



**PROJECT: SMALL TOWNS AND RURAL WATER SUPPLY AND SANITATION PROJECT**

**COUNTRY: KENYA**

**PROJECT APPRAISAL REPORT**

*Date: July 2009*

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## Currency Equivalents

*July 2009*

UA 1.00	=	KES	120.249
UA 1.00	=	USD	1.55223
UA 1.00	=	EURO	1.09822

## Fiscal Year

1<sup>st</sup> July- 30<sup>th</sup> 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	MIS	Management Information System
ADF	African Development Fund	MTEF	Mid Term Expenditure Framework
CAAC	Catchment Area Advisory Committee	MWI	Ministry of Water and Irrigation
CWSB	Coast Water Services Board	MTP	Medium Term Plan
CSP	Country Strategy Paper	NWSB	Northern Water Services Board
DPs	Development Partners	O&M	Operation & Maintenance
EA	Executing Agency	QPR	Quarterly Progress Report
EIRR	Economic Internal Rate of Return	PIU	Project Implementation Unit
ESIA	Environmental & Social Impact Assessment	RMC	Regional Member Country
ESMP	Environmental & Social Management Plan	RVWSB	Rift Valley Water Services Board
ESSM	Environmental, Social & Safeguarding Mgt	SWAP	Sector Wide Approach
FIRR	Financial Rate of Return	TAWSB	Tanathi Water Services Board
GOK	Government of Kenya	UFW	Un-accounted for Water
HAC	Harmonization, Alignment & Coordination	WACC	Weighted Average Cost of Capital
IA	Implementing Agency	WARMA	Water Resources Management Authority
ICB	International Competitive Bidding	WARIS	Water Regulation Information System
IDIMS	Irrigation & Drainage Information System	WASREB	Water Services Regulatory Board
IWRM	Integrated Water Resources Management	WB	The World Bank
KEFO	Kenya Field Office	WRIMS	Water Resources Information Management System
KENAO	Kenya National Audit Office	WRUA	Water Resources Users Associations
KfW	Kreditanstalt fur Wiederaufbau	WSB	Water Services Board
LVNWSB	Lake Victoria North Water Services Board	WSP	Water Service Provider
LVSWSB	Lake Victoria South Water Services Board	WSS	Water Supply & Sanitation
MDGs	Millenium Development Goals	WSTF	Water Services Trust Fund
M&E	Monitoring & Evaluation	WSTG	Water Sector Technical Group

## Loan Information

Client's information

BORROWER: Government of Kenya

EXECUTING AGENCY: **Ministry of Water and Irrigation**

### IMPLEMENTING AGENCIES

Lake Victoria South Water Services Board	Tana Water Services Board	Tanathi Water Services Board
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### Financing plan

Source	Amount (UA million)	Instrument
ADF	70.00	Loan
GOK	7.92	Contribution
TOTAL COST	77.92	

### ADB's key financing information

Loan / grant currency	UA/US Dollars
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
FIRR, NPV (base case)	(11.39%, 6.4 KES billion)
EIRR (base)	(25.37 %, 8.7 KES billion)

*\*if applicable*

### Timeframe - Main Milestones (expected)

Concept Note approval	July 2009
Project approval	November 2009
Effectiveness	March 2010
Last Disbursement	December 2014
Completion	December 2014
Last repayment	December 2060

## **Project Summary**

The proposed Small Towns, Rural Water Supply and Sanitation Project presents a next step of ADB's involvement in the water sector of Kenya. The water sector reforms are consistent and are making steady progress, thus it is justified for the Bank to assist (in response to Government's request) the sector in Kenya in order to reach the MDGs.

The project includes institutional development support, water supply, sanitation, and water storage infrastructure. The project will be implemented in a period of four years at a total cost of UA 77.92 million.

The beneficiaries of the proposed project will be Lake Victoria South Water Services Board (LVSWSB): population of Bondo and Siaya; Tana Water Services Board (TWSB): population of Maua, Mukurwe-ini, Othaya, and Tanathi Water Services Board (TAWSB): population of Kitui and Yatta District. The total number of beneficiaries is estimated at 0.78 million people. The inadequate water supply and sanitation situation in these towns and surrounding areas accounts for many incidences of water borne diseases. The project will, within the project areas, result in general improvements in water supply and sanitation, public health facilities, curtail water borne diseases, increase food security through additional water storage, stimulate economic development and ensure environmental sustainability. The project will contribute towards meeting the Millennium Development Goals (MDGs) for water supply and sanitation.

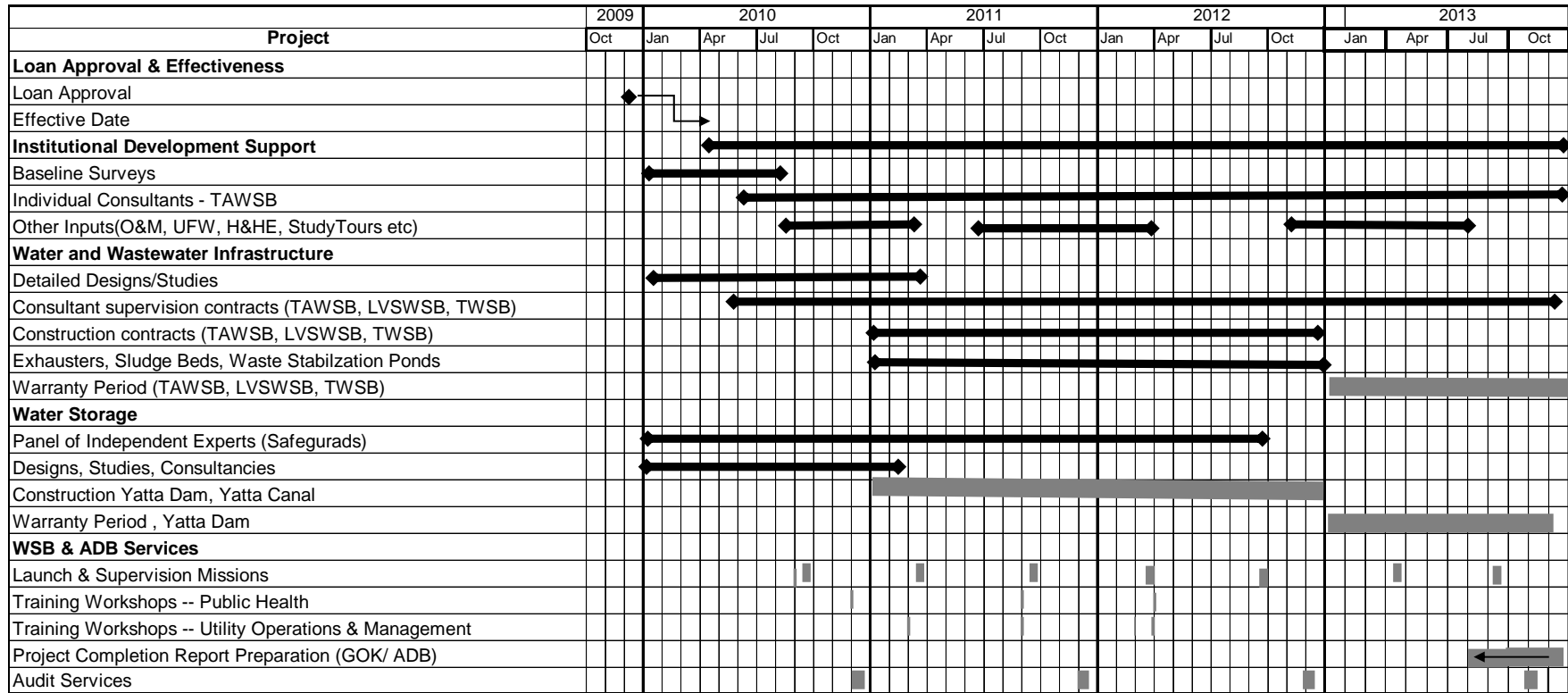
The Bank has a long experience in the water and sanitation sector development in East Africa, Kenya and elsewhere on the continent and has used this long experience to develop the project. Through supporting the project, the Bank demonstrates its commitment to engage with Government in addressing water supply, sanitation and water storage challenges in the country.

The Bank's experience in the preparation of the project and its implementation will be used in the various project documents including study reports, progress reports, and mid-term review and completion reports. The additional experience will increase the Bank's institutional knowledge.

Hierarchy of Objectives	Expected Results	Reach	Performance Indicators	Indicative Targets Timeframe	Assumptions/Risks
<p><b>Sector Goal:</b> To improve the health and quality of life and reduce poverty levels of the population of Kenya through provision of water and sanitation services on a sustainable basis</p>	<p><b>Impact:</b> Improved health and socio-economic wellbeing of the population</p>	<p><b>Beneficiaries:</b> Kenya's population</p>	<p><b>Impact Indicators:</b> * Water and Sanitation coverage * Under 5 mortality rate * Poverty reduction</p>	<p><b>Long term Progress:</b> * Access to safe drinking water increased from 57% in 2006, to 90% by 2030 * Access to improved sanitation increased from 55% in 2006, to 70% by 2030 * U5 mortality rate decreased from 115/1000 in 2003 to 18 in 2030. * Reduce people living below the poverty line from 45.9% in 2006 to 21.7% in 2030 Sources: Baseline data; monitoring system; DHS; economic survey</p>	<p><b>Assumptions</b> * Stable macro economy * GOK continuous commitment to support the water and sanitation sector reforms. <b>Risks</b> * Un-stable political environment <b>Mitigation</b> The risk will be mitigated through extensive awareness creation, and regular GOK/DP discussions.</p>
<p><b>Project Purpose:</b> To improve the access, quality, availability and sustainability of water supply and wastewater services in the small towns of Kitui, Siaya, Bondo, Othaya, Mukurwe-ini, Maua and irrigation water for existing Yatta small scale irrigation schemes</p>	<p><b>Outcomes</b> * Improved water supply and wastewater facilities which meets the demand of the beneficiaries in the project towns * Improved sanitation for the beneficiaries in the project towns * well maintained systems * improved revenue for sustainability * reduced school drop-out of girls * increased (female) household incomes * All year round irrigation water available from Yatta Dam for 2500 ha</p>	<p><b>Beneficiaries:</b> *0.78 million people in Bondo, Siaya, Maua, Othaya, Mukurwe-ini, Kitui and the rural population of the surrounding areas of these towns * WSBs and WSPs * Farmers (800) down stream of Yatta Dam along the Yatta Canal</p>	<p><b>Outcome Indicators:</b> * Percentage of urban population and surrounding rural areas with access to water supply * Percentage of urban population and surrounding rural areas with access to improved sanitary facilities * Improved service * Area under irrigation</p>	<p><b>Medium Term Progress:</b> * Water supply improved and coverage increased from 42% in 2009 to 70 % in 2015 * Time for fetching water reduced from on average 2 hrs/day in 2009 to 0.5 hrs/day in 2015 *Number of breakdowns and response repair time * UFW reduced from over 55% in 2009 to 30% in 2015 * Average daily hours of supply increased from less than 8 hours per day in 2009 to 24 hours per day in 2015 * increased revenue stream generated * Increased percentage of the population practicing good health / hygiene / sanitation from 55 % in 2009 to 70 % by 2015 * Incidence of diarrhoea, dysentery and cholera reduced by at least 50 % by 2015 * Reduced maternal mortality rate of 414/100,000 births in 2006 to 171/100,000 births by 2015 * Irrigated area increased from 700 ha to 2500 ha by 2015 Source: Baseline data; monitoring system; DHS;</p>	<p><b>Assumptions</b> * Water sector reforms sustained * Good progress in efficiency improvement of WSPs * good governance * Viable WSB  <b>Mitigation</b> *Regular interaction through sector coordination mechanism * GOK prioritized water sector * WASREB executes tariff affordability studies and reviews.</p>

Activities:	Outputs:	Beneficiaries:	Output Indicator:	Short Term Progress:	Assumptions/Risks:
1. Water supply, wastewater and sanitation infrastructure rehabilitation and expansion in small towns and surrounding rural areas.	1. Water and wastewater schemes in operation and able to cope with demand	1. Government institutions, health facilities, WSPs, WSBs, population in project area	1. Treatment plants rehabilitated / constructed; mains constructed (km); distribution network (km); connections/meters installed	1. 9 water treatment plants of capacity 73,800m <sup>3</sup> /d; 126 km mains; 100 km network by; 45,000 metered water connections, 8 Exhausters by 2013	<p>Assumptions</p> <p>* GOK allocates timely sufficient resources</p> <p>*Timely completion of resettlement plan and compensation exercise</p> <p>* Close monitoring of settlement plan implementation</p> <p>* Annual financial and technical audits; regular supervision by KEFO and HQ</p>
2. Construction of Yatta Dam and rehabilitation of Yatta Canal	2.1 Water under storage in Yatta Dam 2.2 Yatta Canal rehabilitated		2.1 Yatta dam dam constructed 2.2 Yatta canal exhibits no losses	2. 1 Yatta Dam constructed with a height of 35 m, and 31 Mm <sup>3</sup> 2.2 60 km of Yatta Canal rehabilitated and lined	
3. Rehabilitation/reconstruction of on-site sanitation systems for public places, schools and health centres	3. Improved sanitation facilities constructed for schools, health centres and market places		3. Number of on-site sanitation facilities in public places, schools, and health facilities	3. One hundred institutional sanitary facilities upgraded or newly constructed by 2012	
4. Develop and establish an operation and maintenance program including an UFW program	4. Well maintained systems and low UFW ratio		4. Customer database in place; meters installed, and bill issued.	4. Improved customer database, and 45,000 metered connections installed; UFW decreased from 55% in 2009 to 40%, by 2012	
5. Developing of customer relations with WSPs	5. Customer service established and functional		5. Customer complaint-resolution time	5. Complaint resolution system in place by 2012	
6. Hygiene education and environmental awareness creation.	6. District fora for hygiene education with large ratio women representation		6. Completed training of management committees with more than 50% women	6. Completed training with more than 50% women by 2012.	
7. Training in institutional environment and social safeguard management support, including gender mainstreaming	7. WSBs and WSPs have established ESSM plans		7. Completed ESSM and staff trained	7. ESSM (6) completed in 2011; 5 staff trained per WSPs by 2012	
8. Enhance the Management Information Systems (MIS) and Monitoring and Evaluation (M&E) systems, for WSBs and WSPs	8. MIS and M&E in place and functional		8. Timely, good quality MIS reports, use of M&E to manage project	8. M&E well established, including all project WSPs, used as an active tool to produce timely QPR by end 2010	
9. Support to WARMA for the effective management of Thika River	9. Thika River management done efficiently through WARMA		9. Water flow records	9. Staff gauging stations installed and weir records updated by 2013	
10. Small scale irrigation: training in irrigation water management; support and logistics for District Irrigation Officer and District Agr. Officer	10. Water users associations well trained and able to apply these skills		10. Irrigation water management system	10. Irrigation water management system functional , and managed by Water Users Association	
11. Detailed design and tender documents preparation for Thwake and Koru Dams	11. Completed designs, and tender documents for 2 dams		11. Designs and tender documents ready to be used	11. Dams detailed designs and two sets of tender documents ready by 2012	
(UA million)					
ADF	70.00				
GOK	7.92				
Total	77.92				

## Project Timeframe



**REPORT AND RECOMMENDATION OF THE MANAGEMENT OF THE ADB GROUP  
TO THE BOARD OF DIRECTORS ON A PROPOSED LOAN TO KENYA  
FOR THE SMALL TOWNS, RURAL WATER SUPPLY AND SANITATION PROJECT**

Management submits the following Report and Recommendation on a proposed loan for UA 70.00 million to finance the Small Towns, Rural Water Supply and Sanitation Project in Kenya.

**I – STRATEGIC THRUST & RATIONALE**

***1.1. Project linkages with country strategy and objectives***

The Government of Kenya's Vision 2030 acknowledges the fact that Kenya is a water scarce country and underscores the central role water plays in the performance of key sectors of the economy and the livelihoods of Kenyans. It further highlights the consequences of under-investment in: (a) water supply and sanitation services as a fundamental need for productive livelihoods and (b) irrigation and hydropower developments on food and energy security. Under the economic and social pillars of the Vision, improved access to safe water and sanitation in both rural and urban areas, and increasing the area under irrigation have been given prominence with the rehabilitation and expansion of water supply and sanitation services in urban centres and construction of water storage dams identified as some of the flagship projects.

The project addresses improved water supply and sanitation, in small towns and surrounding rural areas, as well as water storage, for water supply and irrigation development, that underpins the Kenyan economic and social developments (Vision 2030) and its associated five years Medium Term Plan (MTP) for 2008-2012.

The project also fits within the broad thrust of the Bank's current 2008 – 2012 CSP which is underpinned by two pillars, with Pillar I focusing on the improvement of infrastructure services for competitiveness and enhanced regional integration and (ii) Pillar II, which addresses employment creation and poverty reduction. The current CSP is aligned with the MTP, and has a strong feature on the contributory role of water supply and sanitation, in infrastructural development. In addition, the CSP (Deliverables and Targets) identifies the proposed investment being earmarked for funding under Kenya's ADF XI allocation.

In the Kenyan National Water Sector Strategy (2007 – 2015), the country aims to improve access to safe water and sanitation with the goal of attaining 75% access to safe and reliable water for urban areas and 70% for rural areas and reduce unaccounted for water to below 30%.

***1.2. Rationale for Bank's involvement***

The overall aim of the project is to contribute to the provision of improved water supply and sanitation in small towns and their surrounding areas, and to increase the multi-purpose water storage infrastructure. The present infrastructure is inadequate, was built in the fifties, in places as Bondo, Siaya, Maua, Othaya, Mukurwe-ini and Kitui towns. The water supply coverage in the towns varies from below 20% to around 50%. The sanitation situation is in similar state none of the towns has an acceptable sanitation action plan, program and system. In spite of the recurrent droughts and floods, Kenya has not invested in water storage infrastructure to deal with shocks from extreme events. This is illustrated by the decline in water storage from 11 m<sup>3</sup> per capita to an alarmingly low value of below 5 m<sup>3</sup> per capita.

The Project fits under the social pillar of Vision 2030 and is in line with current CSP for Kenya, which aims at building on the on-going Bank support in the sector by improving water and sanitation services in medium sized towns and surrounding rural areas, and increasing efficiency of water storage.

The Bank's medium term strategy aims at providing for the support and capacity of RMCs to sustainably manage water resources and mainstream Integrated Water Resources Management (IWRM) practice. The project will achieve this goal, through the provision for the multipurpose Yatta Dam, which is intended for sustained additional water for both domestic water supply and water for the existing Yatta small-scale irrigation schemes, which are decrepit, because of intermittent water flows. In addition, the construction of the Yatta Dam complements the GOK's MTP goal of increasing the per capita water storage from 5m<sup>3</sup> to 16m<sup>3</sup> per capita by 2012.

The project further complements the ongoing Water Services Boards Support Project, related to the improvement of water supply and sewerage systems in LVSWSB TWSB, NWSB approved in 2007 and scheduled to be completed in 2012.

The Bank Group should intervene in the water and sanitation sector, stemming from its long-term engagement in sector, and the fact that the GOK has requested for support in the six towns. In the National Water Sector Strategy (2007 – 2015), Kenya over the next five years aims to improve access to safe water and sanitation with the goal of attaining 75% access to safe and reliable water for urban areas and 70% for rural areas and reduce unaccounted for water to below 30%. The government recognizes the Bank to be a key development partner in its efforts to improve water and sanitation services given the long-standing engagement in the country. The Bank has financed several water, irrigation, and dam projects since the 1980s and currently, the Bank is actively involved in different sectors, including power, urban and rural water supply and sanitation, health, education, and roads. The Bank is hence well suited to finance the project given its vital and unique role in the socio-economic development of its Regional Member Countries.

### ***1.3 Sector Reforms***

Prior to the sector reforms in 2002, the water services sub-sector in Kenya was plagued by poorly performing utilities, resulting in the degradation of infrastructure, and services.

The reforms resulted in the Water Services Regulatory Board (WASREB) setting standards and regulating the sub-sector; the eight Water Services Boards (WSBs) responsible for the efficient and economical provision of water services; the Water Services Trust Fund (WSTF) financing pro-poor investments; and Water Services Providers (WSPs) as agents in the provision of water and sewerage services utilizing acceptable business principles in their operations. The Water Resources Management Authority (WARMA) oversees the management, use and development of water resources nationally. The MWI is responsible for overall sector oversight including policy formulation, coordination and resource mobilization. The reforms are now focused on achieving commercial viability / technical efficiency of the various institutions established. Further work remains to be achieved with respect to assets and staff transfers. All of these will be supported by the project.

## ***1.4 Donors coordination***

The Harmonization, Alignment, and Coordination (HAC) donor group was established in 2003 for donors 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 coming on board in January 2007. The 17 HAC members are the governments of Canada, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, Norway, Spain, Sweden, the United Kingdom, the United States, the African Development Bank, the European Commission, the United Nations, and the World Bank. Currently KEFO is chairing the Roads and Transportation Donor Group. 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 KfW. Development Partners (DPs) active in the water sector currently have a commitment of about USD 950 million towards water and sanitation projects including institutional support. Most of these come from the World Bank, KfW, Japan, ADB and AFD. The situation currently is that Athi Water Services Board (AWSB) is assisted by WB and AFD, the Coast Water Services Board (CWSB) is supported by WB and AFD, the LVNWSB is assisted by WB and the (KfW), while the ADB supports the RVWSB, LVSWSB, TWSB and NWSB and AWSB in Kibera.

## **II – PROJECT DESCRIPTION**

The proposed project addresses the water supply and sanitation problems in a number of small towns and the lack of water storage in Yatta area. The project will have three components (1) institutional development support to strengthen the commercial, technical and financial aspects of the Water Service Providers, (2) water supply and wastewater infrastructure rehabilitation and extension, and (3) water storage intervention which includes the construction of the multi-purpose Yatta dam. As the very first activity a gender sensitive baseline survey will be undertaken to establish a clear baseline.

### ***2.1. Project components***

*Table 2.1: project components*

	Component Name	Est. Cost UA (million)	Component Description
<b>1</b>	Institutional Development Support	5.78	Gender sensitive baseline surveys (8) of project towns; Business and Strategic Business Plans (8); Develop/Upgrade MIS and M&E systems (8); Hygiene education and Gender mainstreaming (district forums) Programs (8); Operation and Maintenance (8) (including Unaccounted For Water plans, Training, Studies, Equipment, Logistics); Sanitation and Wastewater management plans (8); Annual financial and annual technical audit (8); Support to Regulator, Reforms Secretariat, and Gender Focal point; Detailed design and tender documents preparation of Thwake and Koru Dams (2)

2	Water Supply and Waste Water Infrastructure	50.59	Bondo, Siaya, Othaya, Mukurwe-ini, Maua, Kitui, Matuu and Kithimani: water supply system rehabilitation and extension works, wastewater and sanitation infrastructure works (consultant services for detailed design and supervision; implementation of: river intakes (8), boreholes (4); raw water and rising mains (127 km), water treatment plant (73,800 m <sup>3</sup> /day total of 9 plants), reservoirs (24,510 m <sup>3</sup> total of 9 reservoirs), distribution network (100 km), bulk meters, household meters (45,000), waste water treatment ponds (8), exhausters (8), school and public toilets (100))
3	Water Storage	21.56	Detailed design, tender documents preparation and implementation supervision; recruitment of Panel of Experts; construction of 35 m high Yatta dam and rehabilitation of 60 km length of Yatta canal (embankment works, spillways, intake, water treatment works, channel rehabilitation, water supply and irrigation infrastructure, and compensation); Water Resources Management Authority (WARMA) support; support for the two water users associations in the area (organizational capacity; operation and maintenance of irrigation infrastructure; agricultural extension support services); enhance the role of by-laws and water user associations for multi purpose use.

## ***2.2. Technical solution retained and other alternatives explored***

The water supply schemes are based upon technical solutions retained on functional options relating to water sources, transmission, storage and distribution, as adopted on similar schemes recently implemented in Kenya. A description of the alternatives considered is provided per project intervention site, in the Technical Annex A2

The project will focus on rehabilitation and extension of the existing networks, with the aim of increasing the low coverage, reducing the existing high level of un-accounted for water (UFW); enhance the quality and quantity of supply and to improve revenue for the sustainability of the installed systems. Proposed interventions include operation and maintenance programs, leakage control involving procurement of equipment for leak detection, procurement of bulk meters for system flow measurements and procurement of 45,000 household consumer meters.

Sanitation interventions will include wastewater action plans, waste stabilization ponds, provision of 100 water and sanitation facilities in schools, health facilities and public places. Hygiene and sanitation promotion targeted at households will be carried out.

ALTERNATIVE NAME	BRIEF DESCRIPTION	REASONS FOR REJECTION
<u>Bondo:</u>	i) Pumping from river to the current treatment plant, ii) Gravitare at intake from the river iii) Pump from lake at a head of 250m over 14 km.; Sanitation: i) On-site sanitation and; ii) sewerage system by gravity with wastewater stabilization ponds.	First 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.
<u>Siaya:</u>	i) Sidindi Malanga as possible source to meet both Sidindi Malanga and Siaya towns; ii) Expansion of Abura dam supply to meet Siaya demand; iii) Abura dam plus new Wuoroye supply	Sidindi Malanga source chosen. Others rejected. The first alternative was chosen, and the others rejected on account of their higher investment and operation and maintenance costs; Stabilization ponds were chosen due to their low capital and operation and maintenance costs.
<u>Othaya</u>	Rehabilitation of five intakes and transmission lines, three treatment works and treated water gravity mains, and distribution system. Sanitation options i) on-site sanitation and; ii) sewerage system with wastewater stabilization ponds.	The option to rehabilitation is the construction of new facilities, which is a far more expensive. The sewerage option was dropped for on-site sanitation, as the demand (technical and financial) is not yet justified.
<u>Mukurwe-ini</u>	Rehabilitation of the two intakes and transmission lines, treatment works and treated water gravity mains, and distribution system. Sanitation options i) on-site sanitation and; ii) sewerage system with wastewater stabilization ponds.	The option to rehabilitation is the construction of new facilities, which is a far more expensive. The sewerage option was dropped, as the demand (technical and financial) is not yet justified.
<u>Maua</u>	Rehabilitate existing intake (2,200 m <sup>3</sup> /day), and augment from Ura River, or Makena waterfall. Sanitation options i) on-site sanitation and; ii) sewerage system with wastewater stabilization ponds	Makena fall chosen. Other option not economic. The sewerage option was dropped, as the demand (technical and financial) is not yet justified.
<u>Kitui</u>	Masinga reservoir, augmented by boreholes or Masinga reservoir augmented by new reservoir on Athi River. Sanitation options i) on-site sanitation and; ii) sewerage system with wastewater stabilization ponds	Masinga, option chosen, with additional supply from Umaa Dam was the most feasible. The sewerage option was dropped, as the demand (technical and financial) is not yet justified.
<u>Yatta</u>	Exploration indicates 3 sites suitable for the development of a large dam: i) close to existing intake for Yatta Canal; ii) approximately 1.5 km upstream of existing intake; and iii) located 22.5 km upstream.	Based upon engineering, topographical, socio-environmental and cost-benefit analysis site i) is recommended as the preferred. An earth dam is selected as the economical type of dam with a core trench of 6m depth.

### 2.3. Project type

The proposed project is a standalone project operation integrating water supply and sanitation with water for irrigation. The possibility of a basket fund from several donors for investments in small and medium towns has been under discussion since 2006 between AFD and KfW). However, since the financing modalities of the instrument have not yet been finalized, coupled to the absence of a national small, medium towns program, the SWAP approach is not applicable now, and the strategy is to focus on a limited number of towns - securing substantial funds with a potentially high impact on the achievement of improved coverage in water and sanitation

## 2.4. Project cost and financing arrangements

The overall cost of the project will be about UA 77.92 million (LC: UA 40.94 million; FC: UA 36.99 million) (See Tables 2.3 – 2.6). An ADF Loan of UA 70 million will fund the cost, representing 90% of the total financing need and GOK contribution of UA 7.92 million representing 10% of the financing need. The cost estimates are based upon current designs using unit costs study reports (2008), and similar projects in Kenya.

## 2.5. Project's target area and population

The project target areas are the Lake Victoria South Water Services Board (LVSWSB) addressing the needs of Bondo (39,206) and Siaya (191,227); the Tana Water Services Board (TWSB) supporting Maua (21,855), Othaya (148,611) and Mukurwe-ini (131,127), and the Tanathi Water Services Board (TAWSB) focussing on Masinga – Kitui (196,691) and the Yatta Dam and Canal (50,000). The total beneficiaries of the project are estimated at 778,717 persons of whom 582,012 live in the adjoining rural areas, and 196,705 in the small towns.. These, towns, form part of the small and medium towns prioritized in the GOK's Medium Term Plan 2009/10-2011/2012 for the provision of water and sanitation infrastructural investments. Other development partners have shown interest and will be financing investments in the remainder towns.

**Table 2.3 - Project cost estimates by component (in UA)**

Components	LC	FC	TOT	%
Institutional Development Support	3,455,175	1,455,554	4,910,729	6
Water Supply and Wastewater Infrast	20,426,061	24,027,328	44,453,389	57
Water Storage	10,932,199	6,576,354	17,508,553	22
Total Base Cost	34,813,435	32,059,236	66,872,670	86
Physical contingencies	4,432,668	3,475,735	7,908,403	10
Price contingencies	1,689,178	1,454,442	3,143,620	4
Total Project Cost	40,935,280	36,989,413	77,924,694	100

**Table 2.4 - Sources of financing (in UA million)**

Sources of financing	LC	FC	Total	%
ADB	33.02	36.99	70	90
GOK	7.92	0	7.92	10
Total Project Cost	40.94	36.99	77.92	100

**Table 2.5 - Project cost by category of expenditure (in UA)**

Categories of expenditures	LC	FC	Total	% foreign
Works	29,848,325	26,957,471	56,805,796	47.46
Goods	49,876	848,886	498,762	90.00
Services	4,632,602	4,097,431	8,474,992	52.40
Miscellaneous	282,632	155,448	438,079	35.48
Total base cost	34,813,435	32,059,236	66,872,671	47.94
Physical contingencies	4,432,668	3,475,735	7,908,403	43.95
Price contingencies	1,689,178	1,454,442	3,143,620	46.27
Total project cost	40,935,281	36,989,413	77,924,694	47.47

**Table 2.6 - Expenditure Schedule by component (in UA)**

Components	2,010	2,011	2,012	2,013	TOTAL
Institutional Development Support	1,932,703	2,198,710	960,117	685,798	5,777,328
Water Supply and Wastewater Infrast	9,216,503	21,973,954	16,851,328	2,544,121	50,585,907
Water Storage	3,545,696	9,360,345	6,315,065	2,340,352	21,561,459
Total Project Cost	14,694,903	33,533,009	24,126,510	5,570,271	77,924,694

## ***2.6. Participatory process for project identification, design and implementation***

Public consultations were initiated during the pre-feasibility studies stage and continued with the ESIA studies. The Ministry of Water and Irrigation (MWI) has discussed the project with other relevant ministries, districts, Water Services Boards, Water Services Providers, and community members of the project towns. The ESIA was done in consultation with the communities living upstream and downstream the project site of the Yatta Dam. The preparation and appraisal missions had consultations with WSBs, Districts and visited the project sites, during which, it interacted with communities at project sites to confirm their perception of, and support for the planned development. Briefing of the DPs of the project was done during the DPs Sector Coordination meeting.

The proposed project is part of the Government's long term plans to address the multi-pronged issue of inadequate access to water and sanitation services. The project preparation and appraisal was jointly done by ADB and Officials of the GOK.

## ***2.7. Bank Group experience, lessons reflected in project design***

The Bank Group operations in Kenya commenced in 1967 with a focus on infrastructure and agricultural development. There are 20 on-going public sector projects with a total portfolio amount of UA 525.7 million distributed as follows: Transport (42.7%), Energy (3.4%), Agriculture and Environment (21.0%), Water and Sanitation (12.6%), Education Sector (11.4%), Health Sector (4.5) and Institutional Reforms (4.3%), with an average project size of UA 26.29 million. Projects at risk declined from 21% in 2007 to 9.5% in 2009 with a disbursement level of 12.94%. While progress was made as indicated above, a number of challenges, remain including slow implementation and low disbursements against growing Bank Group commitments. The ADB supported water & sanitation sector operations in Kenya, started in 1978 and consist of 10 operations (UA 145.28 million): Of these, 6 projects and 2 studies were completed, and 2 are ongoing. The Rift Valley Water Supply & Sanitation Project, focusing on rehabilitation and improvement of Nakuru water and sewerage system, and nearby secondary towns and rural water supply, is expected to be completed by December 2009 and the Water Services Board Support Project approved in 2007, will be completed in 2012.

In designing the new investment, a number of pertinent lessons from past Bank, and other development partner financed projects have been taken into account. From the ADF supported El Nino Infrastructure Rehabilitation Project (1998-2002) and the Third Nairobi Water Supply project (1989-1997) lessons learned and applied in the design are (a) the need for adequate audit and oversight arrangements, through the institution of yearly technical and financial audits, (b) the provision of ample funds for exhaustive site investigations in order to better determine the site conditions and limit the possible increases in measured works and engineering claims during project implementation, particularly for dam projects requiring sub surface investigation; lesson applied through the increased contingencies percentage (c) the need for incorporating the recommendations of Project Panel Experts in the dam design before tendering and not during the project implementation; lesson applied through recruitment of Panel of Expert under advance procurement so that the Panel is available at the start of the Project (d) the need to ensure that conditions related to land acquisition are closely monitored to prevent delays and associated costs; (e) need to allow for increased physical and price contingencies for dam and tunnelling works than in usual percentages applied to other works; lesson applied through increased physical contingencies (20%) for the dam component; (f) the need to adequately sensitize the

affected populations about resettlement and compensation arrangements which should include both land and cash for the land development; lesson applied through intensifying interaction with the beneficiaries.

Further, the lessons from the on-going Rift Valley Water Supply and Sanitation (approved in 2003) and the Water Services Boards Support Project (approved in 2007) have resulted in the fast tracking of procurement, evidenced in the Procurement Plan, , and a system of tracking disbursement request from the Implementing Agencies to the Bank being factored into the design of the project, to accelerate the commencement of project activities and minimise delays in disbursement which plagued both projects.

## **2.8 Key performance indicators**

The project key performance indicators reflect achievement of the expected outputs and outcomes. These include: (i) improvement in access to improved water supply by residents (ii) improvements in access to improved sanitation (iii) improvement in the quality of service provision (i.e. increased number of hours of supply, reduction of UFW, reduction of hours spent in fetching water, improved response time to registered customers’ complaints), (iv) the reduction in the number of water and sanitation related diseases, (v) farmers able to access adequate irrigation water all year round. These are presented in C1 of the Technical Annexes

The performance indicators reflecting the socio-economic and gender dimensions of the project include the number of privately managed sanitation facilities especially by women’s group, and project staff trained in the methodology and techniques of collecting and reporting disaggregated data.

	2009	2015
Improved water supply	42%	70%
Improved sanitation	40%	70%
Hours of water supply/day	<8 hours	24 hours
UFW	55%	30%
Time spent fetching water	3-5 hours/day	0.5 hours/day
Decrease of incidence disease	X	50% of X
Area year-round irrigation	0 ha	700 ha

## **III – PROJECT FEASIBILITY**

### **3.1. Economic and financial performance**

*Table C.1: key economic and financial figures*

FIRR, NPV (base case) 11.39 %, KES 6.4 billion

EIRR (base case) 25.3 %, KES 8.7 billion

NB: detailed calculations are available in Annex B7

**Financial Analysis.** The project is considered to be financially viable with positive NPV of KES 6.4 billion. A cost of capital of 1.525% was used which is the weighted average cost of capital (WACC) of total loan that will be availed to the WSBs. An average water tariff of KES 50/m<sup>3</sup> has been assumed throughout the plan period and UFW rate of 75% was assumed at the start of the project and was gradually reduced over the years to 45%. No revenues are expected in the first three years of the project as there will be no increase in water available for sale. The detailed results are presented in Annex B7.

**Economic Analysis.** The economic analysis measures the benefits generated by the project for various aspects such as Social / economic benefits (hereby referred to as opportunity costs) of alternative uses of time previously used for fetching water by the household over a long distance, social benefits enjoyed by the household due to better health from improvement in sanitation and water supply, social benefits accruing from a reduction in health costs, incremental economic benefit accruing from increased production under irrigation and employment opportunities created by the project. Assuming a 12% economic opportunity cost of the investments, the analysis indicates an economic NPV of KES 8.7 billion, translating into significant impact and benefits for the beneficiaries in the project area. The detailed results are given in Annex B7.

### ***3.2. Environmental and Social impacts***

#### **Environment**

The project has been classified as environmental category 1 because of the construction of the Yatta Dam for water storage. Anticipated environmental impacts include resettlement of the 50 families, displacement of the biodiversity during constructions, noise and emissions by trucks transporting construction materials. Additional impacts on displacement of vegetation are anticipated in other project areas of Kitui, Bondo, Siaya, Othaya, Mukurwe-ini and Maua. However, the impacts are minimal and reversible through mitigation measures. The ESMP and Resettlement Plans have been designed for effective mitigation measures and actions will be incorporated in the contractor's TOR to limit interference with vegetation, replace destroyed vegetation through landscaping and engaging local communities to expand on biodiversity conservation measures and practices in all project sites.

#### **Climate Change**

The consequences of climate change pose risks to the project, with respect to the extreme weather events of droughts and floods, which have become frequent in Kenya e.g., the El Nino and La Niña in the 90s both causing extreme floods and drought; Kenya is currently experiencing the fourth consecutive year of drought seasons. The government is committed to mitigating climate change, and is investing a lot in adaptation/mitigation measures. Within this framework therefore, the design and physical location of the structures being built, will be in areas less prone to flooding. In addition, support is provided in the project for WARMA to execute river flow monitoring, and to enhance their capacity for flood, and drought prediction and monitoring in the catchment. The major investments in addressing the unaccounted for water, will ultimately reduce energy costs associated with pumping, and thus contribute positively to reduction in carbon emissions.

#### **Gender**

The rehabilitation/provision of safe drinking water and sanitation systems in the project towns combined with hygiene promotion will help in decreasing the school drop out rate of girls and the maternal mortality rate. Because of reducing the heavy burden of household responsibilities of girls and supporting the schools with sanitation facilities, girls' dropout from school will significantly decrease at project completion, when compared to the figures of 4.9% in 2008. In addition, the support of health centres will contribute to the national efforts to meet the MDG on maternal mortality, which is currently getting worse. The provision of clean water and sanitary facilities to health centres will contribute to the reduction of the Maternal Mortality Rate from 414/100,000 in 2006 to 171/100,000 by 2013 which is the national target.

The availability of irrigation water throughout the year will help also women farmers to increase production of their subsistence/cash crops, which will influence household nutrition and income. It will help male and female farmers, engaged in growing cash crops, to increase production and potentially enhance economic security and livelihoods as well. The gender roles in farming systems are complex. An improved access to irrigation for subsistence and cash crops is considered as one among many other contributing factors that can increase women's opportunity to improve their living standard.

### **Social**

The project aims to increase access to safe drinking water and sanitation facilities in the project areas, and all year round irrigation water, which will result in an increase of all year round irrigated farming to 700 ha, extending to 2500 ha by the year 2015, as well as provide water for 210,000 livestock. The improved health and socio-economic situation will influence the livelihoods of the beneficiaries through reduced health cost and improved ability to work. It contributes to the reduction in the number of persons living below the poverty line.

It is estimated that the reduction of water related diseases saves on average two working days per year; which represents roughly 1% of household income. The proposed hygiene promotion and the strengthened role of the district health forums in undertaking effective public health campaigns will increase the population practicing good hygiene from 55 % in 2009 to 70 % by 2015.

Women spend between 3 to 5 hours daily fetching water. This amounts to about 40% of their working day. The reduced time and energy spent in fetching and queuing for water, of say, a half hour by 2015 will enable women to engage in alternative activities. The reduction in time spent fetching water could be utilised for income generating activities that will increase the contribution of female family labor by 10 %.

The proposed Yatta Dam will secure access to safe drinking water and irrigation water for existing users of the Yatta Canal. The project anticipates increased agricultural production by 45% as well as employment on the existing farms, 2,000 people are expected to be employed.

### **Involuntary resettlement**

About 50 families will be displaced by the reservoir and some livelihoods will be affected as a result of the construction of water storage in Yatta. In accordance with the Government of Kenya Land Acquisition Act Chapter 295 and ADB (2003) Involuntary Resettlement Policy, ESMP and Resettlement Plans have been designed to effectively mitigate the displacement impact through relocation of the affected families with adequate compensation scheme. In addition, consultations with concerned families, local authorities and other state institutions is currently taking place, with the objective formalising an earlier consensus on resettlement as a result of the water storage construction. The satisfactory implementation of the Resettlement and Compensation plan is made a condition of the loan (section 5.2).

## IV – IMPLEMENTATION

### ***4.1.1 Implementation arrangements***

The GOK is the borrower of the ADF loan, while the MWI of the borrower is the Executing Agency (EA) for the project and will have a coordinating role, audit and progress reporting only. The Water Services Boards (WSBs) will implement the project using existing staff. i.e., Lake Victoria South WSB will implement Siaya and Bondo; Tana WSB will implement Othaya-Mukurweini, Maua; while Tanathi WSB will implement Kitui & Yatta Dam, and no Project Implementation Units (PIU) will be required as the same internal units implementing the on-going Water Services Support Board Project, will implement the project. This will ensure faster start up of the new project.

The WSBs and WSPs will be assisted through the institutional development support component to enhance their managerial, commercial, and technical capacity. Support by engineering consultants will be provided to prepare the detailed designs, tender documents, and supervision of works. In addition, the Tanathi Water Services Board (established in June 2008), which will handle the bulk of investments provided in the project will have its staff strength strengthened for the duration of the Project, with Contract staff in Civil Engineering, Internal Audit, and Financial Management. The WSBs/WSPs will closely collaborate with the Ministry of Health in the delivery of the health education activities, with particular attention to awareness creation, promoting and supporting capacity building within the project areas. The implementation of the construction phase of the multipurpose Yatta Dam and the rehabilitation of the Yatta Canal and irrigation schemes will be managed by Tanathi WSB with support from the District Irrigation Engineer, and District Agricultural Officer. The farmer support activities on the irrigation schemes will be implemented through the offices of the District Irrigation Engineer, and District Agricultural Officer.

### ***4.1.2 Procurement***

A procurement assessment of the WSBs was conducted during project appraisal, and the results attached in Annex B5. All procurement of goods, works and acquisition of consulting services financed by the Bank will be in accordance with the Bank's *Rules and Procedures for Procurement of Goods and Works* or, as appropriate, *Rules and Procedures for the Use of Consultants*, using the relevant Bank Standard Bidding Documents.. The project WSBs will be responsible for the procurement of goods, works, services, training and miscellaneous items. A procurement plan, as well as the Project Implementation Plan (PIP) is included in Annex B5.

### ***4.1.3 Financial Management***

The assessment of TWSB's; TAWSB's and LVSWSB's financial arrangements for the implementation of the project found that they have sufficient experience in managing projects of this nature and size following their individual experience with other Bank Group Projects. The respective Internal Controls within WSBs will be used for the Project. The TAWSB, TWSB, and LVSWSB all have Internal Audit Departments, which reports functionally to the Audit Committee of the Board, and administratively to the CEO. External Audits for the Project will be carried out by KENAO; however, in the event that KENAO is unable to fit the yearly financial and technical audits into its schedule, provision is also made for the services to be outsourced to an Independent Auditor whose appointment through short-listing will be approved by the Bank. Disbursement of the ADF resources will be through direct disbursement to the suppliers and

contractors for the ICB and NCB packages and for some consultancy services. Disbursements for contracts UA 50,000 will be through the special account.

## **4.2. Monitoring**

<u>Timeframe</u>	<u>Milestone</u>	<u>Monitoring process / Feedback loop</u>
11/2009	Loan Approval	ADF
04/2010	Loan Effectiveness	Launching Mission – Follow-up
07/2010	First Disbursement	ADF – KEFO to monitor
	Annual Sector Review	KEFO, ADF to attend and follow up
06/2012	Mid Term Review	All Stakeholders Involved – Follow-up
12/2014	Completion	ADF/KEFO

A tracking system to monitor the time for completing disbursement requests from the IAs, to the Bank, will be implemented for efficient project implementation.

The project will utilize and further enhance the existing monitoring tools developed for use under the reform process in Kenya namely:

- WARIS - an Information System which tracks the performance of the water services sub-sector and covers the local level (WSPs and point sources), WSB and WASREB;
- WRIMS- an Information System that is focused on water resources data and includes time series hydrological data, permit data, and catchment spatial data. This Information System is being developed by WRMA;
- IDIMS.-an Information System that addresses the needs of the irrigation sub-sector;

The results of the monitoring tools are fed into a mandatory Quarterly Performance Contract system, which will be annexed, to the Bank’s standard Quarterly Progress Reports.

As there are a number of DPs supporting the WSBs/WSPs in capacity building, there will be also quarterly coordination meeting of the DPs in the WSBs.

## **4.3. Governance**

According to the World Bank’s Governance rankings for 2009, 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 is steadily implementing the required sector policy issues, and also actively supporting decentralization of water services to water services institutions away from the central Ministry of Water and Irrigation. To further improve water sector governance the project will support the regulator (WASREB) in its oversight role of water services institutions, and strengthen the continued engagement with stimulate the adoption and implementation of transparency and participation as guiding principles.

## **4.4. Sustainability**

The project addresses most of the important factors which contributes to sustainability, namely capacity and skills of the Project WSBs, the complexity of technology chosen, support of government leadership, ability and willingness to pay, and adequacy of policies and legislation. This is demonstrated by the GOK commitment to the on-going sector reform process, and in

particular, the requirement that the newly established institutions achieve technical; and financial viability. To this end, therefore, the project will support the annual Water Services Boards and Water Service Providers' *tariff reviews* and *performance monitoring* exercises by the Water Services Regulatory Board (WASREB). This regulatory/supervisory oversight provides the basis for sustainability of the water sector institutions, and guarantees the flow of finances needed for the continuous operational and maintenance requirements, once the infrastructure has been completed. The tariffs are designed with the aim of assuring the efficiency of the water supply schemes, water conservation, financial sustainability, service simplicity and are set in a way that is equitable and provides affordable services to the poor. See Annex C of the Technical Annexes.

The institutional development support will assist the new water services institutions particularly with respect to their technical efficiency and financial viability. To this end, the support for addressing Unaccounted-For-Water (UFW) and the WSP clustering studies are deemed necessary. In addition, the project addresses matters of customer orientation, and efficiency in metering and billing. Moreover, strengthening of farmer groups and training of farmers on efficient use and management of irrigation water will also contribute to the sustainability of the project. The improved production of high value crops and increased incomes of the beneficiary farmers from the year round availability of water for irrigation will be enough to sustain their interest in the project.

#### ***4.5. Risk management***

The major risks associated with the project are (i) slow down of the implementation of the sector policy reforms; (ii). failure to pay timely the counterpart funding; (iii) lack of progress in improvement of efficiency of the water service providers; (iv) delay to finalize resettlement and compensation; (v) poor governance; (vi) costs over-run and (vii) viability of the Water Services Boards

The risks have been mitigated by (a) regular interaction through the sector coordination mechanism; (b) prioritization in the current budgetary provisions of the GOK of the estimated counterpart funds for the project. (c) the institutional development support activities with strong focus on O&M, MIS and M&E; (d) closer monitoring by ADB, of the resettlement and compensation, envisaged by GOK; (e) the annual financial and technical audit including regular and candid supervision by KEFO and HQ; (f) making allowance for this in the contingencies, (g) Regular tariff and affordability studies for financial sustainability carried out by WASREB.

#### ***4.6. Knowledge building***

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 and other appropriate forums such as water week events. The Bank, through its supervision missions, will share this knowledge and experiences with other development partners.

The project will also complement other knowledge building initiatives by AFD and UN HABITAT (LVSWSB), WB (TAWSB) and EU (TWSB) detailed in Annex B 10.

## **V – LEGAL INSTRUMENTS AND AUTHORITY**

### ***5.1. Legal instrument***

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

### ***5.2. Conditions associated with Bank's intervention***

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 12 of the General Conditions Applicable to Loan Agreements and Guarantee Agreement of the African Development Fund.

Conditions Precedent to First Disbursement for the Loan:

- (i) Provide evidence to the Fund of a Subsidiary Financing Agreement between the Government of Kenya and each of the Water Services Boards of Lake Victoria South, Tana and Tanathi respectively , prepared in due consultations with the ADB, on the transfer of the urban infrastructure related part of the ADF loan proceed (section 2.4);
- (ii) Provide evidence of each Water Service Board having opened two special accounts (one in foreign currency and the other local currency) in a Commercial Bank acceptable to the Fund (section 4.1).

Other Conditions

- (i) Provide an undertaking to cause an implementation of tariff adjustments, based upon tariff studies, for water supply and sanitation services, as per WASREB guidelines in order to ensure sustainability of service provision including investment (section 4.4).
- (ii) Provide evidence acceptable to the Fund, of the full implementation of the Resettlement and Compensation Plan, prior to approval by the Fund of civil works contracts for the Yatta Dam (section 3.2).

### ***5.3. Compliance with Bank Policies***

This project complies with all applicable Bank policies.

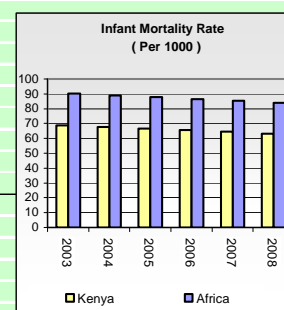
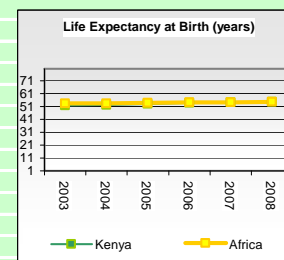
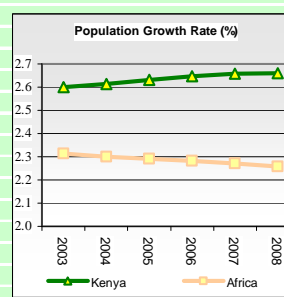
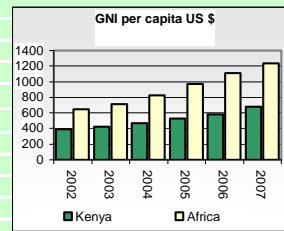
## **VI – RECOMMENDATION**

Management recommends that the Board of Directors approve the proposed loan of UA 70.00 million to the Government of Kenya for the purposes and subject to the conditions stipulated in this report.

# Appendix I

## Kenya COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Kenya	Africa	Developing Countries	Developed Countries
<b>Basic Indicators</b>					
Area ('000 Km²)		593	30 323	80 976	54 658
Total Population (millions)	2008	38.5	985.7	5 523.4	1 226.3
Urban Population (% of Total)	2008	21.7	39.2	44.0	74.4
Population Density (per Km²)	2008	65.0	32.5	23.0	49.6
GNI per Capita (US \$)	2007	680	1 226	2 405	38 579
Labor Force Participation - Total (%)	2005	50.7	42.3	45.6	54.6
Labor Force Participation - Female (%)	2005	47.1	41.1	39.7	44.9
Gender -Related Development Index Value	2006	0.531	0.482	0.694	0.911
Human Develop. Index (Rank among 174 countries)	2006	144	n.a.	n.a.	n.a.
Popul. Living Below \$ 1 a Day (% of Population)	2005	45.9	34.3	25.0	...
<b>Demographic Indicators</b>					
Population Growth Rate - Total (%)	2008	2.7	2.3	0.3	1.2
Population Growth Rate - Urban (%)	2008	4.0	3.3	2.5	0.5
Population < 15 years (%)	2008	42.8	40.9	16.6	27.4
Population >= 65 years (%)	2008	2.6	3.4	16.7	8.0
Dependency Ratio (%)	2008	83.3	79.5	47.7	53.9
Sex Ratio (per 100 female)	2008	99.4	99.3	94.3	101.5
Female Population 15-49 years (% of total population)	2008	24.3	24.2	24.3	25.8
Life Expectancy at Birth - Total (years)	2008	54.6	54.5	76.7	67.5
Life Expectancy at Birth - Female (years)	2008	55.8	55.6	67.5	80.3
Crude Birth Rate (per 1,000)	2008	38.6	35.7	11.0	20.1
Crude Death Rate (per 1,000)	2008	11.5	13.0	10.4	8.6
Infant Mortality Rate (per 1,000)	2008	63.2	83.9	7.1	48.5
Child Mortality Rate (per 1,000)	2008	101.8	137.4	8.8	72.3
Total Fertility Rate (per woman)	2008	4.9	4.6	1.6	2.5
Maternal Mortality Rate (per 100,000)	2005	560	683	450	9
Women Using Contraception (%)	2003	39.3	29.7	61.0	75.0
<b>Health &amp; Nutrition Indicators</b>					
Physicians (per 100,000 people)	2007	27.6	39.6	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	41.6	51.2	59.0	99.0
Access to Safe Water (% of Population)	2006	57.0	64.3	84.0	100.0
Access to Health Services (% of Population)	2004	77.0	61.7	80.0	100.0
Access to Sanitation (% of Population)	2006	42.0	37.6	53.0	100.0
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2007	0.0	4.5	1.3	0.3
Incidence of Tuberculosis (per 100,000)	2006	384.0	315.8	275.0	19.0
Child Immunization Against Tuberculosis (%)	2007	92.0	83.0	89.0	99.0
Child Immunization Against Measles (%)	2007	80.0	83.1	81.0	93.0
Underweight Children (% of children under 5 years)	2003	19.9	25.2	27.0	0.1
Daily Calorie Supply per Capita	2004	2 149	2 436	2 675	3 285
Public Expenditure on Health (as % of GDP)	2006	2.5	2.4	1.8	6.3
<b>Education Indicators</b>					
Gross Enrolment Ratio (%)					
Primary School - Total	2006	107.4	99.6	106.0	101.0
Primary School - Female	2006	104.4	92.1	103.0	101.0
Secondary School - Total	2006	50.3	43.5	60.0	101.5
Secondary School - Female	2006	48.6	40.8	58.0	101.0
Primary School Female Teaching Staff (% of Total)	2005	44.8	47.5	51.0	82.0
Adult Illiteracy Rate - Total (%)	2003	...	38.0	21.0	1.0
Adult Illiteracy Rate - Male (%)	2003	...	29.0	15.0	1.0
Adult Illiteracy Rate - Female (%)	2003	...	47.0	27.0	1.0
Percentage of GDP Spent on Education	2006	8.1	4.5	3.9	5.9
<b>Environmental Indicators</b>					
Land Use (Arable Land as % of Total Land Area)	2005-08	7.0	6.0	9.9	11.6
Annual Rate of Deforestation (%)	2000-08	0.5	0.7	0.4	-0.2
Annual Rate of Reforestation (%)	2000-08	1.0	10.9	...	...
Per Capita CO2 Emissions (metric tons)	2005-08	0.3	1.0	1.9	12.3



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators;

last update : March 2009

UNAIDS; UNSD; WHO; UNICEF, WRI, UNDP; Country Reports

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

## Appendix II. Table of ADB's portfolio in the country

List of active projects (loans and grants) by Sector: (at 9 July 2009)

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
<b>AGRICULTURE TOTAL</b>			<b>118.6</b>	<b>7.45</b>	<b>126.02</b>	
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
<b>INFRASTRUCTURE TOTAL</b>			<b>345.69</b>	<b>4.35</b>	<b>350.04</b>	
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
<b>WATER &amp; SANITATION TOTAL</b>			<b>48.23</b>	<b>17.22</b>	<b>65.45</b>	
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
<b>EDUCATION SECTOR TOTAL</b>			<b>49.26</b>	<b>11.75</b>	<b>61.01</b>	
1. Health III Project	L & G	2.07	17.18	6.00	23.18	07.07.2004
<b>HEALTH SECTOR TOTAL</b>			<b>17.18</b>	<b>6.00</b>	<b>23.18</b>	
1. Multi-Sector and Institutional Support Project	G	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
<b>MULT-SECTOR TOTAL</b>			<b>22.52</b>	<b>0</b>	<b>22.52</b>	
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
<b>ENERGY SECTOR TOTAL</b>			<b>67.73</b>	<b>0</b>	<b>67.73</b>	
<b>TOTAL PORTFOLIO</b>			<b>669.18</b>	<b>46.77</b>	<b>715.95</b>	

### Appendix III. Key related projects financed by the Bank and other development partners

MATRIX OF DONOR ACTIVITIES IN THE WATER AND SANITATION SECTOR

Development Partner	Programme Title	Urban or other	Implementing Agency	PERIOD	MOUNT ALLOCATED	
					Original	Currency
WORLD BANK	Western Kenya CDD and Flood Mitigation Project	Other	Lake Victoria North WRMA (WRM component)	May 2007- June 2013	USD	86,000,000.00
	Natural Resources Management Project	Other	WRMA Hq & Tana River RO	May 2007- June 2015	USD	68,500,000.00
	Water and Sanitation Service Improvement Project	Urban	AWSB,CWSB and LVNWS	June 2008- Dec 2012	USD	150,000,000.00
<b>TOTAL</b>						<b>304,500,000.00</b>
AFRICAN DEVELOPMENT BANK	Rift Valley Water Supply and Sanitation Project	Rural/ Urban	RVWSB	Jan 2005 - Dec 2009	UA m	18,060,000
	Water Services Boards Support Project	Rural/Urban	AWSB, LVSWB, NWSB, and TWSB	Dec 2007 - Dec 2011	UA m	45,260,000
<b>TOTAL</b>						<b>63,548,606</b>
EUROPEAN UNION	AMREF Water and Sanitation Umbrella Programme (WASUP) Eastern	Rural	AMREF	June 2006- Sept 2011	Euro	2,830,899.00
	Sustainable water management and governance	Other	UNICEF	Oct 2009	Euro	1,775,862.53
	Ecosan	Rural	GTZ	Sept 2006-Oct 2009	Euro	2,048,418.00
	Good Water Governance In Lake Victoria South Region	Urban	Lake Victoria South Water Services Board	May 2008- May 2011	Euro	1,612,378.92
	Capacity-Building for Water Service Providers	Urban	SERVICES BOARD	2013	Euro	2,024,595.43
	Nairobi Informal Settlements Water and Sanitation Improvement Programme	Urban	Athi Water Services Board	May 2008- Dec 2015	Euro	2,583,732.00
	Improving Access to Water Supply and Basic Sanitation for the Urban Poor	Urban	Water Services Trust Fund (WSTF)	May 2008- May 2015	Euro	10,251,243.00
<b>TOTAL</b>						<b>23,127,128.88</b>
Agence Française de Développement	Kisumu Water and Sanitation Project	Urban	LVSWB	Sept 2004- Dec 2009	Euro	20,000,000.00
	Solid Waste (Nakuru and Mombasa)	Urban	MOLG/Municipalities of Nakuru and Mombasa	May 2006- Dec 2011	Euro	17,000,000.00
	Nairobi Water & Sewerage Emergency Physical Investment Project	Urban	Athi Water Services Board	Jan 2006-Dec 2010	Euro	30,000,000.00
<b>TOTAL</b>						<b>67,000,000.00</b>
GTZ German Technical	Water Sector Reform Program	Urban	MWI	Mar 2007- Dec 2010	Euro	6,500,000.00
<b>TOTALS</b>						<b>6,500,000.00</b>
KfW German Financial	Malindi Water Supply Project	Urban	NWCPC Mgt Contract with Gauff Utility	Sept 1994- Dec 2006	Euro	15,700,000.00
	Sabaki Wellfield Rehabilitation Project	Urban	NWCPC/MWI	End 2007	Euro	2,600,000.00
	Nyeri Water Supply Project	Urban	MWI/ NYEWASCO	Dec 2007	Euro	10,200,000.00
	Water Sector Development Programme (WSDP) Phase I Step 1 + 2	Urban	LVNWSB	Sept 2004- 2009	Euro	20,200,000.00
	Water Sector Development Programme (WSDP) Phase II Step 1 + 2	Urban	LVNWSB	Nov 2006 and May	Euro	38,460,000.00
	Water Supply and Sanitation for the Urban Poor	Urban	WSTF	2008-2011	Euro	5,500,000.00
<b>TOTAL</b>						<b>92,660,000.00</b>
JAPAN-Grant Aid	Rural Water Supply	R ural	WSBs	08	YEN	497,000,000.00
	Development Study	Other	MWI/WRMA	08	YEN	300,000,000.00
<b>TOTAL</b>						<b>797,000,000.00</b>
SIDA/DANIDA		Kenya	WSTF		USD	<b>70,129,870.13</b>
	Flood and Drought Mitigation Component	Kenya	MWI, WSTF, WRMA	9-Dec	SEK	<b>47,000,000.00</b>
UNHABITAT	Water and Sanitation Trust Fund	Kenya			USD	26,000,000.00
UNFIP, SIDA, Govt of Netherlands	Managing Water for African Cities (MWAC)	Nairobi			USD	4,950,000.00
<b>TOTAL</b>						<b>30,950,000.00</b>
UNICEF	Water and Environmental Sanitation Programme				USD	5,700,000.00
<b>TOTAL</b>						<b>5,700,000.00</b>



## KENYA PORTFOLIO STATUS SUMMARY 15 OCTOBER 2009

PROJECT NAME	Financing Source	Approval Date	Effect. Date	Closing	Approved Loan UA	Disbursed Total	Disb. Ratio
<b>A. Public - Kenya</b>						UA	
1. Roads 2000 - Districts Rural Roads Rehabilitation Project: North and South Regions	ADF Loan	12.07.2001	29.04.2002	30.12.2008	20,000,000.00	8,459,285.02	42.30%
2. Nairobi - Thika Highway Improvement Project	ADF Loan	21.11.2007	29.07.2008	Dec. 2010	117,850,000.00	8,084,510.00	6.86%
	ADF Grant	21.11.2007	29.07.2008	Dec. 2010	3,150,000.00	-	0.00%
3. Rift Valley Water Supply and Sanitation Project	ADF Loan	07.07.2004	21.12.2004	31.12.2009	13,040,000.00	6,179,505.94	47.39%
	ADF Grant	07.07.2004	6.09.2004	31.12.2009	5,020,000.00	3,061,196.00	60.98%
4. Water Services Boards Support Project	ADF Loan	Nov-07	26.11.2008	Dec. 2011	35,190,000.00	133,722.00	0.38%
	ADF Grant	Nov-07	Dec-07	Dec. 2011	10,070,000.00	-	0.00%
5. Green Zones Development Support Project	ADF Loan	12.10.2005	27.02.2006	31.12.2013	25,040,000.00	10,824,792.00	43.23%
6. Ewaso Ng'iro North Natural Resources Conservation Project	ADF Loan	22.04.2005	27.09.2005	31.12.2012	13,590,000.00	4,708,935.00	34.65%
	ADF Grant	22.04.2005	16.06.2005	31.12.2012	2,890,000.00	636,667.00	22.03%
7. ASAL-Based Livestock and Rural Livelihoods Support Project	ADF Loan	17.12.2003	22.09.2004	31.12.2011	18,410,000.00	13,744,906.00	74.66%
	ADF Grant	17.12.2003	09.08.2005	31.12.2011	3,170,000.00	2,420,016.61	76.34%
8. Kimira- Oluch Smallholder Farm Improvement Project	ADF Loan	31.05.2006	21.09.2006	30.09.2013	22,978,992.00	564,690.97	2.46%
	ADF Grant	31.05.2006	20.10.2007	30.09.2013	1,153,332.00	44,403.28	3.85%
9. Small-Scale Horticulture Development Project	ADF Loan	05.09.2007	20.5.2008	Jan. 2014	17,000,000.00	421,600.00	2.48%
10. Education III Project	ADF Loan	17.12.2003	24.11.2004	31.12.2010	24,260,000.00	4,056,272.00	16.72%
	ADF Grant	17.12.2003	24.11.2004	31.12.2010	6,750,000.00	68,175.00	1.01%
11. Rural Health III Project	ADF Loan	07.07.2004	15.03.2005	31.12.2010	17,180,000.00	2,566,692.00	14.94%
	ADF Grant	07.07.2004	15.03.2005	31.12.2010	6,000,000.00	3,171,755.17	52.86%
12. Kenya Institutional Support to Good Governance	ADF Grant	26.07.2006	08.12.2007	30.09.2009	5,520,000.00	966,552.00	17.51%
13. Community Empowerment & Institutional Support Project	ADF Loan	17.12.2007	02.07.2009	Mar. 2013	17,000,000.00	340,000.00	2.00%
14. Kisumu District Primary Schools Water and Sanitation Project	AWF	19.12.2006	29.01.2007	Sep-08	198,317.04	198,317.04	100.00%
15. Technical Industrial Vocational and Entrepreneurship Training (TIVET)	ADF Loan	16.12.2008	15.05.2009	31.12.2013	25,000,000.00	1,770,000.00	7.08%
16. Integrated Land and Water Management	AWF	06.02.2009	27.08.2009	31.12.2011	1,936,000.00	-	0.00%
17. Restoration of Farm Infrastructure and Support Project	ADF Loan	29.04.2009		30.06.2013	15,000,000.00		0.00%
18. Mombasa - Nairobi Power Transmission Line	ADF Loan	06.05.2009			50,000,000.00		0.00%
<b>Sub-total</b>					<b>477,396,641.04</b>	<b>72,421,993.03</b>	<b>15.17%</b>
<b>B. Public - Multinational</b>							
19. Mombasa - Nairobi - Addis Ababa Road Corridor Project	ADF Loan	13.12.2004	07.04.2005	31.12.2010	33,600,000.00	12,458,880.00	37.08%
	ADF Grant	13.12.2004	07.04.2005	31.12.2010	1,200,000.00	348,070.68	29.01%
20. Arusha - Namanga - Athi River Road Development Project	ADF Loan	13.12.2006	30.04.2007	31.12.2012	49,241,000.00	15,407,508.90	31.29%
21. Creation of Sustainable Tsetse Eradication Program	ADF Loan	08.12.2004	07.04.2005	31.12.2011	6,550,000.00	5,418,815.00	82.73%
	ADF Grant	08.12.2004	07.04.2005	31.12.2011	240,000.00	105,425.00	43.93%
22. Nile Equatorial Lakes Electric Grid - NELSAP	ADF Loan	27.11.2008	-	31.1.2014	17,730,000.00	-	0.00%
23. Mombasa - Nairobi - Addis Ababa Road Corridor Project Phase II	ADF Loan	01.07.2009			125,000,000.00		0.00%
<b>Sub-total</b>					<b>233,561,000.00</b>	<b>33,633,274.58</b>	<b>14.40%</b>
<b>Sub total (A + B)</b>					<b>710,957,641.04</b>	<b>106,055,267.61</b>	<b>14.92%</b>
<b>C. Other</b>							
24. African Virtual University Support Project	ADF Grant	13.12.2004	07.03.2005	30.09.2009	5,000,000.00	4,053,500.00	81.07%
<b>Total</b>					<b>715,957,641.04</b>	<b>110,108,767.61</b>	<b>15.38%</b>