for investments in the Nairobi River Rehabilitation Programme has been under discussion since 2008 amongst UNEP, UNHabitat, JICA, World Bank and the Bank. However, since the financing modalities of the instrument have not yet been finalized, the strategy is to finance specific components of the programme as stand alone projects. The JICA is currently funding a study to update the solid waste management masterplan and assess options for dealing with the

situation. The AFD and World Bank have funded some sewerage improvements as stand alone interventions within the broad Nairobi River Rehabilitation Program.

2.4 Project Cost and Financing Plan

2.4.1 The total cost of the project is estimated at UA 39.87 million (Kshs 4.7 billion), net of taxes and duties, of which UA 25.0 million (63%) is in foreign currency and UA 14.9 million (37%) in local costs. The table below provides a summary of the Project costs by component. These costs are derived from the Project Feasibility Study Report with details of unit rates derived from suppliers and contractors, as well as from experience with similar ongoing projects in the country and in the region. A physical contingency of 10% and a price contingency of 3.0% per annum have been taken into consideration in the estimates.

Table 2.2: Project cost estimates by component [*'000 UA equivalents*]

	(UA '000)			%	% Total
	Foreign	Local	Total	Foreign	Base
				Exchange	Costs
A) Waste Water Infrastructure	19,722	8,452	28,174	70.0	83.6
B) Sanitation, Hygiene and Social Environmental Support	346	2,485	2,831	12.2	8.4
C) Institutional Support and Project Management	1,043	1,636	2,678	38.9	8.0
Total Base Costs	21,111	12,572	33,683	62.7	100.0
Physical Contingencies	2,111	1,257	3,368	62.7	10.0
Price Contingencies	1,766	1,052	2,818	62.7	8.4
Total	24,988	14,881	39,870	62.7	118.4

Financing Plan

2.4.2 The cost of the project will be financed by ADF and GOK/AWSB, as shown in Table 2.3 below. As the lead financier, the Bank will finance UA 35 million, contributing 88% of the total project cost. The proposed ADF financing conforms to the Bank's Result Based Country Strategy Paper for Kenya 2008-2012. The mission discussed and agreed with the relevant Ministries on the above financing and the proposed conditions stated in section V of this document. Adequate resources are available under ADF XI country allocation.

Table 2.3: Sources of financing [*'000 UA*]

Source	UA'000			%Total
	F.E	Local Currency	Total	
ADF	24,988.13	10,011.87	35,000.00	88
GoK/AWSB		4,869.58	4,869.58	12
Total	24,988.13	14,881.46	39,869.58	100

Table 2.4: Project cost by category of expenditure ['000 UA]

Category of Expenditure		(UA '000)		Total	Foreign	Base
		Foreign	Local		Exchange%	Costs%
A.	Works	20,145	9,306	29,451	68.4	87.4
B.	Goods	72	31	102	70.0	0.3
C	Services	751	1,597	2,348	32.0	7.0
D.	Miscellaneous	143	1,639	1,782	8.0	5.3
	Total Base Costs	21,110	12,573	33,683	62.7	100.0
	Physical Contingencies	2,111	1,257	3,368	62.7	10.0
	Price Contingencies	1,766	1,052	2,818	62.7	8.4
	Total Project Cost	24,988	14,882	39,870	62.7	118.4

Table 2.5: Expenditure schedule by component ['000 UA]

	2011	2012	2013	2014	Total
A) Waste Water Infrastructure	5,635	8,452	8,452	5,635	28,174
B) Sanitation, Hygiene and Social Environmental Support	849	849	676	456	2,831
C) Institutional Support and Project Management	804	804	536	536	2,678
Total Base Costs	7,288	10,105	9,664	6,627	33,683
Physical Contingencies	729	1,010	966	663	3,368
Price Contingencies	240	677	986	915	2,818
Total Project Cost	8,257	11,792	11,616	8,204	39,870

2.5. Project's Target Area and Population

2.5.1 The proposed Sewerage Improvement project will cover the city of Nairobi and the surrounding areas. The various infrastructure works in the project will benefit from the improved sanitation facilities. The direct beneficiaries are the population who will be connected to the sewer line through private connection as well as the population in informal settlement that will benefit from the ablution blocks. Overall Nairobi's current population estimated at 3.5 million will be the beneficiary of the project's outcomes, which include cleaner and healthier environment, reduction in sanitation related diseases, reduction in pollution and protection of the City's rivers.

2.6. Participatory Process for Project Identification, Design and Implementation

2.6.1 The Ministry of Environment and Mineral Resources (MEMR) has been leading the Nairobi Rivers Rehabilitation and Restoration Program intended to clean the four major Nairobi rivers which are currently choked with illegal disposal of solid waste and wastewater. The program has the highest representation of relevant cabinet ministers chaired by the Prime Minister. Extensive consultation and analysis among stakeholders has taken place to identify measures to clean the Nairobi rivers.

2.6.2 The consultation process for the identification and planning of the sewerage system began with the preparation of the Nairobi Sewerage Masterplan (1998), which was done as a component within the broad framework of the city development planning which involves consultation of all city citizenry. Further consultations were done during the feasibility studies and the Sewerage Master plan Validation Report preparation. The Ministry of Water and Irrigation (MWI) has discussed the project with other relevant ministries, including the MEMR, Ministry of Nairobi Metropolitan Development and stakeholders within the framework of the program. The Public consultations continued for the formulation of the ESIA studies during which the communities living along the riparian zones of the Nairobi rivers and the surrounding areas were also consulted. The project beneficiaries were kept involved in the study through regular seminars which provided opportunities for addressing public concerns and getting feedback. The same process has been followed with the project feasibility study in 2010. The Bank was closely involved in the project preparation through review and feedback on the study findings. The Bank missions had consultations with AWSB, NCWSC and visited the project sites, during which, it interacted with communities at project sites to confirm their perception of the planned development. Briefing of the DPs of the project was done during the WSTG meeting.

2.7 Bank Group Experience, Lessons Reflected in Project Design

2.7.1 The design of the proposed project incorporates good practices and lessons learnt by the Fund from the two completed projects with PCR and ongoing operations in the country and in the continent (details provided in Annex B2). These include adoption of an integrated approach. The proposed project addresses sanitation needs, and complements other related ongoing activities in Nairobi including water supply, solid waste management, and hygiene and sanitation education. Additional lessons are the effective community participation by involving the beneficiaries in project design, project implementation using existing institutional arrangements in country and project areas, and the need to capacitate the Executing Agency (EA). Therefore capacity building and training of the EA's implementation team on the Bank rules and procedures would also be undertaken periodically. Another lesson taken into account is the need to take necessary measures to ensure that counterpart funds are made available on time by ensuring that these funds are budgeted and approved to avoid implementation delays. Furthermore, advanced contracting for the acquisition of consultancy services has also been considered to facilitate timely start up of project implementation. Lastly, increased supervision of the project implementation particularly with the support and involvement of KEFO is another lesson taken into consideration to address delays.

2.8 Key Performance Indicators

2.8.1 The project's key performance indicators comprise sanitation coverage, improvement in quality of wastewater released into river basins and hence reduce the number of water and sanitation related diseases in Nairobi city and the surrounding areas. These are reflected in the Results Based Matrix. AWSB will have the primary responsibility of ensuring that the project achieves its outcomes by closely monitoring these indicators during implementation and thereafter, management of the sanitation services. AWSB jointly with CCN will monitor progress and improvements in household on-site sanitation and hygiene. The EA will collaborate with the Ministry of Public Health and Sanitation (MoPHS) to ensure that sanitation related health statistics for the City are maintained. Regular reporting by the EA (using progress reports, Audit reports and midterm review reports etc) will keep the GoK and the Fund fully informed of the progress and take remedial measures based on the recommendations from the reports.

III – PROJECT FEASIBILITY

3.1. Economic and financial performance

key economic and financial figures

EIRR (base case) 20.2 %, KES 2,7 billion

NB: detailed calculations are available in Annex

3.1.1 The underlying assumptions for the calculation of the EIRR of the project are provided in Annex B7. The economic benefits of the project have been evaluated by making an assessment of the quantifiable benefits that will accrue to the various sectors affected by the project. In addition to the anticipated increase in revenue from new connections to the sewer lines, the project impact on the health sector have been captured such as households health expenditure savings caused by reduction in water borne diseases, increased revenues due the reduction in morbidity from water borne diseases and the reduction in work days lost due to water borne sickness as well as time savings in fetching water for the population using the ablution blocks that can be used for income generating activities. The Economic Internal Rate of Return (EIRR) is calculated as 20.23%. The value is higher than the opportunity cost of capital, estimated as 12%. As such, the project considered is economically viable.

3.2. Environmental and Social impacts

3.2.1 The project is classified as environment category 1 according to the Bank's Environmental and Social Assessment Procedures (ESAP). The nature and scope of the project is likely to cause potential environmental risks during the construction and operational phases of the trunk sewers and wastewater treatment facilities. Laying of trunk sewers and reticulation systems in some areas of the riparian zone of the Nairobi River currently occupied by informal settlements will entail compensation to be paid by the government in order to pave way for construction. 1774 household will be relocated which also triggers environment Category 1 according to the ESAP. Key issues, which have been addressed, requiring environmental and social management during construction and operation of the project include implementation of: (i) Environmental and Social Management Plan, and (ii) Resettlement Action Plan and compensation of project affected people, costs of which have been incorporated into the proposed project financing. An Environmental and Social Impact Assessment (ESIA) was carried out and validated by the Kenya National Environmental Management Agency (NEMA)

and the Environmental License is being processed. The summary of the ESIA was published on June 2nd, 2010 in the Bank's website.

3.2.2 The negative impacts inherent to development of wastewater systems will likely occur during construction of the project and include: dust, noise, soil erosion, storage of hazardous materials, management of construction waste, and storage of chemicals. Negative impacts likely to occur during the operation stage of the project are related to sludge management and disposal. The ESMP describes mitigation measures which will offset the potential negative impacts and which include protecting areas susceptible to erosion using temporary and permanent drainage structures, tree planting program and sensitization programs on environmental protection. AWSB will ensure that environmental and social clauses are included in the bidding documents for the project. The project is expected to generate positive social impacts that will significantly improve the current environmental situation in the Nairobi city through collection and treatment of wastewater which is currently discharged directly into the Nairobi River. The project will result in improved surface water quality in the Nairobi Rivers and its tributaries. By enhancing the efficiency in wastewater collection and treatment, the living conditions of people in the vicinity of the Kariobangi and Dandora Wastewater Treatment Plants, and the downstream communities will be improved through the reduction in exposure to, and reliance on, highly polluted river water. Overall, the proposed project is expected to have significant positive environmental impact due to improved coverage and efficiency of sewerage services in the city of Nairobi. It is also expected to contribute to decreased health risks associated with the current poor sanitation in the city.

Climate Change

3.2.3 The Government of the Republic of Kenya has developed a National Climate Change Response Strategy which stipulates robust adaptation and mitigation measures needed to minimise risks associated with climate change. The climate change models indicate that Kenya is likely to face increasing rates of climate change induced weather in the form of longer dry seasons and frequent floods which threaten to undermine efforts in reducing poverty and fostering economic development. Drought between 1998 and 2002 caused a decline in GDP by 16 percent for the two consecutive years and damages from floods during the 1997-98 El Nino are estimated at approximately 11 percent of annual GDP. In order to mitigate the impacts of climate change, the project has made provision for financing a tree planting program along the riparian zone which will serve the purpose of preventing encroaching and preserve the riparian zone and also for sequestering carbon. The location of the wastewater infrastructure will be in areas which are less prone to flooding and the design specifications takes into account the effects of climate change and variability. The environmental monitoring plan includes river flow monitoring that will enable early predictions of floods and drought. The project includes the rehabilitation of wastewater treatment plants to ensure reduced amounts of methane that contributes to GHG emissions.

Social

3.2.4 The improvement in the quality of the river targeted by the proposed project will directly benefit the 3.5 million inhabitants in the Nairobi city. The main benefit will be the improvement of environmental and health conditions through the introduction of sewage collecting, conveyance the treatment infrastructure which in turn, will enable expansion in sanitation

services, especially to low income settlements. Conclusions and recommendations emerging from the ESIA were taken into account in the project design in order to improve the social benefits generated by the project.

3.2.5 Overall, the project will have significant positive impacts on public health and quality of life among the population living along the Nairobi River Basin. Part of the project will construct 100 ablution blocks and collector sewer lines in the informal settlement where basic sanitation services are minimal. Informal settlements constitute 40% to 60% of the population in the Nairobi city and are characterized by poor water and sanitation service provision. The residents in the informal settlements are predominantly low-income earners where 56% earn their livelihood through the informal sector on small-scale business located within the area or in the city. Clean water, adequate sanitation, and hygiene are visibly substandard in this area. Improved access to sanitation services is a preventive public health intervention. Combined with health education and hygiene promotion, the interventions will likely lead to significant reduction in diarrhoea cases, a major cause of morbidity and mortality among the under 5s in Kenya. Particularly of concern are in the informal settlements are malaria, diarrhoea, intestinal worms and vomiting. Most health problems are directly or indirectly associated with the quality of water and environmental sanitation. The project will carry out health and hygiene sensitization campaign which will reduce incidences of waterborne diseases and promote good practices in hygiene. The ablution blocks will include shower facilities that take into account gender and disabilities. School attendance is expected to improve among the children due to reduced illness and sanitation improvements. Improved school performance is expected due to reduction in worm infestations which is mainly through contaminated water.

Gender

3.2.6 The GoK has made progress in narrowing the gender inequality gap through different policy and institutional mechanisms. The National Policy on Gender and Development (2000) provides a framework for the government to reduce gender imbalance and inequality, mandating the Government to address gender inequalities strategically through established institutional frameworks. The likely impact on women will emanate from dislocation arising from resettling the communities that are currently living in informal settlements along the riparian zone to pave way for laying of the trunk sewers. Majority of the women in the project area are engaged in small businesses for their livelihoods. The project, through the Resettlement Action plan, has put in place mitigation measures to ensure minimum loss in their source of livelihoods through compensation. About 30% of the project beneficiaries are women. This will provide them with opportunities to engage in project activities during the construction phase of the project, and therefore possibilities for income generation and meaningful contribution to the socio-economic development of their communities.

Involuntary resettlement

3.2.7 The design of the project has minimized relocation of people as much as possible. Under the Resettlement Action Plan (RAP), 1174 persons are considered as Project Affected Persons (PAPs). A limited number of the affected people are owners of temporary shelters on the riparian land. The affected population under the current project falls into the category of people with no

recognisable legal right or claim to the land they are occupying in the project area. However, the project shall recognise their entitlement to resettlement assistance and compensation for loss of livelihood activities, common property resources, structures and crops etc. In line with the Bank's policy, a Resettlement Action Plan (RAP) has been prepared, which addresses the needs of vulnerable groups such as women and children. Any property, businesses, assets, social/cultural or agricultural activities affected in the riparian zone, damaged in the process, shall be compensated for in accordance with existing GoK regulations and procedures. The compensation process shall take into account gender aspects, to ensure that women's rights for compensation are respected. The settlement action plan will ensure long term sustainable social and economic support to the affected people instead of providing "cash only" compensation. Cost of compensation (Kshs 125 million) has been allowed for in the project costing and shall be borne by the Government. It is also noted that the GoK and AWSB will draw on acquired experience in the compensation during implementation of similar on-going projects.

IV – IMPLEMENTATION

4.1. Implementation Arrangements

4.1.1 The project will be implemented using existing organizational structures incorporating lessons and experience gained with the other similar operations. The Government of the Republic of Kenya is the borrower of the ADF loan which will be transferred to AWSB on a subsidiary financing agreement acceptable to the Fund. AWSB will establish an Implementation Team (IT), comprising a Project Coordinator, Sanitation Engineer, Procurement or/and Contracts Management Expert, Environment or Social/Community Mobilization Expert, and Accountant, for the implementation of the project. As the project will be implemented within the broad framework of the Nairobi Rivers Rehabilitation and Restoration Program), the steering committee of the program (in collaboration with the MEMR) will continue to monitor and guide the project implementation during its quarterly coordination meetings. The EA will be in charge of the project implementation. The EA jointly with CCN and NWSC will implement the promotional hygiene and sanitation components using NGOs and CBOs within the project areas in Nairobi. The Bank's KEFO will assist the EA in the application of the relevant Bank's rules and procedures. The AWSB shall be responsible for overall coordination of the Project and reporting obligations to the Fund.

4.1.2 Procurement Arrangements: All procurement of goods and works and acquisition of consulting services financed by the Fund will be in accordance with the Bank's *Rules and Procedures for Procurement of Goods and Works* (as amended) or, as appropriate, *Rules of Procedure for the Use of Consultants* (as amended), using the relevant Bank Standard Bidding Documents. The AWSB as the EA will be responsible for the procurement of goods, works, service contracts, and miscellaneous items as detailed in Annex B5.

4.1.3 Disbursement Arrangements: Disbursement of the ADF resources will be made directly to the suppliers and contractors for the ICB and NCB packages, and for consultancy services contract. Other payments, including community mobilization, hygiene and public health promotion and education, environmental safeguards as well as related costs will be paid using the Special Account method. Opening of a Special Account has been made a condition to first disbursement.

4.1.4 Financial Reporting and Auditing: Assessment of the financial management of AWSB confirmed that the utility has sound financial management system, and has experience in managing similar operations. AWSB will maintain separate accounts for the Project showing all the required Project financial details, including expenditures by component, category and financing source. AWSB will be responsible for the preparation and submission of withdrawal applications. The consolidated Entity and Project accounts will be audited by the Kenya National Audit Office (KENAO). Since AWSB is a state owned corporation, KENAO is mandated to audit the accounts of AWSB. According to the recent PEFA assessment report, KENAO has improved its internal structure and is making good progress in conducting the audit of government owned institutions. KENAO has experience in auditing donor-financed projects. Certified copies of audited accounts for both the Entity and Project accounts will be submitted to the Fund within six months after the end of the fiscal year.

4.2 Monitoring and Reporting

4.2.1 The project will be implemented over four years' period from January 2011 to Dec 2014. In accordance with the existing framework in the sector, the information collected by the EA (AWSB) will maintain a robust monitoring and evaluation (M&E) system mainstreamed into WARIS based at the Water Services Regulatory Board (WASREB). The Bank will closely follow up the implementation of the Project, through regular supervision mission during Project implementation, and ex-post evaluations. AWSB will compile and submit to the Bank quarterly progress reports, as well as annual progress reports. A mid term review will be conducted by the Bank and AWSB in March 2013. Upon completion of the Project, AWSB will prepare and submit to the Bank a Project completion report (PCR). All reports will be prepared and submitted according to the Bank's requirements. The milestones for monitoring are summarised as follows:

<u>Timeframe</u>	<u>Milestone</u>	<u>monitoring process / feedback loop</u>
09/2010	Loan Approval	ADF Board
01/2011	Loan Effectiveness	Launching Mission – Follow-up
03/2011	First Disbursement	ADF – KEFO to monitor closely
03/2013	Mid Term Review	Stakeholders Involved – Follow-up
12/2014	Completion	ADF/KEFO to monitor closely

4.3 Governance

4.3.1 The Government of the Republic of Kenya (GoK) has been making every effort in enhancing transparency and good governance, though the 2008 post election violence marred all the efforts. The ranking in the World Bank Governance rating for 2009 for Kenya's performance on the three governance dimensions i) Voice and Accountability, ii) Government Effectiveness, iii) Regulatory Quality, is in the second percentile rank in comparison with countries in Sub-Saharan Africa that were surveyed. On the other hand, the governance dimensions iv) Political Stability v) Rule of Law, and vi) Control of Corruption are in the first percentile rank., The Government has made some strides in implementing the required sector policy issues, particularly in decentralization of water services to water services institutions away from the central Ministry of Water and Irrigation. To further improve water sector governance the Fund through the Water Services Boards Support Project and the Small towns and Rural Water Supply and Sanitation Project is supporting the regulator (WASREB) in its oversight role of water

services institutions, and strengthen the continued engagement to stimulate the adoption and implementation of transparency and participation as guiding principles.

4.4 Sustainability

4.4.1 The Government's commitment to the development of water supply and sanitation services in the country is demonstrated by its consistent commitment since the start of the reforms of the ongoing sector reforms. The institutional long-term sustainability of the sector is a key objective of the on-going sector reforms, which is addressing the reorganization of the water service boards and the service providers. Currently the GOK is finalising transfer of assets from the local authorities to water and sanitation entities and reorganization of the latter institutions with the objective of minimising fragmentation of the key sector players. The reorganization will eventually include clustering of the institutions which would promote financial and institutional sustainability of the sector. The Bank through the ongoing Small Towns and Rural Water Supply and Sanitation project is offering support to the reforms secretariat in the MWI.

4.4.2 The Government is investing a lot of resources to construct adequate wastewater treatment capacity to control and curtail the pollution due to disposal of untreated waste and wastewater to the rivers, including Athi river, which is one of the main water resources. The proposed project is part of these GOK's long term plans and is a manifestation of the GOK commitment to the development of the sector.

4.4.3 The staff and the unit responsible for sanitation within the service provider (NWSC) will also be strengthened to enable it to cope with the increased responsibilities. The project includes sanitation management study to empower and strengthen the sanitation units within NWSC. The study will include capture of industries discharging untreated waste into the sewer lines and strengthening NWSC to police the illegal discharge. The technical sustainability of the project lies in it being a replica of the existing technology that the asset holding and services providing institutions are using hence familiar with and therefore have good knowledge for operation and maintenance. AWSB and NWSC have capable staff and are already operating similar sewerage systems in Nairobi. In addition, the project incorporates a requirement for training the AWSB and NWSC personnel to operate and maintain the plant following construction. To ensure technology transfer, both the consultant and the contractor will be mandated to train additional counterpart staff of the EA and the operator, on all aspects of the project's operations and maintenance of the facilities.

4.4.4 In order to ensure financial and economic long term sustainability of the sector, the water policy allows for full cost recovery of services through user charges. Currently AWSB and NWSC already collect adequate revenue from sanitation services to cover the operations and maintenance costs of the existing sewerage facilities within the City. The refurbishment of dilapidated sanitation infrastructure in Nairobi will reduce the need for and frequency of repairs, and hence allow for significant savings on O&M costs. The incremental revenues (from Kshs 75 million) as well as the cost savings generated from the project will more than offset the incremental recurrent costs (Kshs 50 million). Consequently, there will not be any need for budgetary support or subsidies from GoK towards the operations and maintenance of the sanitation system in Nairobi, as a result of the project.

4.5 Risk management

4.5.1 Government continues to implement reforms in the sector, including establishment and functioning of a regulator, asset holding boards, and service providers. Transfer of assets from the municipalities to the respective water boards is one of the essential elements of the ongoing institutional reforms to enhance streamlining and consolidation of the sector institutions. Although currently the Government is fully committed to these reforms, there is always a political risk that these could slow down or be abandoned. Conditions/Undertakings of the loan have been included requiring that the financiers of the project be kept closely informed of progress in institutional developments.

4.5.2 Another major risk associated with the project is implementation delays. The following measures will mitigate the risk: a) AWSB's experience in implementing projects of this type and size, b) the major works will be contracted out in two big contracts, c) recruiting experienced engineering supervision consultant with sufficient experience, and d) close supervision by the GOK and the Bank during project implementation.

4.5.3 The project is designed to deal with the risk of delay in making connections to the rehabilitated and extended sewer network which could in turn slow the environmental clean up of the city and also adversely affect the operation of the program. To ensure that delays in connecting customers do not occur, customers will be connected as the sewers are laid under the project. Connection works will be built into and carried out as part of the overall sewer laying contract, and connection charges recovered from sewerage bills.

4.5.4 Although the program cost estimates are based on recent market based rates, there is still an element of risk of the project experiencing some cost overruns over the implementation period. In order to mitigate this risk, adequate contingencies of 10 percent of the total project costs have been put aside. In addition, the close follow of the project by the Bank's field office, will ensure timely start up and resolution of any problems which could delay implementation of the works, thus further reducing the risk.

4.5.5 There could be a risk in the resettlement and compensation in the project area. . The AWSB has been implementing similar programs and the experience and knowledge acquired will be used in this case. The MWI and MENR are equally engaged and have agreed to budget for the cost of compensation for any assets that may be destroyed along the way for the illegal settlers and full compensation for the legal settlements according to the Land Law of Kenya. To mitigate these risks, the Borrower is required as condition of the loan, to produce evidence of land transfer or land use permit to AWSB for sewerage infrastructure development and proof of compensation for persons whose properties are affected before works in those areas can start.

4.6 Knowledge Building

4.6.1 The project will include comprehensive reporting, in agreed formats, comprising quarterly progress reports, audit reports, WASREB Impact reports, mid-term review reports and completion reports. Information from various sources will also be routinely gathered, as part of the monitoring and evaluation framework for the project. The experience and lessons learned will be duly documented and the information will be shared among stakeholders through joint technical and sector reviews, training program of the staff at AWSB and NWSC in plant

maintenance etc and other appropriate forums. The Fund, through its supervision missions, will share this knowledge and experiences with other DP's.

V – FINANCING INSTRUMENTS AND AUTHORITY

5.1 *Financing instrument*

5.1.1 An ADF Loan Agreement will be executed between the Fund and the Borrower.

5.2. *Conditions associated with Bank's intervention*

A. Conditions Precedent to Entry into Force of the Loan Agreement

(i) The Loan Agreement shall enter into force subject to the fulfilment by the Borrower of the provisions of section 5.01 of the General Conditions Applicable to Loan Agreements and Guarantee Agreement of the African Development Fund.

5.2.2 Conditions Precedent to First Disbursement for the Loan:

(i) Provide evidence to the Fund of a Subsidiary Financing Agreement between the Government of the Republic of Kenya and Athi Water Services Board, on terms and conditions acceptable to the Fund;

(ii) Provide evidence of having opened two special accounts (one in foreign currency and the other local currency) in a Bank acceptable to the Fund;

5.2.3 Undertakings

The borrower provides evidence satisfactory to the Fund:

(ii) By 30 June 2011, a Service Provision Agreement is signed between AWSB and NWSC for the second 5 year period;

(iii) prior to commencement of construction, provided evidence of land transfer or land use permit to AWSB for sewerage infrastructure development and proof of compensation for persons whose properties are affected;

(iv) finalise the transfer of the urban water supply and sanitation infrastructure from the City Council of Nairobi (CCN) to Athi water Services Board and submit evidence to the Fund to this effect.

5.3. *Compliance with Bank Policies*

5.3.1 This project complies with all applicable Bank policies some of which include:

- The IWRM Policy, 2002
- Involuntary Resettlement Policy, 2003

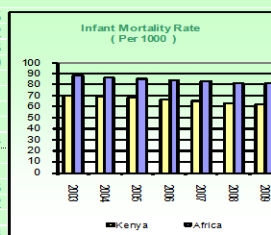
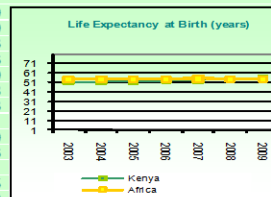
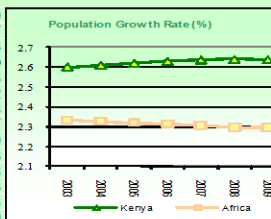
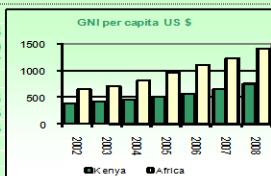
VI – RECOMMENDATION

Management recommends that the Board of Directors approve the proposed loan of UA 35.00 million to the Government of the Republic of Kenya for the purposes and subject to the conditions stipulated in this report.

Appendix I Country's Comparative Socio-economic Indicators

Kenya COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Kenya	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km ²)		593	80 976	80 976	54 658
Total Population (millions)	2009	39.8	1,008	5,629	1,069
Urban Population (% of Total)	2009	21.9	39.6	44.8	77.7
Population Density (per Km ²)	2009	68.6	3.3	66.6	23.1
GNI per Capita (US \$)	2008	770	1 428	2 780	39 688
Labor Force Participation - Total (%)	2009	46.2	41.2	45.6	54.6
Labor Force Participation - Female (%)	2009	46.4	41.2	39.8	43.3
Gender -Related Development Index Value	2005	0.521	0.525	0.694	0.911
Human Develop. Index (Rank among 182 countries)	2007	147	0.514	n.a	n.a.
Popul. Living Below \$ 1 a Day (% of Population)	2005	19.7	50.8	25.0	...
Demographic Indicators					
Population Growth Rate - Total (%)	2009	2.6	2.3	1.3	0.7
Population Growth Rate - Urban (%)	2009	4.0	3.4	2.4	1.0
Population < 15 years (%)	2009	42.8	56.0	29.2	17.7
Population >= 65 years (%)	2009	2.6	4.5	6.0	15.3
Dependency Ratio (%)	2009	83.3	78.0	52.8	49.0
Sex Ratio (per 100 female)	2009	99.9	100.7	934.9	948.3
Female Population 15-49 years (% of total population)	2009	24.1	48.5	53.3	47.2
Life Expectancy at Birth - Total (years)	2009	54.9	55.7	66.9	79.8
Life Expectancy at Birth - Female (years)	2009	55.3	56.8	68.9	82.7
Crude Birth Rate (per 1,000)	2009	38.4	35.4	21.5	12.0
Crude Death Rate (per 1,000)	2009	11.3	12.2	8.2	8.3
Infant Mortality Rate (per 1,000)	2009	61.8	80.0	49.9	5.8
Child Mortality Rate (per 1,000)	2009	99.7	83.9	51.4	6.3
Total Fertility Rate (per woman)	2009	4.9	4.5	2.7	1.8
Maternal Mortality Rate (per 100,000)	2005	560.0	683.0	440.0	10.0
Women Using Contraception (%)	2006	61.0	75.0
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2007	27.6	42.9	78.0	287.0
Nurses (per 100,000 people)*	2007	121.9	120.4	98.0	782.0
Births attended by Trained Health Personnel (%)	2003	41.8	50.5	63.4	99.3
Access to Safe Water (% of Population)	2006	57.0	64.0	84.0	99.6
Access to Health Services (% of Population)	2006	...	61.7	80.0	100.0
Access to Sanitation (% of Population)	2006	42.0	38.5	54.6	99.8
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2005	6.1	4.5	1.3	0.3
Incidence of Tuberculosis (per 100,000)	2007	353.0	313.7	161.9	14.1
Child Immunization Against Tuberculosis (%)	2007	92.0	83.0	89.0	99.0
Child Immunization Against Measles (%)	2007	80.0	74.0	81.7	92.6
Underweight Children (% of children under 5 years)	2005	...	25.6	27.0	0.1
Daily Calorie Supply per Capita	2005	2 079	2 324	2 675	3 285
Public Expenditure on Health (as % of GDP)	2006	2.2	5.5	4.0	6.9
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2008	111.5	100.2	106.8	101.5
Primary School - Female	2008	110.3	91.7	104.6	101.2
Secondary School - Total	2008	58.3	35.1	62.3	100.3
Secondary School - Female	2008	55.8	30.5	60.7	100.0
Primary School Female Teaching Staff (% of Total)	2008	45.5	47.5
Adult Illiteracy Rate - Total (%)	2006	...	59.4	19.0	...
Adult Illiteracy Rate - Male (%)	2006	...	69.8	13.4	...
Adult Illiteracy Rate - Female (%)	2006	...	57.4	24.4	...
Percentage of GDP Spent on Education	2006	7.0	4.5	...	5.4
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2007	9.1	6.0	9.9	11.6
Annual Rate of Deforestation (%)	2006	...	0.7	0.4	-0.2
Annual Rate of Reforestation (%)	2006	...	10.9
Per Capita CO2 Emissions (metric tons)	2008	0.3	1.1	1.9	12.3



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators; UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports.

last update : May 2010

Note : n.a. : Not Applicable; ... : Data Not Available

Appendix II. Table of ADF's Portfolio in the Country

List of active projects (loans and grants) by Sector:

Sector/Projects	Type Loan Grant	Rating	Total Commitments (UA Millions)			Date approved
			ADF Loan	ADF Grant	TOTAL	
1. Green Zones Development Support Project	L	2.3	25.04	-	25.04	12.10.2005
2. Ewaso Ng'ro North Natural Resources Conservation Project	L & G	2.4	13.59	2.89	16.48	22.04.2005
3. The Creation of Sustainable Tsetse & Trypanosomiasis Eradication Program.	L & G	2.75	6.55	0.24-	6.79	08.12.2004
4. ASAL – Based Livestock and Rural Livelihoods Support Project	L & G	2.6	18.41	3.17	21.58	17.12.2003
5. Kimira – Oluch Smallholder Farm Improvement Project	L & G	2.73	22.98	1.15	24.13	31.05.2006
6. Small – Scale Horticulture Development. Project	L		17.00	-	17.00	05.09.2007
7. Restoration of Farm Infrastructure Project	L		15.00	-	15.00	05.06.2008
AGRICULTURE TOTAL			118.6	7.45	126.02	
1. Mombasa – Nairobi – Addis Ababa Rd Corridor I	L & G	2.4	33.60	1.20	34.08	13.12.2004
2. Roads 2000 District Roads Rehabilitation Project	Loan	2.75	20.00	-	20.00	12.07.2001
3. Nairobi – Thika Highway Improvement Project	L & G	3.0	117.85	3.15	121.00	21.11.2007
4. Multinational Athi River – Namanga Road Corridor	L		49.24	-	49.24	13.12.2004
5. Mombasa – Nairobi – Addis Ababa Rd Corridor II	L		125	-	125	13.12.2004
INFRASTRUCTURE TOTAL			345.69	4.35	350.04	
1. Rift Valley Water Services Board Project	L & G	2.31	13.04	5.02	18.06	07.07.2004
2. Water Services Board Support Project	L & G	2.00	35.19	10.07	45.26	05.12.2007
3. Kisumu District Primary Schools Water & Sanitation Project	AWF Grant	2.09	0	0	0.198	19.12.2006
4. Integrated Land & Water management	AWF Grant	-	0	0	1.94	06.02.2009
5. Small Towns and Rural Water Supply and Sanitation Project	L	-	70.00		70.00	3.11.20093
WATER & SANITATION TOTAL			48.23	17.22	65.45	
1. Education III Project	L & G	1.5	24.26	6.75	31.01	17.12.2003
2. Multinational – African Virtual University (AVU) Support Project	Grant	2.31	0	5.00	5.00	13.12.2004
3. TIVET	L		25.00	0	25.00	16.12.2008
EDUCATION SECTOR TOTAL			49.26	11.75	61.01	
1. Health III Project	L & G	2.07	17.18	6.00	23.18	07.07.2004
HEALTH SECTOR TOTAL			17.18	6.00	23.18	
1. Multi-Sector and Institutional Support Project	L	2.29	5.52	0	5.52	26.07.2006
2. Community Empowerment & Institutional Support Project	L		17.00	0	17.00	17.12.2007
MULT-SECTOR TOTAL			22.52	0	22.52	
1. Mombasa – Nairobi Transmission Line	L	0	50.00	0	50.00	06.05.2009
2. NELSAP	L	0	17.73	0	17.73	27.11.2008
ENERGY SECTOR TOTAL			67.73	0	67.73	
TOTAL PORTFOLIO			669.18	46.77	715.95	

Appendix III. Key Related Projects Financed by the Bank and other Development Partners

Donor Loans	Amount KES 2006 / 2007	Amount KES 2007 / 2008	Amount KES 2008/09
ADF	426,000,000	744,400,000	978,500,000
Kfw- German Financial Corporation	785,000,000	1,304,000,000	1,127,460,000
Agence Française de Développement (AFD)	513,420,000	0	1,120,000,000
FAO	0	0	216,740,000
KUWAIT	0	0	100,000,000
BADEA	330,000,000	300,000,000	410,000,000
OPEC	100,000,000	140,000,000	260,000,000
IDA	0	300,000,000	750,000,000
IFAD	80,136,000	370,000,000	441,776,756
Total Loans	2,234,556,000	3,158,400,000	5,404,476,756
Grants			
IDA	554,313,660	220,000,000	-
ADF	229,000,000	67,000,000	308,370,000
Danish Development Agency (DANIDA)	288,000,000	432,000,000	388,800,000
Swedish Development Agency (SIDA)	400,000,000	383,000,000	315,000,000-
Belgium	32,000,000	0	0
KfW- German Financial Corporation	111,000,000	72,000,000	98,000,000
European Development Fund	0	0	294,840,763
German Technical Corporation GTZ	112,015,000	190,829,870	205,000,000
Arab Bank for Economic Development in Africa (BADEA)	16,000,000	12,000,000	24,000,000
United Arab Emirates	45,000,000	0	0
Japan	88,808,438	698,326,376	807,853,441
USTDA	17,500,000	0	0
Italy	0	206,555,683	626,155,714
Govt. of Switzerland	0	12,000,000	12,000,000
Unicef	0	532,998,500	461,210,500
Total Grants	1,893,637,098	2,826,710,429	3,226,230,418

Source: GoK Printed Budget Estimates 2006/07, 2007/08 and 2008/09

Appendix IV: Map of Kenya



**SUBJECT : KENYA: PROPOSAL FOR AN ADF LOAN OF UA 35.00
MILLION TO FINANCE THE NAIROBI RIVERS BASIN
REHABILITATION AND RESTORATION PROGRAM -
SEWERAGE IMPROVEMENT PROJECT**

CORRIGENDUM*

The following modifications should be included in the English and French versions of the Appraisal report.

1. Throughout the report: Add “Basin” to the project title to read “Nairobi Rivers Basin Rehabilitation and Restoration Program – Sewerage Improvement Project”;
2. Page iv, paragraph 1.2 last line: Change “trained” to “sensitized”;
3. Page iv, paragraph 2, line 5: Replace “or” with “and a few”;
4. Page v, paragraph 4: Change first sentence to read “The experience and knowledge gained from the implementation of the program would be drawn out to enrich the Fund’s learning process, and its support to the Regional Member Countries (RMC);
5. Table 2.1, project Description: Move “Construction of 100 ablution blocks and collector sewer lines” and associated cost of UA 1,513,000 from component 2 to component 1;
6. Revise tables 2.2 and 2.5 to reflect the changes in table 2.1:

Table 2.2: Project cost estimates by component [‘000 UA equivalents]

	(UA '000)			%	% Total
				Foreign	Base
	Foreign	Local	Total	Exchange	Costs
A) Waste Water Infrastructure	19,977	9,474	29,451	67.8	87.4
B) Sanitation, Hygiene and Social Environmental Support	91	1,463	1,554	5.9	4.6
C) Institutional Support and Project Management	1,043	1,636	2,678	38.9	8.0
Total Base Costs	21,111	12,572	33,683	62.7	100.0
Physical Contingencies	2,111	1,258	3,369	62.7	10.0
Price Contingencies	1,766	1,052	2,818	62.7	8.4
Total	24,988	14,882	39,870	62.7	118.4

Table 2.5: Expenditure schedule by component [‘000 UA]

	2011	2012	2013	2014	Total
A) Waste Water Infrastructure	1,767	10,013	11,486	6,185	29,451
B) Sanitation, Hygiene and Social Environmental Support	388	466	466	233	1,554
C) Institutional Support and Project Management	670	777	670	562	2,678
Total Base Costs	2,825	11,256	12,622	6,980	33,683
Physical Contingencies	283	1,126	1,262	698	3,369
Price Contingencies	85	685	1,171	876	2,818
Total Project Cost	3,192	13,067	15,055	8,554	39,870

7. Paragraph 3.2.7: Replace 1174 persons with 1774 households and businesses;
8. Revise paragraph 4.5.5 from third sentence as follows: The Government of the Republic of Kenya has agreed to budget for the cost of compensation for any assets along the way leave for the project affected persons in line with Bank policies and the

applicable laws of Kenya as identified in the Resettlement Action Plan. To mitigate these risks, the Borrower is required as condition of the loan, to produce evidence of right to way leaves for AWSB and NWSC and land use permit to AWSB for sewerage infrastructure development. An escrow account shall be opened with a financial institution which shall act as an escrow agent where the funds for compensation of the project affected persons according to the RAP shall be deposited on commencement of the project and shall remain open until the last person is compensated.

9. Paragraph 4.3.1; Change the first sentence of to read, “The Bank 2009 overall CPIA ranking for Kenya is 4.03”.
10. Paragraph 5.2.2 and 5.2.3: The conditions precedent to first disbursement and the other conditions are amended as follows:
 - ii) Provide evidence of having opened two special accounts (one in foreign currency and the other local currency) in a Bank acceptable to the Fund for the deposit of proceeds of the Loan;
 - iii) Evidence of the issuance of a license from the National Environment Management Authority (“NEMA”) to AWSB for the construction of the sewer trunk lines and reticulation lines on the specified way leaves;
 - iv) The issuance of permits from the City Council of Nairobi (“CCN”) to AWSB of the way leaves for purposes of sewerage infrastructure development and maintenance and;
 - v) The submission of evidence satisfactory to the Fund of the establishment by the Borrower and the maintaining, with a financial institution acting as an escrow agent and in terms acceptable to the Fund, of an indemnification escrow account in which the amounts for the resettlement and compensation as set out in the Resettlement Action Plan (“RAP”) to project affected people have been deposited. Such account will remain open until the last of such payments is effected.

5.2.3 Other conditions

- i) The Borrower will provide evidence, in form and substance acceptable to the Fund, that by 31 December 2011 a service provisions agreement, with terms and conditions acceptable to the Fund, has been executed between the AWSB and the Nairobi Water and Sewerage Company (“NWSC”) for NWSC to exercise and perform all or any of its powers and functions under the License and particularly in relation to the efficient and economical provision of water and sanitation services and;
- ii) The Borrower will provide evidence, in form and substance acceptable to the Fund, that by 31 December 2013 the transfer of the urban water supply and sewerage assets from the CCN to the AWSB has taken place.