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**AFRICAN DEVELOPMENT
BANK GROUP**

URGENT WATER SUPPLY AND SANITATION REHABILITATION PROJECT

COUNTRY: ZIMBABWE

PROJECT APPRAISAL REPORT

October 2010

Appraisal Team	Team Leader:	E. Alemseged, Senior WSS Engineer , OWAS.2
	Team Members:	M. Assefaw, Principal Financial Analyst, OWAS.2 A. Boniface, Principal WSS, OWAS.2 P. Njuguna, WSS Engineer (Cons), OWAS.2 K.P. Ntoampe, Principal Environmentalist, ONEC3 A. H. Ayad, Principal Procurement Specialist,
	ORPF1	
	Sector Manager	S. B. Jallow, Manager OWAS
	Sector Director:	A. Kies, Director, OWAS/AWF
Regional Director:	E. Faal, Director, ORSA	

Peer Reviewers	P. Akari, Chief Water Policy Officer, AWF Egbert H.J. Schrotten, Water and Sanitation Engineer (Cons), OWAS.2

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Currency Equivalents

October 2010 1UA = US Dollar (USD) 1.55619

FISCAL YEAR:

1 Jan – 31 Dec

Acronyms and Abbreviations

ADB	African Development Bank		for the Co-ordination of Humanitarian Affairs
ADF	African Development Fund	O&M	Operation and Maintenance
AWF	African Water Facility	PA	Procurement Agency
CAP	Consolidated Appeal Framework	PIE	Project Implementation Entity
DFID	Department for International Development, UK	PT	Project Taskforce
EIRR	Economic Internal Rate of Return	STERP	Short Term Emergency Rehabilitation Program
ECHO	European Commission's Humanitarian Aid Office	UFW	Unaccounted for Water
GOZ	Government of Zimbabwe	UWSSRP	Urgent Water Supply and Sanitation Rehabilitation Project
GPA	General Political Agreement	WACC	Weighted Average Cost of Capital
ICB	International Competitive Bidding	WSS	Water Supply and Sanitation
IG	Inclusive Government	ZEMA	Zimbabwe Environmental Management Authority
MDTF	Multi Donor Trust Fund	ZESA	Zimbabwe Electricity Supply Authority
MEPBF	Macro Economic Policy and Budget Framework	Zim-Fund	Zimbabwe Multi-Donor Trust Fund
MLGRUD	Ministry of Local Government, Urban and Rural Development	ZINWA	Zimbabwe National Water Authority
MOENRM	Ministry of Environment and Natural Resources Management		
MOF	Ministry of Finance		
MOHCW	Ministry of Health and Child Welfare		
MOWRDM	Ministry of Water Resources Development and Management		
NAC	National Action Committee		
NCB	National Competitive Bidding		
NGO	Non-Governmental Organization		
OCHA	United Nations' Office		

ZIMBABWE: URGENT WATER SUPPLY AND SANITATION REHABILITATION PROJECT

MPDE MATRIX

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH BENEFICIARIES	PERFORMANCE INDICATORS, SOURCE, PERIODICITY	INDICATIVE TARGETS, TIMEFRAME	RISKS, MITIGATING MEASURES
<p><u>Goal:</u></p> <p>To improve the health and social well being of the population through equitable provision of adequate water supply and sanitation services;</p>	<p><u>Impact:</u></p> <p>Increased access to improved water supply and sanitation services;</p> <p>Improved public health</p>	<p>The entire national population.</p>	<p><u>Impact Indicators</u></p> <p>Coverage of safe drinking water and adequate sanitation;</p> <p>Incidence of water related diseases</p> <p>Source: National Statistical Report, Baseline data collected under the studies and Government statistical bulletins and economic report</p>	<p>The entire population having access to adequate water supply and improved sanitation by 2030.</p> <p>All wastewater treated by 2020</p> <p>Outbreaks of water related diseases eliminated by 2015</p>	<p>Country's political situation continues to improve to allow proper sector planning and development to take place;</p> <p>Continued sector development support by GOZ and development partners;</p>
<p><u>Purpose:</u></p> <p>1. To provide urgent support for restoration and stabilization of water supply and sanitation</p>	<p><u>Outcomes:</u></p> <p>Increased reliability, quality and</p>	<p>A total population of approximately</p>	<p><u>Outcome Indicators:</u></p> <p>Production of potable water ;</p>	<p>Total water production stabilized and increased</p>	<p>Risk of weak project implementing institutions will be mitigated by</p>

<p>services in the Municipalities of Harare, Chitungwiza, Mutare, Chegutu, Masvingo and Kwekwe.</p> <p>2. To improve service delivery in the project areas.</p>	<p>availability of water supply in the project areas;</p> <p>Wastewater treatment capacity restored</p> <p>Reduced incidence of cholera and other water related diseases.</p> <p>Improved operational performance and efficiency</p>	<p>4.15 million people living in the six cities covered by the project;</p> <p>The transit population of nearly 0.75 million using the cities as nodal transportation points.</p>	<p>Treated wastewater;</p> <p>Incidence of cholera and other water borne diseases</p> <p>Revenue collection, efficiency and reduction of non revenue water</p> <p>No. of Staff trained (disaggregated by sex)</p> <ul style="list-style-type: none"> • Sources <ul style="list-style-type: none"> • Performance reports of each of the individual treatment works; • Quarterly Reports by the municipalities; • Works Commissioning Reports and Project Completion Report. 	<p>to 806,000 m³/d from 775,000 m³/d by Sept. 2012.</p> <p>A total wastewater treatment capacity of 184,325 m³/d restored for all the urban areas from 76,325 m³/d by Sept 2012;</p> <p>Cholera case fatality reduced to less than 1% by Sept. 2012.</p> <p>Revenue collection increased by 20%</p> <p>Non revenue water decreased by about 10% from estimated 50% presently.</p>	<p>engaging a project management agent who will assist in critical public sector functions such as procurement.</p> <p>Municipalities continue to improve institutionally and technically;</p> <p>Risk of failure to operate, and maintain the rehabilitated facilities. This will be mitigated through training of staff and provision of essential O&M supplies;</p> <p>More resources are made available to continue with the rehabilitation of the water</p>
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					<p>supply and sewerage infrastructure in the project areas;</p> <p>Risk of power insecurity</p> <p>MDTF power project and other planned investment to improve the security and other options of ensuring security being taken by Municipalities</p>
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<p><u>Activities:</u></p> <ul style="list-style-type: none"> - Provide engineering services; - Carryout most urgent repairs of water supply and sewerage systems in the five cities of Harare, Chitungwiza, Mutare, Chegutu, Masvingo and Kwekwe - Carry out improved sanitation and hygiene education promotion campaigns; - Provide institutional support through training of local staff and provision of improved tools and methods of their trades as well as improve the financial, billing and collection systems. - <p>Inputs/resources (in millions):</p> <p>MDTF : USD 29.651m (UA 19.622 m)</p>	<p><u>Outputs:</u></p> <p>Contracts awarded and works supervised;</p> <p>Improved operation of the water treatment works;</p> <p>Wastewater treatment plants reactivated and operations restored;</p> <p>Overflowing wastewater curtailed;</p> <p>Increased knowledge of proper sanitation and hygiene;</p> <p>Improved operation of water supply and sewerage</p>	<p>Of approximately 4.15 million people living in the six cities covered by the project.</p> <p>The six Municipalities of Harare, Chitungwiza, Mutare, Masvingo, Chegutu and Kwekwe.</p>	<p><u>Output Indicators</u></p> <p>Rehabilitated facilities.</p> <p>Cost of water treatment and cost of water supply service.</p> <p>Public campaigns conducted.</p> <p>Training sessions held with communities on proper hygiene and sanitation;</p> <p>Trained professional staff of the Municipalities;</p> <p>Community participation in the curtailing sewage overflows in high density areas;</p> <p>Sources:</p> <ul style="list-style-type: none"> ◆ Municipalities monthly reports; ◆ Progress reports ◆ Project supervision reports ◆ Project Completion Report 	<p>6 water treatment plants rehabilitated by Sept. 2012 ;</p> <p>A total 6 wastewater treatment plants refurbished by Sept. 2012;</p> <p>Public campaigns on anti vandalism and use of sand for pot cleaning and on improved sanitation and hygiene held in each city every six months</p> <p>Training sessions on improved sanitation and hygiene education held in each city every six months (60% of participant being women);</p> <p>100 staff in operations, maintenance, customer service,</p>	<p>Risk of implementation delays. To be mitigated through close follow-up and monitoring of progress by the Bank through MMU;</p> <p>Coordination problem will be mitigated by the PCT team to be established staffed with two key experts.</p>
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	<p>systems;</p> <p>Enhanced or improved financial, billing and collection system.</p>		<p>◆ Project audit report</p>	<p>planning and finance trained by Sept 2012 (20% women)</p> <p>Customer handling, billing and collection systems revamped with MIS for five municipalities</p> <p>Business plans and Medium and long term investment plans prepared for five towns.</p>	
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Summary

The Government of Zimbabwe (GOZ) has recognized in its Three Year Macro-Economic Policy and Budgetary Framework (MEPBF) (2010-12) as it did in the Short Term Emergency Programme (STERP) of February 2009, that a functioning infrastructure is one of the vital key factors for resuscitating the economy in addition to ensuring the safety and wellbeing of its citizens. For water supply and sanitation (WSS) services, a lot has been done to address emergency problems of the related infrastructure since the Government's request for emergency assistance following the 2008/09 cholera outbreak in the country which resulted in 4300 deaths and more than 98,000 cumulative cases by June 2009.

While the deterioration of the services (mainly those of water supply) has been arrested, in some of the urban areas, there is a lot of work still to be done to stabilize and improve the services, not to mention the mammoth task of restoring the services in the rural areas. The proposed project is therefore part of the ongoing efforts to improve the overall infrastructure in the country and those of WSS in particular. The project is in line with the priorities of the GOZ and interventions prioritized by the Zim-Fund.

The purpose of the project is to provide urgent support for further restoration and stabilization of water supply and sanitation services in six urban areas including Harare, Chitungwiza, Mutare, Masvingo, Kwekwe and Chegutu (serving an estimated population of 4.15 million). The project will also boost the capacity of the six Municipalities in the operation and management of these services. The works entail urgent repairs and rehabilitation of critical installations including pumping stations, electro-mechanical works, treatment plants, and water supply distribution system. For sanitation, the urgent repairs include critical trunk and outfall sewers, booster pump stations and treatment works as well as treated effluent disposal facilities. Technical assistance will be provided to improve the overall corporate governance and financial sustainability of the services and boost the operation and maintenance capacity. While building the capacity of the municipalities planning functions, a medium to long term investment plans will be prepared for the towns. The project will also support community sensitization and promotion of improved sanitation and hygiene.

The total project cost is USD 29.651 million to be financed by the Multi-Donor Trust Fund (Zim-Fund). The works will be implemented over a period of 18 months. The six Municipalities covered by the project will be the direct beneficiaries of the project. The processing and implementation of the project will be guided by the Operations Manual developed for Zim-Fund. Due to the urgency of the project and special circumstances in Zimbabwe, the project will be implemented through an independent Project Implementing Entity (PIE) and Procurement Agency (PA) on behalf of the Government of Zimbabwe. The project will receive an overall guidance from a steering committee to be established composed of key sector ministries and the Municipal Councils.

The proposed project comprises an essential and significant additional step towards the restoration of WSS services in the country. For water supply systems, it will ensure use of the full water production potential and improve its distribution to the beneficiaries. For the sewerage services, the project will ensure capture and at least partial treatment of most of the wastewater being generated in these urban areas. It will also improve the delivery of these services by introducing better management, operation and maintenance, customer service, billing and collection and financial systems and the necessary training of the local staff at each of the responsible Municipalities.

INTRODUCTION

1.1 The political impasse in Zimbabwe of the last decade has severely affected all sectors of the economy including infrastructure. With limited resources for maintenance, most of the infrastructure including that of water supply and sanitation has fallen into disuse with inevitable deterioration of the services. As a result, the quality of both water supply and sanitation services has seriously been compromised. The dilapidated state of the infrastructure throughout the country was a major contributing factor in the severe cholera outbreak during 2008/09 rainy season. A total of 98,592 cases and 4,288 deaths were reported by June 2009. Until the delivery of water supply and sanitation services has been improved, this threat of outbreaks of water related diseases including cholera will always remain.

1.2 Restoration and improvement of public services has been a priority of the Inclusive Government (IG) as elaborated in its Short Term Emergency Rehabilitation Programme (STERP) of February 2009. With donor support and mainly as a response to the cholera outbreak, the Government has been able to undertake urgent measures to avert similar epidemics. Water treatment chemicals have been made available since early 2009. Some emergency works including replacement of some essential and critical equipment like valves, pumps, chemical dosing and essential civil works have been carried out. A rapid assessment to establish the status of the main water supply and sewerage infrastructure in most of the bigger towns throughout the country has also been carried out, identifying emergency, short-term and medium term rehabilitation works. For its part, the Bank has through the African Water Facility, provided funding to fix some emergency works in the Municipality of Chitungwiza, formerly a satellite town of Harare. In addition, the Bank also provided some emergency assistance during the height of the cholera outbreak in 2009 and in 2010 to strengthen the cholera response plan.

1.3 To facilitate continued emergency and urgent assistance to Zimbabwe, a number of Donors have established a Multi-Donor Trust Fund (Zim-Fund), the purpose of which is to provide additional resources required to continue with rehabilitation works in order to restore the services in the country. The Bank has been mandated to administer the Fund. The Program Oversight Committee (POC) comprising of contributing donors and representative of the GOZ is to oversee the implementation of the Zim-Fund, ensure alignment and coherence of the activities

with the Government's recovery program and development programmes, endorse project briefs and proposals and recommend to the Bank the allocation of funding to the endorsed projects. The processing and implementation of project financed by the Zim-Fund will be guided by the Operations Manual developed for the Fund. In line with the procedures, the proposed project's brief was approved by the Zim-Fund Policy Oversight Committee (POC) on 25 October 2010 which led to the preparation and appraisal of the project in detail.

1.4 The proposed Urgent Water Supply and Sanitation Rehabilitation Project is the first intervention proposed for financing under the Zim-Fund. The project was prepared through wide consultations with both the donors in Zimbabwe and the various arms of the Government and local authorities. It covers the main urban areas of Harare, Chitungwiza, Chegutu, Masvingo, Mutare, and Kwekwe.

BACKGROUND

2.1 General Background

2.1.1. Following the signing of the Global Political Agreement (GPA), the Inclusive Government's (IG) agenda was defined by the Short Term Emergency Recovery Programme (STERP) of February 2009. The programme's main objectives were to stabilize the economy and restore social services. The key priority areas of STERP covered: economy, infrastructure, social and human rights. STERP was only a nine months programme which came to a close by end of 2009. A review of the progress made on STERP indicates that remarkable results were obtained in some areas particularly those relating to the economy, including reduction of inflation, resuscitation of business activity, removal of prices distortions, improved management of public resources, recovery of basic service provision, normalization of financial services, re-engagement with the international community, as well as confidence building. Some progress has been made by in the restoration of basic services including WSS. A number of programmes were undertaken or started, but in most cases the duration of STERP was too short a time for many of these to be completed. It should also be noted that inadequate funding was a severe setback to the infrastructure restoration and limited what could possibly be achieved. Therefore, major challenges still remain in connection with the delivery of adequate and safe water, while very poor sanitation conditions still prevail in nearly all urban areas.

2.1.2 A three year Macro-Economic Policy and Budget Framework (MEPBF) (2010-2012), referred to hereafter as the Framework, has now succeeded STERP. MEPBF is aimed at building on the achievements of the latter in order to achieve a rapid and sustainable economic growth and development. As was the case under STERP, rehabilitation, expansion and maintenance and upgrading of the infrastructure including that of water supply, sanitation, power, transportation and telecommunication has also been accorded high priority under MEPBF. The Framework will build on macro-economic stability attained under STERP towards a sustainable rapid inclusive growth of the economy and development. It will address the challenges and unfinished agenda of

STERP. Under the Framework, the Government intends to continue with those programmes started but not completed under STERP, including urgent rehabilitation works of the infrastructure, rebuild capacity for the sector, and address some of the outstanding policy issues.

2.2 *Water and Sanitation Sector*

a) General Status of Development

2.2.1 Zimbabwe has limited water resources and generally depends on surface storage for its water needs. The country has approximately over 2,200 dams, of which 213 are classified as large dams under the International Commissions for Large Dams (ICOLD) definition. Like the rest of the infrastructure, some of the dams are at risk due to the prolonged period without adequate maintenance. By 1998 the country had started moving towards decentralized water resources management in accordance with its Water Act and Integrated Water Resources Management Strategy. However, due to lack of resources including financing and skilled manpower, the decentralization process has not progressed as planned.

2.2.2 Regarding provision of WSS services, Zimbabwe had by the end of the last decade, made remarkable progress in the provision of these services. It had achieved a total coverage of 56% for water supply and 55% for sanitation, with water supply coverage for urban population reaching over 99% during the same period. The situation has since deteriorated. For the urban areas, rough estimates indicate that global coverage is now only 40% for sanitation and 60% for water supply, while in rural areas it is 25% for sanitation and 40% for water supply.

b) Institutions and Policy Framework

2.2.3 Too many institutions are involved in the water and sanitation sector. The Ministry of Water Resources Development and Management (MWRDM) has the overall responsibility of the development and management of the water resources in the country. ZINWA, a parastatal of this ministry, provides technical support to decentralized management of these resources directly to Catchment Communities. This entity is also responsible for water supplies in the country's many rural growth centers. The Ministry of Local Government, Urban and Rural Development (MLGURD) (through the local authorities) is responsible for the provision of these services in both urban and rural areas. The Ministry of Health and Child Welfare through its Department of Environmental Health is responsible for promotion of improved public health and rural sanitation. It is also responsible for individual water supply facilities in the rural areas like hand dug well, springs, etc. Other sector institutions include the District Development Fund which invests in rural water supply and their maintenance. This fund used to be under MLGRUD has been moved to the Office of the President. In addition, there is the Rural Capital Development Fund (RCDF) for rural infrastructure, including rural water supplies, which is housed in the Ministry of Transport, Communications, and Infrastructure Development.

2.2.4 In recognition of the urgency of a coordinated effort, GoZ established the National Action Committee (NAC) (re-launched in October 2010) for sector coordination and because of the cross cutting nature of WSS involving 8 Ministries, the MWRDM as primary ministry was put as Chair of the NAC and the council comprises representatives from the other 7 ministries. The major day to day running will be carried out by the NAC Secretariat reporting to the NAC.

2.2.5 The country prepared a revised water supply and sanitation sector policy in 2004, but this was never approved due to the ensuing political developments. Recent review of the same has however shown the overriding need for its further update in order to address the current issues and challenges facing the sector, and in keeping with the international trend of the sector development. There are compelling reasons to streamline the sector institutions in order to facilitate better coordination, and also address such issues as management of the resources, sector financing, and sustainability of the services particularly those of the rural areas.

c) Existing Water Supply and Sanitation Systems

2.2.6 Due to the prolonged period of inadequate operation and maintenance (O&M), the existing WSS systems were by 2008 operating well below their installed capacities. Water supply systems in urban areas have been operating with skeleton equipment including some of their critical installations like intake works, pump stations and treatment plants. In many cases, there were no provisions for standby, and breakdown of a single piece of equipment would leave the entire city's population with no water supply. Nearly all water treatment plants had been operating without sufficient filter sand, proper flow measurement devices and chemical dosing equipment. Needless to mention, water treatment chemicals had also become rare. Inevitably people were being supplied with water of substandard quality.

2.2.7 Since mid 2009, some external assistance mainly channeled through UNICEF and NGOs, has made it possible to alleviate and stabilize the precarious water supply situation in a number of urban areas including the City of Harare. These interventions have been targeted at the most critical aspects of the infrastructure including replacement of some pump equipment, flow control valves, rehabilitation of some of the filters, etc. and also support with the provision of water treatment chemicals. In most cases, these efforts are still stopgap measures to arrest the deterioration of the infrastructure. They have also bought time to allow for the major rehabilitation works to be carried out. Regarding sanitation, the situation has not been markedly improved by external assistance as is the case with the water supply, and can at best be described as grim. The majority of the urban sewerage systems have almost ceased to function. Wastewater spills especially in high density areas are still common. In some cases, trunk sewers have collapsed or deliberately blocked to provide water for irrigation, many booster pump stations also do not work. This means that little or no wastewater ever gets to the treatment plants, leaving most of these facilities standing idle. In the meantime, untreated raw sewage is dumped into the environment. Due to the common situation where cities are built in the same catchments they get their water supply from, failure to adequately treat wastewater means serious pollution

of such sources of water is occurring. Unfortunately, the greater the level of pollution, the higher the cost of treating the water in making it fit for consumption. With the water supply and sanitation infrastructure in such a poor state, the outbreak of cholera in 2008/09 (with nearly 100,000 cases and 4,266 deaths) was just a disaster waiting to happen.

2.2.8 The brain drain from the sector has contributed to the deterioration of the service quality and poor operation and maintenance of the infrastructure. Most of the qualified staff like in all other professions, sought greener pastures when the country's economic performance took a nosedive. This situation was further compounded by some unexpected institutional changes which transferred all the urban water supply and sanitation services from the local authorities to Zimbabwe National Water Authority (ZINWA) by 2005 and then back to local government control after only 4 years. The transition was carried out without adequate preparatory work that led to both loss of more production capacity and a further deterioration of the services. Fortunately, most of the local authorities appear to have retained a small but dedicated staff. These new cadres require capacity enhancement support to deal with the demands of management of delivery of adequate water supply and sanitation service.

2.2.9 For the rural areas, the systems which had been put in place to deliver the services including boreholes, formation of community groups and water committees have since disintegrated. Many of the boreholes which were the main means of supply have also broken down. Currently, the communities are drifting back to open water sources for their water supply needs.

2.2.10 The poor status of the distribution system in most of the urban areas also makes it difficult to have a serious metering system. With most of the meters not functioning properly, billing and revenue collection is not reliable. Support services providers are severely constrained by lack of sufficient materials to carry out their work including tools and equipment. It is also a common practice by nearly all municipalities to use revenue from water services to cover other municipal expenditures. This means that revenue from water and sewerage services is not being used to undertake the basic necessary operations and maintenance of the systems, which calls for an urgent need for institutional reforms. A good starting point would be for municipalities to ring-fence the accounts and funds of water supply and sewerage services in order to ensure that the funds are primarily used for operations and maintenance of WSS systems.

d) Donors Activities and Aid Coordination

2.2.11 Until recently, Donor support to Zimbabwe almost disappeared during the country's internal crisis. The occurrence of the Cholera outbreak in 2008/09 coincided with gradual return of some donor support for the country. Through UNICEF, WHO and some international NGOs, donors responded quickly to the crisis. Most of the assistance provided was targeted at addressing the most urgent aspects including provision of water treatment chemicals and urgent rehabilitation. For the main urban areas, the most significant of the contribution came from the

Government of South Africa with USD 17 million to finance the emergency rehabilitation works for the WSS infrastructure in the City of Harare. The German Government which through GTZ, has provided funding for rapid assessment of 8 of the largest urban areas in the country including Harare, and then went on to provide slightly over USD 6 million to finance the emergency rehabilitation of the WSS systems in urban areas of Gweru, Kadoma, and Kariba. Australian Aid has contributed USD 10.2 million towards rapid assessment, chemical provision and rehabilitation works for various towns through UNICEF and NGOs. It has also approved an additional USD 4.15 million for further assistance. It also plans to undertake further investment in the rehabilitation of the Bulawayo water and sanitation systems. The World Bank has committed USD 3 million to finance similar works for Beitbridge town. The latter is also planning to launch an institutional support assistance comprising technical assistance and studies on some crucial areas like policy formulation and tariffs setting for the sector. The AWF has financed (Euro 2 million) the rehabilitation works for water supply and sewerage systems within Chitungwiza Municipality. The ADB provided two consecutive emergency relief support (USD 2 million) through WHO to contain the cholera outbreak of 2009 and strengthen the national systems in 2010. The European Union through, ECHO has provided approximately USD 5.55 million, to finance emergency interventions in a number of the larger urban areas in the country.

2.2.12 In response to the cholera outbreak, a lot of assistance has been channeled through the Water Sanitation and Hygiene Cluster (WASH) of UNICEF with OXFAM GB as co-lead. The members of the cluster include UNDP, WFP, WHO, Governmental organizations, International and Local NGOs. The WASH partners have provided support by concentrating on rehabilitation of water points, distribution of non food items and provision of safe water to communities, including drilling of 200 boreholes in urban areas. In addition, training activities and hygiene promotion have been conducted to mitigate the impacts of another cholera outbreak.

2.3 *The Project Area*

2.3.1 The proposed project forms a crucial and essential step towards rehabilitation of the most urgent aspects of the WSS infrastructure, and capacity development of the service providers. It provides a bridging gap while preparations are made for comprehensive and more detailed rehabilitation and upgrading works as well as institutional and overall sector reforms.

2.3.2 In view of the current status of the WSS infrastructure in the country, and in keeping with the agreed need to prioritize the works due to limitations in funding, six urban areas have been identified for financing under the proposed project. In making the selection, the factors taken into account: the areas where there has been minimum support by either the Government or donors, the magnitude of the support required and sensitivity of the system, the number of likely beneficiaries and impact, the need to avoid emergency situations and support to transition to medium and long term investment, and the significance of the intervention to contribute to the recovery of the economy. Following consultations with partner government agencies and stakeholders, the capital city Harare, Chitungwiza, Mutare, Kwekwe, Chegutu and Masvingo

have been selected to benefit from this project. The combined population of these towns is estimated at 4.15 million.

2.3.3 The status of water supply and sanitation services in each of these areas very much fits the description given in section 2.2.3 above. The water supply systems are barely coping while the sewerage infrastructure is almost non-functional. The Table 2.1 below summarizes the capacities of the systems in each City. A brief on the status of the infrastructure in each of the urban areas is given in Annex 2.

Table 2.1 – Situation of WSS Systems in Project Areas

City		Population	Water Supply		Demand (m ³ /d)	Sewerage System	
			Installed Capacity (m ³ /d)	Actual (m ³ /d)		Installed Capacity (m ³ /d)	Actual (m ³ /d)
1	Harare	2,500,000	704,000	645,000	1,200,000	487,000	55,000
	Chitungwiza	1,000,000				56,000	0
2	Mutare	300,000	65,000	54,000	75,000	75,000	8,625
3	Kwekwe	120,000	90,000	45,000 [^]	36,000	10,000	3,700
4	Chegutu	120,000	12,000	8,000	36,000	10,000	6,000
7	Masvingo	110,000	30,000	23,000	48,000	21,000	3,000
	Total	4,150,000	901,000	775,000	1,395,000	618,500	76,325

[^] Treatment works at Kwekwe were built and co-owned with ZIMCO, to supply both Kwekwe and the nearby town of Redcliff, the centre of operation of ZIMCO. Unfortunately the operations for the latter have closed down like so many other industries.

URGENT WATER SUPPLY AND SANITATION REHABILITATION PROJECT

3.1 Rationale / Strategic Context

3.1.1 The GOZ recognizes the vital role of functioning infrastructure in economic development. The current three year MEPBF also continues to accord high priority to infrastructure rehabilitation and therefore the need to continue and speed-up the related activities started under STERP. The proposed project therefore falls within the current development priorities of GOZ of wider rehabilitation of the infrastructure which is expected to form one of the cornerstones of creating a functional and dynamic economy which the Zim-Fund is to contribute. Furthermore, substantial rehabilitation works have already been carried out using

assistance given so far. Still some of the urban areas are yet to benefit from any substantial assistance in improvement of service and their systems are in urgent need for rehabilitation. The proposed project will cover some of the outstanding short-term urgent rehabilitation requirements and will help the towns to transit to tackle the medium and long term challenges. It will significantly boost the capacity of the service providers to plan, operate and maintain their systems and help prevent further deterioration. It provides a bridging gap while preparations are made for more comprehensive and detailed rehabilitation and augmentation projects to be prepared.

3.2 Goals and Objectives

3.2.1 The goal of the water supply and sanitation sector in Zimbabwe is to improve the health and social well being of the population, and to enhance the performance of the national economy, through equitable provision of adequate water supply and sanitation services. The main project objective is to provide urgent support for restoration and stabilization of water supply and sanitation services in the Municipalities of Harare, Chitungwiza, Mutare, Chegutu, Masvingo and Kwekwe, and to improve their sustainability.

3.3 Project Description

The Project Outcomes

3.3.1 The project will have an impact of improving the health and socio economic situation of the people living in the project beneficiary towns. The main cause of the 2008/09 cholera epidemic was the failure of water and sanitation services, and poor hygiene practices. The main project's outcomes include improved reliability of water supply in all the six project areas. The systems will be better operated, more water of better quality supplied for longer periods of the day. For sanitation, the outcomes will be improved health of the beneficiaries due to adoption of better hygiene practices and cleaner environment in each of the project areas. The restoration of some wastewater treatment capacity in the project areas including Harare will in particular reduce pollution to the raw potable water sources and hence reduce cost of the water treatment chemicals used. The investment and capacity building will foster improved service delivery and relationship between the providers of water supply and sanitation services and the people they serve.

Projects Outputs

3.3.2 The project will deliver improved essential infrastructure including refurbished intake works, pumping stations, treatment plants and distribution system. Critical pumping equipment and related electro-mechanical works for the major stations will be refurbished. For the water treatment plants, proper treatment will be restored by rehabilitated flow measurement devices and replacement of critical valves, and chemical dosing and pumping equipment. Critical water supply lines as well as system and customer meters will be repaired or replaced, to improve flow

and billing to consumers. It is expected that the project will lead to improved utilization of existing installed capacities from 86% to 90%, reduction of non-revenue water by about 10% and improvement of the quality of the water supply and sanitation services.

3.3.3 On the sanitation aspects, adequate flows will reach the wastewater treatment plants. At least partial treatment of the wastewater will be provided and thus reduce the environmental degradation currently taking place through the discharge of untreated wastewater. The unsightly flow of raw sewage in habited areas particularly high density areas will be eliminated following rehabilitation of the sewers in such parts of the towns covered. Approximately, a total of 184,325 m³/d of wastewater will receive at least primary treatment before being discharged into the environment.

3.3.4 All the six participating Municipalities will benefit from improved capacity building to manage their WSS services. The financial management, billing and revenue collection systems will be improved and the staff will be trained with support from the project. In addition, the project will include public mobilization, sensitization and education to be undertaken as part of its scope in order to leave behind enlightened communities. Indirectly this will lead to improved health and better functioning services after understanding the implications of some reckless actions, e.g. deliberate blocking of sewers and vandalism which is currently contributing to the poor services delivery will also be reduced through these public awareness campaigns. The capacity of the staff in all the project areas will be enhanced to improve the operation and maintenance of the systems.

Project Design

3.3.5 The project is identified in consultations with stakeholders and partners. It is technically informed by the Rapid Assessment Studies conducted with support from Development Partners and recent developments in the sector. During preparation and appraisal of the project, field visits were made to all project participating towns and numerous consultations were made to identify priority interventions. The project is comprised of four components; (i) Rehabilitation of water supply and sewerage infrastructure, (ii) Promotion of Improved Sanitation and Hygiene Education (iii) Institutional Support, and (iv) Project Management and Engineering Services.

Detailed Description

A. *Rehabilitation of water supply and sewerage infrastructure* – Depending on the status of disrepair of WSS infrastructure in each of the project's six urban areas, this component will include repair and/or replacement of the most critical components to enable increased and improved treatment capacity of both water supply and that of wastewater. The work will cover low and high lift pump stations (electro-mechanical works) valves and fittings, telemetry, rehabilitation of treatment works – flow monitoring and metering systems, electro-mechanical works, replacement of filter sand, chemical dosing equipment, and clear water pumping stations, transmission and the distribution system - draining and cleaning of reservoirs, system meters

and customer metering. For sewerage, the work will entail rehabilitation of the main outfall and trunk sewers, booster pump stations, treatment plants to achieve at least preliminary treatment, sludge digestion and disposal and repair of sewers blockages. Necessary pipes and fittings will be provided to enable the municipalities to continue with rehabilitation works, and encourage participation by communities in the up keep of assets. And lastly, the Water Department in each Municipality will be provided with necessary plant, equipment, and means of transportation in order to improve the quality of O&M and thus service delivery. The details of the water supply and sanitation activities to be undertaken in each of the project towns are provided in Annex II of this report.

B. *Promotion of Improved Sanitation and Hygiene Education* – This component will comprise sensitization of the communities in the project cities, especially those living in high density areas on the importance and practice of proper hygiene and sanitation practices both at household and neighborhood levels. This will involve the preparation of appropriate educational messages and their community wide dissemination. These messages will be diffused to target communities, and especially to school children with emphasis on improved personal hygiene and hence minimize chances of contracting water related diseases including cholera. Formation of or working with existing Community or Neighborhood Committees will be encouraged and for them to work with the local authorities in ensuring equitable and efficient service delivery and to foster good relationship between the service providers and the beneficiaries. The messages will also emphasize the importance of assisting the local authorities in keeping their neighborhood clean by e.g. avoiding indiscriminate solid waste littering and disposal, interfering with the sewer systems, i.e. deliberate blockages to use sewage for irrigation, putting debris in sewers, and the negative effect of using sand for cleaning pots which blocks sewer lines. The grave dangers posed by wanton vandalism of the infrastructure including theft of pumping and power supply equipment will also be emphasized and the communities encouraged participating in the implementation of the project. The latter should foster a sense of common ownership.

C. *Institutional Support*

The project will provide institutional support to upgrade the skills of the local staff responsible for O&M, and finance and accounting functions including improved customer service, billing and collection for the WSS services in each of the urban areas. The institutional support will also involve hands-on training during project implementation that will be geared towards reducing non-revenue water. The training will focus on introducing efficient O&M and streamlining the operations of WSS services at each municipality. In addition, suitable staff of the municipalities will receive appropriate short courses in the country to improve their skills. The support will recommend the most suitable financial and billing programmes together with the necessary hardware for running the WSS services, install and provide training on the systems. The institutional support shall also identify issues and challenges and prepare a road map for ring fencing the accounts and funds of water supply and sanitation services. Furthermore, the municipalities will receive support to improve their planning capacities. While providing the

support for planning functions, the municipalities will be assisted in the preparation of their medium to long term investment plans.

D. *Project Management and Engineering Services*– Under this component a Project Implementation Entity (PIE) providing project management and coordination services will be engaged. Engineering services will be provided to undertake assessment of the rehabilitation works, preparation of scope of works, detail design, specifications and drawings. The service will also include works supervision activities to ensure quality of works and its execution as per the design and specifications. An independent Audit firm will also carry out audit of the project annually.

Technical solution retained and other alternatives explored

3.3.6 The project has retained rehabilitation of the water and sanitation infrastructure as the best way to address the shortcomings in water and sanitation in the project beneficiary towns. With modest investments, it is possible to improve service provision as well as bring the facilities to their installed capacities. Other alternatives such as providing point sources (boreholes) for water supply have been implemented during the heights of the cholera epidemic for communities prone to the disease as emergency interventions. For sanitation on site alternatives are not technically and environmentally acceptable. Similarly the option of leaving raw sewage to flow to the natural environment is not acceptable.

3.4 *Socio-economic and Environmental Impacts*

Socio-economic

3.4.1 The project will impact nearly 4.15 million people residing in the six urban areas of Harare, Kwekwe; Chegutu, Masvingo, Chitungwiza and Mutare. In particular people residing in high density areas are the ones who are the most vulnerable to any failures of WSS services. This project will therefore benefit the most vulnerable communities in the project area. It was also evident during the site visits that children and women are by and large the ones responsible for getting water as seen in areas where communal water points are used. In that case the project will benefit women and children the most. On average, unemployment rate in the five towns ranges from 50-80% with most people involved in the informal sector. Inconsistent water availability from the municipal water systems affected communities significantly. They are forced to seek alternative sources spending their time away from other activities that are required for the people to sustain their day to day living. The project will therefore address this issue and add benefit and dignity to the people.

3.4.2 The need to seek alternative water sources and sanitation when central systems fail will be greatly reduced. Such alternative sources are often time demanding, and are fertile grounds

for disease transmission including epidemic outbreaks. Moreover the intermittent supply of water has resulted in an increase in diseases such as scabies and diarrhea and increased mosquitoes in Masvingo. These are mostly predominant among the poor yet these are the people who usually cannot afford private health services, and have to depend on the almost nonfunctioning public health services for routine and emergency care. Some of the children residing in these communities are exposed daily to unsanitary conditions when raw sewage overflow in the streets due to blocked or undersized sewers. The project will address some of these problems and mitigate their impacts including reduction of incidences and fatality from water and sanitation related diseases. This will in turn reduce the pressure on the ailing health sector. Both men and women will participate equally in the social mobilization and awareness campaigns to promote hygiene and sanitation, encourage behavior change and promote better living conditions.

3.4.3 Increased and reliable water supply will enable those industries which are dependent on adequate water supply to reopen or operate at higher production capacities. This will in turn help to alleviate the high unemployment rate prevalent in the country, currently estimated at 50 to 80% in all urban areas. Besides promoting improved health, reduction of pollution in rivers will also reduce the cost of water treatment.

Gender

3.4.4 While implementing the institutional support component, particular attention will be exerted to ensure full participation of women. The aim should be to enable them to participate and reach decision making positions in the organizations responsible for the delivery of WSS services. This will increase the understanding of women's needs and foster their access to water supply and sanitation facilities by removing gender barriers. The project will provide sustainable safe drinking water and hence reduce the time and effort needed by women and children to fulfil the daily household chores. Women will gain time for economic and other activities while children will have time to attend school. With the rehabilitation of the existing sanitation systems, this will reduce the exposure especially of children to unhealthy environment. A cleaner environment will mean reduced illness which will save women the costs involved and time spent caring for the sick. Mostly women will participate in the awareness campaigns aimed at reducing the siltation in the sewer pipe lines and blockage due to the use of sand as a pot scrubbing material. While it will be for the benefit of the municipalities, this will go an extra mile in the empowerment of women

Involuntary resettlement

3.4.5 No resettlements will arise as a result of this project. The works will mainly comprise urgent repairs of existing water supply and sanitation infrastructure, O&M capacity building and promotion of improved hygiene and sanitation.

Environmental Impacts

3.4.6 To a large extent, the project will mitigate the environmental degradation being caused by disposal of large volumes of untreated wastewater into the environment including water courses. The breakdown of most wastewater treatment facilities throughout the country is having major negative impacts on the environment and particularly on the country's water resources. This has been confirmed by recent studies on the status of water pollution in the country. These studies concluded that dumping of raw sewage into rivers is a major pollutant of and threatens the country's limited water resources. The situation is complicated by the fact that many of the urban areas have developed on the same catchment where they are getting water from and it is common in the project area for water abstraction points to be immediately downstream of the waste water treatment plants leaving very little time for natural attenuation. As such, failure to adequately treat wastewater means more pollution and higher cost of treatment from same water sources, which exposes people to risks of water related diseases, and also makes water treatment more expensive. This project therefore contributes to a cleaner environment by reducing the amount of untreated wastewater being dumped.

3.4.7 The project activities will mainly comprise repairs and replacement of existing equipment and limited civil works. This will have minimum negative impacts on the local environment with waste and sludge management and disposal being the significant impact. The bid documents will clearly elucidate the measures to be taken to protect the environment including observing proper working methods, replace any destroyed vegetation, and protecting the surrounding areas by ensuring proper disposal of discarded equipment and materials. The environment and social management plan will entail how the upgrade should be undertaken such that the sludge is not disposed in a manner that will contaminate the soil and groundwater resources. Included in the mitigation measures would be the prevention of nuisance in terms of dust, noise, vermin and odour. The project provides protective clothing for personnel engaged in the laying or cleaning of sewers and other sewerage appurtenances and will also look at fencing and or covering of some of the infrastructure which poses a great danger to children such as open manholes and ponds. The Agency responsible for project implementation will closely monitor the works execution to ensure that any negative impacts arising are mitigated as entailed in the ESMP, Annex VIII.

3.4.8 Urban agriculture also poses a challenge in the fact that it adds to the problem of siltation of treatment plants if it is uncontrolled, in addition it also increases the chance of freshwater pollution from pesticides and fertilizers. The project will therefore mitigate these aspects in terms of the training and awareness campaigns to be carried out and the improvement of some of the laboratories will therefore enable the relevant municipalities to test for more chemical parameters and hence protect the people from harmful chemicals in the drinking water.

Climate Change

3.4.9 The project has potential to generate climate change benefits through adaptation of initiatives to climate change variability. Water conservation, management and efficient use

proportionately impact precipitation that is highly linked to climate change variability. The project will reduce losses of water, improve its quality, conserve and manage the source. These efforts will involve reduction of un-accounted for-water through metering, rehabilitation of the water supply and sewerage infrastructure. These activities directly or indirectly contribute to climate change benefits. Detailed engineering designs related to the upgrade will ensure project sustainability through climate-proofing the project infrastructure to a certain extent. This will mostly entail consideration of more recurring floods and excessive dry spells in the project areas.

3.5 Project Costs and Financing

3.5.1 The total estimated cost of the UWSSRP is USD 29.651 million (UA 19.053 million) net of taxes and duties, and excluding the cost of procurement services which will be financed by the Fragile State Facility (FSF) of the ADB. The project costs have been derived from experience gained with similar emergency works currently ongoing for the water supply and sewerage installations in Harare and other urban areas, and also from the day to day repairs financed and carried out by the Municipalities. The summary of the costs are given in Table 3.1 below, while details are given in Annex III.

Table 3.1: Project Cost Estimates by Component

Components		USD (million)	UA (millions)
A	Rehabilitation of Water Supply and Sewerage Systems in the Six Urban Areas	24.857	15.973
B	Promotion of Improved Sanitation and Hygiene Education	0.300	0.193
C	Institutional Support	1.561	1.003
D	Project Management and Eng. Services	2.933	1.884
Total		29.651	19.053

3.5.2 The MDTF will finance the project cost estimated at USD 29.651 million (UA 19.053 m), which will meet the cost of the works, institutional support and the promotion of improved sanitation and hygiene education and project management and engineering services.

Table 3.2: Project Cost by Category of Expenditure [million]

	Category of Expenditure	Amount (USD)	Amount (UA)
A.	Works	24.857	15.973
B	Services	3.994	2.566
C	Miscellaneous	0.800	0.514
TOTAL PROJECT COSTS		29.651	19.053

PROJECT IMPLEMENTATION

4.1 *Grant Beneficiary*

4.1.1 The beneficiaries of the grant will be the six Municipalities covered by the project. The individual Municipalities will benefit from the financing in proportion to the cost of activities and works to be carried out in each area respectively. In each of the beneficiary project towns, the Town Clerk as the Chief Officer of the Municipality will be the responsible person. The Department of Water and Sewerage and that of Health will respectively in each case, be closely involved in the implementation of the project in their respective fields.

4.2 *Implementation Arrangements*

4.2.1 Procurement services will be provided by an experienced PA appointed for Zim-Fund financed projects. The PA will be delegated by the GOZ to carry out procurement functions including signing of contracts and processing of invoices for payments following certification by PIE.

4.2.2 A Project Implementation Entity (PIE) will be engaged to take the responsibility of project implementation on behalf of the beneficiaries. The PIE will coordinate, monitor and track project activities, supervise and manage the project. It shall have the requisite knowledge and expertise in water and sanitation, project management, knowledge of Zimbabwe, proven capacity, reputation and documented financial standing. The PIE is responsible for all project record keeping and reporting of the project activities to the Zim-Fund and the GOZ. It shall liaise with the Zim-Fund and all government structures and municipalities to address issues pertaining to the project as an implementing entity.

4.2.3 The engineering and institutional consultant will undertake quick assessment and prepare the scope, design of the works to be undertaken under the project and provide supervision services for the works contracts implementation. In addition, the consultant will also undertake a study for the medium to long term investment plans for the water and sanitation sector in the project towns and provide the institutional support and training program under the project. The consultant will also prepare the Terms of Reference for the recruitment of the NGO for undertaking the hygiene and sanitation promotion activities.

4.2.4 A Project Steering Committee comprising the Town Clerks of the concerned Municipalities, representatives from the Ministry of Finance (MOF) and members of the urban NAC subcommittee which includes MOHCW, Ministry of Environment and Natural Resources Management (MOENRM) and MOWRDM, and chaired by a Senior Staff of MLGRUD will be constituted. The Committee will as appropriate address all major issues arising, and provide overall guidance during project implementation. The MLGRUD as the lead institution will ensure that there is coordinated support for the project implementation from the government side at central as well as municipal level. The operation cost of the steering committee will be covered by the PIE who will provide secretarial service.

4.2.5 The project will be coordinated with other initiatives through existing coordination mechanisms. The urban NAC subcommittee will be reporting on the project to the NAC to ensure coordination with other national initiatives. Coordination with other development partners will be ensured through the WASH urban emergency rehabilitation coordination and the analytical Infrastructure Technical Review Group. The Bank will actively participate in these coordination fora and provide information on the progress of the project on a regularly basis.

4.2.6 As responsible authorities for water supply and sanitation services, each Municipality through its Department of Water and Sanitation and that of Health, will be closely involved in the implementation of the project in its own area. In particular, the staff responsible for O&M will be attached to the contractors for hands-on training and knowledge transfer, while the staff responsible for public health will work closely with the NGOs in community mobilization and sensitization as well as the promotion of improved sanitation and hygiene education.

4.3 Implementation Schedule

4.3.1 The project will be implemented over a period of 18 months. The key milestones will be the recruitment of the PA and commencement of the works, respectively scheduled for end January 2011 and beginning of October 2011, and the completion date, end of September 2012. An implementation schedule is given in Annex IX of this report.

4.4 Procurement Arrangements

4.4.1 An experienced Procurement Agency (PA), will be engaged to take over the overall project procurement responsibilities. The procurement of Goods, Works and Services under the project will be in accordance with the Bank's Rules and Procedures for the Procurement of Goods and Works as well as the Bank's Rules for the Use of Consultant and as elaborated in the Operational Manual of the Zim-Fund. The works which will be carried out in three contract packages i.e. (1) Works for Harare and Chitungwiza (2) Mutare and Masvingo, and (3) Chegutu and Kwekwe, will be procured through international competition, of prequalified contractors. The recruitment of the PIE and consultant for engineering and institutional capacity building services will be done based on a short list with Quality and Cost Based Selection (QCBS) method. The Auditing Firm will be procured based on a short list and the selection method will

be Least Cost Selection (LCS). Similarly recruitment of NGO to undertake promotion of improved sanitation and hygiene education will be through shortlist with selection method of QCBS. Details of the procurement arrangements are provided in Annex V.

4.5 Financial Management and Disbursement Arrangements

4.5.1 In accordance with the Zim-Fund financial management arrangements, the PIE will need to have acceptable financial management arrangements, which will ensure that: (1) the funds are used only for the intended purposes in an efficient and economical way, (2) are capable of correctly and completely recording all financial transactions relating to the project resources (3) the preparation of accurate, reliable and timely periodic financial reports, and (4) the assets are safeguarded. The financial statements will be prepared in line with the International Public Sector Accounting Standards.

4.5.2 Payment for all services and works will be made by direct disbursement to the service providers and contractors. Other Bank disbursement procedures could also be used if necessary. The PIE will maintain separate accounts for the Project clearly showing all the required financial details, including expenditures by component, category and financing source. The PIE will be responsible for preparation and submission of disbursement applications through the PA to the Zim-Fund.

4.5.3 An external auditing firm will be recruited to undertake the audit of the project annually in line with approved terms of reference by the Bank. An allocation has been made in the cost of the project to cover the cost of the external auditing services. The PIE shall provide all financial statements as well as technical reports to the Auditors. Certified copies of audited accounts will be submitted to all project stakeholders once completed.

4.6 Monitoring and Evaluation

4.6.1 The PIE will be responsible for the overall monitoring and evaluation of the project activities. It will produce a monthly progress report on status of the various project activities, financial and procurement status, asset management, community participation, safeguard and risks and mitigation measures. Once substantial completion of the project is achieved, the PIE shall prepare a project completion report providing all accounts of the project implementation, financial, procurement, asset, safeguard and measures of the achievements of the project against the indicators in the log frame. The report shall also provide lessons for future operations in similar circumstances. The project will be audited annually.

5 PROJECT JUSTIFICATION AND SUSTAINABILITY

5.1 *Justification*

5.1.1 Both the STERP and the current MEPBF clearly recognize the critical role of a functioning infrastructure in stabilizing and turning the economy around. There is a need for increased production in manufacturing and other key sectors in order to stimulate sustained economic growth. For most industries and commercial activities, this is currently not possible in an environment where water is rationed for many hours in a day, which is a common phenomenon in most urban areas. Furthermore, the cholera outbreak of 2008/09 triggered mainly by failed water supply and sanitation services was a stark example of how disruptive such an epidemic can be to all sectors of the economy. The proposed project is therefore timely as it will contribute to other ongoing efforts being made to provide a vital infrastructure necessary for economic growth of the country.

5.1.2 Technically both the proposed support under the project to boost the O&M capacity, and the urgent repairs will arrest the current deterioration of the water supply and sanitation infrastructure in the project areas and also stabilize the water supply production and restore some level of wastewater treatment. The works will mainly entail refurbishment of existing equipment and facilities, or their removal and replacement with similar items depending on the level of serviceability. The work will therefore pose no technical challenges in the O&M as the existing staff will already be familiar with such equipment.

5.1.3 The efforts being made to stabilize the economy and restore basic services, has also positively impacted on the performance of the Municipalities. They are presently recovering part of the operational costs of providing these services and some have even reached 50-60% level of revenue collection. Besides the many other problems being faced, lack of reliable water supply and sanitation services is undermining consumers' confidence and hence willingness to pay for the services. This inevitably reduces revenue collection and adversely impacts on O&M and hence the quality of the services. Increased and stable water supply and better services will mitigate this and improve the relationship between the Municipalities and their customers.

5.1.4 The beneficiaries of the proposed project will include the nearly 4.15 million people residing in the six Cities covered by the project. The project has many socio-economic justifications including the convenience of clean water services being available for longer periods, the reduced cost of water treatment through reduction of pollution of water sources from untreated wastewater. This will result in a healthier population through reduction of water related diseases and subsequent reduction in the cost of healthcare, time saving in seeking alternative water sources, as well as employment creation by those industries which have been adversely affected by unreliable WSS services. The project will help the Municipalities to re-gain their operational capacities and efficiencies which will contribute to the sustainability of these services.

5.1.5 Environmentally the project is justified by its major outcome of reduced pollution in the country's water resources by curtailing the volume of discharge of untreated wastewater. Improved environment will reduce the potential of water to transmit diseases as well as reduce the cost of water treatment as indicated above.

5.1.6 The economic benefits of the project are evaluated by the EIRR. The underlying assumptions for the computation of the EIRR are given in Annex B. The main assumptions are: non revenue water is projected to be reduced by 10% as a result of the project which results in incremental income, incremental water and sanitation benefits of the project, incremental health benefits from improved water supply and sanitation services and benefits due to reduced water treatment costs as a result of improved raw water quality. On the cost side, these include investment costs, replacement costs, and other items as part of operation and maintenance costs comprising of energy, chemicals, staff costs, maintenance and repairs, and other overhead costs have been taken into account. The incremental operations and maintenance costs are estimated at about 30% of the incremental revenue from incremental water supply and sanitation revenue. In addition, the economic life of the investment is estimated as 25 years. All the costs and benefits considered are net of duties and taxes. The EIRR for the project under the given assumptions is 22% and NPV (at 10%) is US\$ 37.2 million. The value is higher than the opportunity cost of capital for similar projects estimated as 12%. As such, the project is considered economically viable. Details are provided in Annex VI.

5.2 *Project Sustainability*

5.2.1 Under the project, the O&M staff of each council will be trained to better operate and maintain the installed facilities. They will also be provided with some supplies, equipment and tools, as well as protective clothing to facilitate their work. Besides improved health, the proposed promotion of improved sanitation and hygiene education will reduce cases of vandalism, misuse and deliberate destruction of the infrastructure. The increased supplies will promote increased revenue generation due to increased demand and customer satisfaction.

5.2.2 Most municipalities use revenue from water services to cover other expenditures (in addition to water and sewerage). Revenue from water and sewerage services is not being used to undertake the basic necessary operation and maintenance of the systems. The project will support the municipalities to ring-fence the accounts and funds of water supply and sewerage, to ensure that these funds are used primarily for appropriate operations and maintenance of WSS systems. In addition, the project will support the entities to improve their billing and revenue collection and financial management, therefore strengthening their capacity to sustain these services. Enhanced revenue generation and collection will also enable the entities to acquire the necessary inputs to properly maintain the infrastructure and thus avoid costly and similar rehabilitation programmes in future.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1.1 Conclusions

6.1.1 Within the limitations of available resources, GOZ is making efforts to restore essential basic services including those of water supply and sanitation. Using own resources and some assistance from donors, GOZ and the local authorities are continuously undertaking emergency repairs for the water supply and sanitation systems in most urban areas. These works are aimed at among other things, securing and stabilizing the water supplies, and reducing pollution of the environment including water sources. Remarkable progress has especially been made in Harare. Improved services will diminish chances of another cholera outbreak. The project presented herein will contribute to these ongoing efforts, and will improve WSS services in the six urban areas of Harare, Chitungwiza, Mutare, Masvingo, Kwekwe and Chegutu.

6.2 Recommendations

6.2.1 Considering the many socio-economic and environmental benefits of this project, it is recommended that the Bank approves a grant from the Zim-Fund not exceeding USD 29.651 million (UA 19.053 m) for the proposed project.

6.2.2 Conditions Precedent to:

A. Entry into Force of the Grant Protocol Agreement

(i) The Grant Agreement shall enter into force upon its signature;

B. Conditions Precedent to First Disbursement of the Grant:

ii) Provide evidence of having constituted a Project Steering Committee comprising the Town Clerks from each of the six cities covered by the project, officials from MOF, MOHCW, MOENRM and MOWRDM, and chaired by a senior official of the MLGRUD.

iii) Framework contract and specific project level agreement signed between the Ministry of Finance and the Procurement Agency to enable it to perform its duties on behalf of the Government of Zimbabwe.

C. Other Undertaking

(i) Ensure the engagement of a PIE acceptable to the Bank, and entry into an agreement, satisfactory in form and substance to the Bank, that sets out the terms and conditions of the PIE's engagement and its duties and responsibilities.

Annex II – Zimbabwe: Urgent Water Supply and Sanitation Rehabilitation Project

1. Harare

The City of Harare is the country’s political, commercial and industrial capital. It is built up on the high veldt at an elevation of 1482 m asl. It has a warm temperate climate with temperatures averaging around 18 °C and annual average rainfalls of 825 mm which fall in the warmest months of November to March. Metropolitan Harare has a population of approximately 2.5 million people. It is a beautiful city with modern buildings and lots of open parks. The City’s growth has been anchored on strict enforcement and pursuit of good development planning. It’s once impressive infrastructure of wide roads, modern water supply facilities, and a sophisticated sewerage system is now under threat and is showing signs of serious distress arising from long period of investment and inadequate O&M. The infrastructure has also not kept pace with the City’s rapid growth in population which has put additional stress on the already weakened infrastructure. To aggravate the situation, the city now extends to include a total of five townships including Chitungwiza, Norton, Ruwa and Epworth. These townships which bring the total population of Greater Harare to 4 million get bulk treated water from Harare, but each is responsible for the distribution and also for its own sewerage services.

Water Supply

Existing Installations	System Deficiencies	Proposed Emergency Works
<p>The City is supplied with water from the three dams build on the Manyame River. Chivero and Manyame located on the southern-most and also the lowest parts of the city, are the largest. Water is treated at the two plants of Morton Jaffrey (MJ) and Prince Edward with a combined output of 704,000 m³/d against an estimated demand of 1,200 m³/d. MJ is the largest plant and has an installed capacity of 614,000 m³/d while Prince Edward (PE)has a designed output of 90,000 m³/d. The water</p>	<ul style="list-style-type: none"> • Poor quality water coming from the dams which is difficult & expensive to treat by conventional means; • Prince Edward plant cannot produce its maximum output due to limitations on the raw water intake, general breakdown of the plant systems including pumping stations, filters, and the valve system; • Too many different types of chemicals are being used for the treatment of the water, a total of 8 in all. Being used in ever larger quantities at the main treatment works, MJ due to poor quality of raw water from the dams; 	<p>Emergency Works:</p> <ul style="list-style-type: none"> • Rehabilitate intake and treated water pumping stations at PE treatment works; • Replace flow monitoring systems and valves at the same plant; • Rehabilitate the filters; • Refurbish the water treatment plant No 1 and No 2 at MJ works; chemical dosing equipment and chlorinators; • Continue with the replacement of the old pipes and leakage control;

<p>supply production now has been raised to 602,000 m³/d from below 500,000 m³/d over a year ago. This improvement has been possible due to the assistance extended to Harare following the last cholera outbreak. The water is pumped to a number of distribution points throughout the city, from where it is fed to the consumers. Warren Control and Letombo being the largest of the distribution centers. The distribution network within the city comprises pipes of over 40 and 50 years old. The number of water connections in the city is approximately 235,000 of which 8,800 are industrial and commercial consumers. The estimated level of water losses averages over 40% though efforts are being made to control the situation. Water rationing is common in most of the parts of the city.</p>	<ul style="list-style-type: none"> • MJ still operates with many constraints in its chlorination, dosing and filtration systems which has still to be refurbished; • Flow monitoring and other control equipment has still to be fixed; • Breakdown of all the general metering equipment including bulk and customer meters making it impossible to monitor and manage the demand; • Unaccounted-for water losses very high and estimated to be over 40%; • Lack of proper materials supplies to ensure continuous O&M; • Lack of plant, tools and equipment for the operational staff, including protective clothing; • Frequent power breakdown makes it impossible to deliver predictable services; 	<ul style="list-style-type: none"> • Provide pipes and fittings for O&M. • Provide plant, tools and equipment for O&M teams. • Provide utility vehicles and transport for the operations' staff;
<p>Sanitation</p>		
<p>Existing Installations</p>	<p>System Deficiencies</p>	<p>Proposed Emergency Works</p>
<p>The City is served by a sewer system ranging from 100 mm to 1400 mm diameters. The bulk of the wastewater is pumped through a number of pump stations and trunk sewers into the two treatment works of Firlle (155,000 m³/d) and Crowborough (54,000 m³/d). Each of these plants started as waste stabilization</p>	<p>System Deficiencies:</p> <ul style="list-style-type: none"> • The entire sewerage system in Harare is hardly working; • Sewage overflow is common in parts of the city due to blocked sewers; • Sewers have collapsed in a number of places including the outfalls to pumping 	<p>Emergency Works which aims at least provision of primary treatment:</p> <ul style="list-style-type: none"> • To at least have some units of the treatments works in operation; • Unblock and repair critical trunk sewers; • Rehabilitate some units of the BNR

<p>ponds, later upgraded to conventional trickling filters, and finally to bio-nutrient removal (BNR) system, based on modified activated sludge principal. For final polishing, the effluent is pumped into the council farms where it is used to irrigate grasslands. Besides these two plant, the cities townships are served by own systems mainly ponds, with a total capacity of 74,500 m³/d.</p>	<p>stations;</p> <ul style="list-style-type: none"> • Most pumping stations are not or rarely working; • All systems are long overdue for expansion to cater for increasing wastewater generation within the city; • Most of the electro-mechanical plant and equipment is broken down with the large parts of the treatment plants idle; • In summary, the bulk of the wastewater is ending untreated in the drainage systems around the city and back into rivers (mainly Manyame River, and the main source of water for the city). • Inadequate staffing and shortage of specialized skills; 	<p>plant by repairing the pumping and other electro-mechanical installations;</p> <ul style="list-style-type: none"> • Desludge the treated effluent ponds; • Repair sludge pumps and digesters; • Reconstruct sludge drying beds; • Provide plant, tools and equipment for O&M teams including protective clothing; • Provide training for the staff responsible for these services.
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2. Chitungwiza

Chitungwiza is second most populous town in Zimbabwe at current estimate of more than 1 million population. It is located 30 km on the south bound of capital Harare. It was formed in 1978 from three townships: Seke, Zengeza and St. Mary's. The average elevation is 1413 meters above mean sea level. It is a high density dormitory town in Zimbabwe. The town was the epicenter of the disastrous cholera epidemic in 2008/9 which ravaged the entire country killing more than 4000 people.

Water Supply

Existing Installations	System Deficiencies	Proposed Emergency Works
<p>The potable bulk water for the town is supplied by the Harare Water of the City of Harare. The Municipality of Chitungwiza is responsible for distribution to individual households, commercial and industrial consumers. Although the conveyance capacity is more than 40,000 m³/ day, the town only gets about 24,000 m³/day from Harare due to the constraint on the Harare side. The town therefore does not get adequate quantity of water for its need. This will continue to challenge the development in the city for the foreseeable future. The current storage capacity is limited to 47,000 m³. Many residents use water from unprotected sources to complement the Municipal supply. Donors assisted in the drilling of more than 31 boreholes located strategically to cater the needs of the poor.</p>	<ul style="list-style-type: none"> • Supply from Harare is not adequate and limitation in Harare will significantly impact Chitungwiza • High water loss in the range of 50% due to aged infrastructure. • Limited storage capacity and low pressure for high ground residents • Lack of reliable and continuous supply • Lack of operation and maintenance equipment • Weak institutional capacity to manage the system 	<ul style="list-style-type: none"> • Drilling of additional boreholes to augment emergency supplies • Repair and replace defective pipelines, valves, meters in the distribution system to reduce water loss and better control flow. • Repair/replace bulk meters and defective valves and pipes on the pumping main. • Repair station pipe work and valves at reservoir sites. • Install pressure regulating valves • Provide training for the staff responsible for these services.

Sanitation		
Existing Installations	System Deficiencies	Proposed Emergency Works
<p>As opposed to the water supply system, the sewerage system is independent from Harare. It has its own waste water treatment system. The majority of town is connected to a network of gravity sewers culminating in trunk sewers leading to the treatment plants. However there are low lying areas around St. Mary's where three pump stations lift the sewage to the trunk mains. The treatment works consists of two separate systems adjacent to each other. The older one is a modified conventional plant (36,000 m³/d) built in the 70's while the second, newer plant (20,000 m³/d) is built in the 90's with support from Japan.</p>	<ul style="list-style-type: none"> • Both sewage treatment works are not working • None of the four raw pump stations work. • Sewage is bypassing the treatment works directly into the Manyame river which in turn discharges into Lake Chivero, potable water source for Harare. • Reticulation system is in general poor due to lack of maintenance, blockages persists in parts of the system despite efforts of the Municipality staff. 	<ul style="list-style-type: none"> • Support to clear blocked sewers and repair of manholes and pipelines. • Refurbish raw pumping stations. • Rehabilitate the sewage treatment works. • Refurbish the effluent pump stations. • Provide O&M equipment • Public campaign to educate residents.

3. Mutare

<p>Mutare is a town, located on the eastern highlands of Zimbabwe and on the border with Mozambique. It has beautiful and cool climate with temperatures averaging 19⁰ C, and average rainfall of approximately 820 mm per year. The City has an estimated population of 300,000, and sits on the Beira transportation corridor being only 290 km from the latter port in Mozambique. It is an important transportation node and has a local economy which depends on agriculture and ranching, mining and tourism. Some of the country's largest food industries are based in Mutare.</p>
<p>Water Supply</p>

Existing Installation	System Deficiencies:	Urgent Works:
<p>Mutare gets its water supply both from a dam and direct from the Pungwe river. The whole water system is gravity fed from treatment to the consumer points. The water is treated in two treatment works both located approximately 36 km from the city, where it undergoes conventional treatment including coagulation/flocculation, sedimentation, rapid sand filtration and chlorination before distribution. The capacity of the plant is limited by the capacity of the intake, and by some of the other treatment units including sedimentation tanks and filters. It is estimated that the daily production rate is around 65,000 m³/d. The main treated water storage facilities at Christmas Pass from where it gravitates to all areas of the town. The total number of consumers is 40,000 out of whom only 12,000 are metered.</p>	<ul style="list-style-type: none"> • The treatment plant could produce more with the upgrade of some of the undersized units including intake works, sedimentation tanks and rapid filters; • There is a need to provide adequate sand and nozzles to all the filter units; • Chlorination and other chemical dosing equipment need refurbishment; • Due to the long distance water travels to the city, there is a need to introduce secondary chlorination at the main storage tanks at Christmas Pass; • Most of the metering system including customer meters are non-functional; • The uncompleted works under Urban II Project X-Mass Pass to Dangamvura pipelines and Chikanga reservoir have left some of the needy high density areas without water supply; • Estimated water losses through leakages, etc is over 50% due to lack of proper O&M; • Water being supplied for an average of 8 hours a day; • The WWS services being run by a skeleton staff; • Poor revenue collection, etc. 	<ul style="list-style-type: none"> • Provision of new sand and nozzles to the filters; • Repair the water chemicals dosing including chlorination equipment; • Complete the Dangamvura pipelines and Chikanga reservoir; • Provide supplies for O&M including leak detection and necessary training; • Provide water meters • Provide laboratory equipment together with adequate reagents;
Sanitation		
Existing Installations	System Deficiencies	Proposed Emergency Works
Mutare is served by three sewage treatment plants,	System Deficiencies:	Urgent Works:

<p>two small ones each with a capacity of approximately 7,000 m³/d and a newer plant Gimboki plant with a design capacity of approximately 34,000 m³/d. The two older plants involve trickling filtration wastewater treatment method, while the newer plant incorporates biological nutrients removal. Following treatment, the effluent is pumped to dedicated fields for irrigation.</p>	<ul style="list-style-type: none"> • The entire sewerage system rarely works; • Most of the sewers have been blocked up mainly with sand and sewage overflows in residential areas (particularly in high density areas) is a common phenomenon in Mutare; • The two older plants are not operational due to breakdown of electro-mechanical works; • The newer plant is also hardly operating due to failure of most of the electro-mechanical equipment; • The Phase III of Gimboki works was left halfway when Urban II project was abandoned, and similarly, the 850 mm diameter duplicate trunk sewer from the town to these works; • The laboratory equipment are missing; • General lack of O&M plant, tools and equipment; 	<ul style="list-style-type: none"> • Unblock clean, and repair the critical sewers; • Repair the leakages; • Complete the 850 mm trunk sewer; • Provide suitable sewers and fittings for laying in critical areas where sewage overflows is common; • Refurbish the treatment plants • Provide plant and equipment to the O&M staff including protective clothing to facilitate their works; • Undertake extensive public campaigns to inform the people of their responsibilities in the delivery of public services like sewerage, on importance of improved sanitation and personal hygiene;
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4. Chegutu

Chegutu is a town approximately 170 km from Harare on the Harare Bulawayo road. Like most of the other urban areas, Chegutu is a town with a hinterland whose key economic activities are farming, mining and commerce. The town has an estimated population of 120,000. It is

strategically located and has direct links to a number of towns which makes it vulnerable in case of epidemic outbreak.		
Water Supply		
Existing Installations	System Deficiencies	Proposed Emergency Works
The town is supplied with water from Clifton Dam approximately 8 km away. Water is pumped from the dam to a treatment plant located near the town, where it undergoes conventional treatment before once again being pumped to storage and then on distribution to consumers. The plant has a design capacity of 12,000 m ³ /d but manages to produce only 8,000 m ³ /d. There are a total of 9,500 registered consumers a quarters of who are metered.	<p>System Deficiencies: Following emergency works supported by UNICEF focusing on raw and clear water pump stations, the situation in the town has improved significantly since the poor condition in 2009. The following are outstanding deficiencies requiring attention;</p> <ul style="list-style-type: none"> • The treatment plant which is operating under capacity, has a design output of 12,000 m³/d against a demand of 36,000 m³/d, is in an extreme state of dilapidation: pipes, valves and other electro-mechanical equipment rusting away,; • With district and customer meters out of order, it is difficult to know how much water is being produced or consumed; • In adequate plant, equipment or material including protective clothing for the O&M staff; • The staff managing the services is inadequate and poorly equipped to cope. 	<p>Emergency Works:</p> <ul style="list-style-type: none"> • Rehabilitate essential works at the treatment plant including flow recorders, valves, and back wash and blower pump sets; • Provide essential system valves as well as meters for the large consumers; • Replace old pipelines and fittings and complete the extension of reticulation system; • Provide communication equipment between the major installations; • Provide equipment and materials including laboratory equipment;
Sanitation		
Existing Installations	System Deficiencies	Proposed Emergency Works
The wastewater is collected into three sumps from where it is pumped into the	<ul style="list-style-type: none"> • Most sewers are old and some are collapsing – this causes constant blockages; 	Emergency Works:

<p>stabilization pond for treatment. Following treatment the effluent is discharged into a nearby stream.</p>	<ul style="list-style-type: none"> • Some work on extension to sewers has still to be completed; • Sewer blockages by sand used for cleaning at household is common; • Most of the pumps at the pump station do not work either from age, lack of resources for repair or vandalism; • Very little sewage is therefore getting into the treatment plant; • Stabilization pond not maintained at all and are overgrown with weeds and sediments; • No plant and equipment for the operational staff. 	<ul style="list-style-type: none"> • Urgent repair or completion of critical sewers in the high density areas; • Unblocking the main sewers; • Replacement of the pumping equipment in the sewage pump stations; • Rehabilitate the existing stabilization ponds; • Supply pipes and fittings for repair and extension; • Provide plant, equipment, and materials including protective clothing for the O&M staff.
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5. Kwekwe

<p>Kwekwe is built on the High Veldt, approximately 1220 m above sea level. It has a mild climate with temperatures averaging 19⁰ C and rainfall averaging around 700 mm per year. It is located along the Harare – Bulawayo highway and railway, approximately 250 km from the Capital. It is connected by all weather roads to a number of urban areas making it a central transportation centre. The Town is at the heartland of the Midlands and started as the centre of gold mining the country. Mining of gold and chrome is still a major activity in the area. There also many artisanal miners in and around Kwekwe. Other major industries in the city used to include Zimbabwe Iron and Steel Company (ZISCO) based in the nearby town of Redcliff, Lancaster Steel and Sable Chemicals. The latter is the largest fertilizer manufacture in the country. However with the economic implosion, some of these like ZISCO have suspended their operations or greatly scaled down. Kwekwe also used to be a vibrant commercial centre and has most of the Bank’s with branches here. It is estimated to have a population of 300,000, having increased rapidly with influx of the people due to economic hardships.</p>		
<p>Water Supply</p>		
<p>Existing Installations</p>	<p>System Deficiencies</p>	<p>Proposed Emergency Works</p>
<p>Kwekwe is supplied with water from the</p>	<ul style="list-style-type: none"> • The two raw water pump stations are both operating 	<ul style="list-style-type: none"> • Replace/repair raw water

<p>Sebakwe Dam, located approximately 20 km to the northeast. The water flows into two pump stations from where it is pumped into a nearby treatment plant. The plant which has been constructed in three phases incorporates full treatment. The plant is co-owned by both the Municipality and ZISCO. Apart from supplying the City, it is also the source of water for the nearby town of Redcliff which is the centre of ZISCO operations. The plant has an installed capacity of 90,000 m³/d. Following treatment, the water is pumped from three high lift pump stations (one for each phase of the plant, into various reservoirs located in various parts of the city from where it is distributed to the consumers. There are an estimated 17,700 customers of whom 1,100 are industrial and major consumers. A total of 13,100 of these consumers are metered.</p>	<p>with only one pump each the other two duty pumps having broken down and no standby at all;</p> <ul style="list-style-type: none"> • Similarly the high-lift pump stations are also running on skeleton equipment exposed to the same risk of breakdown thus cutting off all the supply to the entire town; • Majority of the valves at the treatment plant and the chemical dosing equipment including that of chlorination need refurbishment or replacement; • Filters need cleaning, sand and nozzles need replacement; • The pipe network suffers from leakages and by blockages due to intermittent supplies. There are also a number of illegal connections; • Most of the meters do not function making it difficult to control consumption; • Water system losses are estimated at over 40%; • No lab equipment nor pipe supplies for repair and routine maintenance including utility vehicles for the O&M staff; • Most of the customer meters are broken down and billing is based on lump sum; • For similar reason, the water flowing to Redcliff Town is not metered making it difficult to bill for the bulk supply. 	<p>pumping equipment as well as that of clear water high lift pumping stations;</p> <ul style="list-style-type: none"> • Replacement of the valves and flow control equipment; • Refurbish the rapid sand filters and repair the under drains and replace the nozzles; • Repair the chemical dosing including chlorination equipment; • Provide water meters and laboratory equipment; • Provision of pipe and fittings to facilitate regular O&M including leaks and breakdowns; • Provision of utility vehicles;
<p>Sanitation</p>		
<p>Existing Installations</p>	<p>System Deficiencies</p>	<p>Proposed Emergency Works</p>
<p>As is the case in most of the urban areas in Zimbabwe, most of the built up areas are on mains sewers. The wastewater is</p>	<ul style="list-style-type: none"> • Sewer blockages are a common sight in the town, especially in the high density areas. The main culprit as usual with other areas is sand or deliberate of deposition of unauthorized materials; 	<ul style="list-style-type: none"> • Rehabilitate the three pump stations; • Unblock the clogged sewers and repair the leakages;

<p>collected at three booster stations from where it is pumped in the treatment works, approximately 15 km from the town, in the same direction as the water supply.</p> <p>The wastewater is treated at a two phased plant, with a total installed capacity of 30,000 m³/d. The plant employs BNR type of treatment. The effluent is held in ponds from where some of it is used for irrigating grass fields and the rest is discharged into the nearby stream.</p>	<ul style="list-style-type: none"> • All the pumping equipment at the booster pumping stations has broken down. The arriving raw sewage just pools forming wetlands and the wastewater eventually flowing in streams; • Hardly any wastewater reaches the treatment works; • The Phase I plant has ceased to work at all while phase II plant needs refurbishing; • The little wastewater reaching the plant gets minimum treatment only; • The ponds need to be desludged and rehabilitated; • Few workers are available to run the system and even these do not have protective clothing or operational tools and equipment; 	<ul style="list-style-type: none"> • Carryout general cleaning and flushing of the sewer network; • Refurbish the Phase two wastewater treatment plant ; • Provide supplies including plant, tools and equipment for the O&M staff to facilitate their work.
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6. Masvingo

Masvingo is the oldest city in Zimbabwe, and located to the south-east parts of the country near the Great Zimbabwe, the monument giving the country its name. It is hot and dry most of the year, with rains averaging 600 mm p.a. The town is strategically located almost equal distances from the cities of Harare, Bulawayo, Mutare and Beitbridge. It has a population of approximately 110,000, an important communications and distribution point and also the capital of the province bearing the same name. The main economic activities in the

<p>province are mining, ranching and agriculture. Tourism is also important in the area with a variety of attractions including the Great Zimbabwe.</p>		
<p>Water Supply</p>		
Existing Installations	System Deficiencies	Proposed Emergency Works
<p>The City gets its water from Mutirikwe Dam and pays ZINWA for the bulk supply. The water is pumped from the dam into the treatment plant. The three pumps (two duty and one standby) have a 30.6 MLD. Water undergoes conventional treatment, after which it is pumped into both Target Kopje reservoirs (10,000 m³) and to Cooden (8,000 m³), from where it is distributed into the City. The unaccounted-for-water is 18%.</p> <p>The total number of water customers is 16,800 of whom 800 are industrial and commercial.</p>	<p>System Deficiencies:</p> <ul style="list-style-type: none"> • Only 2 of the 3 raw water pumps are operational and are working non-stop; • At the treatment plant, the chemical dosing pumps and chlorinators are non-functional; • The filters do not have adequate sand (five out of the seven units) and therefore not fully effective; • Reservoirs at Cooden seriously leaking; • Most of the water metering equipment no longer works including customer meters; • Serious and regular water rationing (only provide water for nearly 12 hours per day) and produce 23 m³/d out of an estimated demand of 48 m³/d; • Power consumption is high due to the pumping distance and heads involved; • There are adequate staff to run the services and do not have the necessary skills, plant, tools and equipment to carry out their work. 	<p>Emergency Works:</p> <ul style="list-style-type: none"> • Install newly acquired chemical dosing pumps and chlorinators; • Repair raw and clear water pumps and associated electro-mechanical facilities; • Provide valves and fittings • Install telemetry equipment; • Provide and lay 3.6 km, 450 mm dia additional rising main to increase water conveyance capacity; • Service flow recorders and repair and provide water meters; • Provide utility vehicles; • Provide plant, tools and equipment including protective clothing for the O&M staff; • Provide training for the staff;
<p>Sanitation</p>		

Existing Installations	System Deficiencies	Proposed Emergency Works
<p>The city is served by an old sewerage system. Due to the flat terrain, there are two pump stations which transmit wastewater to the only treatment plant in town. The wastewater treatment plant comprises two plants. The first plant constructed in the early seventies comprises conventional treatment of settlement and trickling filtration. The effluent for this is pumped to a Council Farm, where it is used for irrigation. The second plant (commissioned in 1997) comprises Bio-Nutrient Removal (BNR) incorporating modified aeration. The effluent from the plant is discharged into the water courses.</p>	<ul style="list-style-type: none"> • Sewer system irregularly maintained, grit accumulation and under capacity; • Sewer blockages resulting in spillage of raw sewage into the residential areas are very common. One primary school is seriously affected by blockages and often has to close when this occurs; • Some outfall sewers to pumping stations have collapsed and sewage spills into the river freely; • Most of the pumps at the pump stations are out of order; • Older plant is non-functional due to breakdown of equipment including pumps, and the partially treated effluent is pumped with no further treatment to the farm; • Partial treatment of effluent occurs in the BNR plant due to breakdown of some of the equipment including pumping and hence the discharge of partially treated effluent into surface water; • Similar to the situation with water supply, staffing situation is highly inadequate. 	<ul style="list-style-type: none"> • Provide sewer maintenance tool and equipment (sewer drain rods, desilting/swabbing equipment); • Repair pumps at No. 1 pump station and provide sludge pumps; • Repair gearboxes, electrical motors for both anaerobic and aeration zones of the BNR; • Repair sludge pumps and diaphragm pumps; • Replace river crossing steel pipes • Provide various flow recorders; • Unblock sludge digesters; • Provide maintenance pipes and utility vehicles; • Provide chemical equipment and reagents, as well as protective clothing. • Provide protective clothing, tools and equipment for solid waste management as well as one a utility vehicle; • Provide training for the staff.

Annex III: Project Cost Estimate

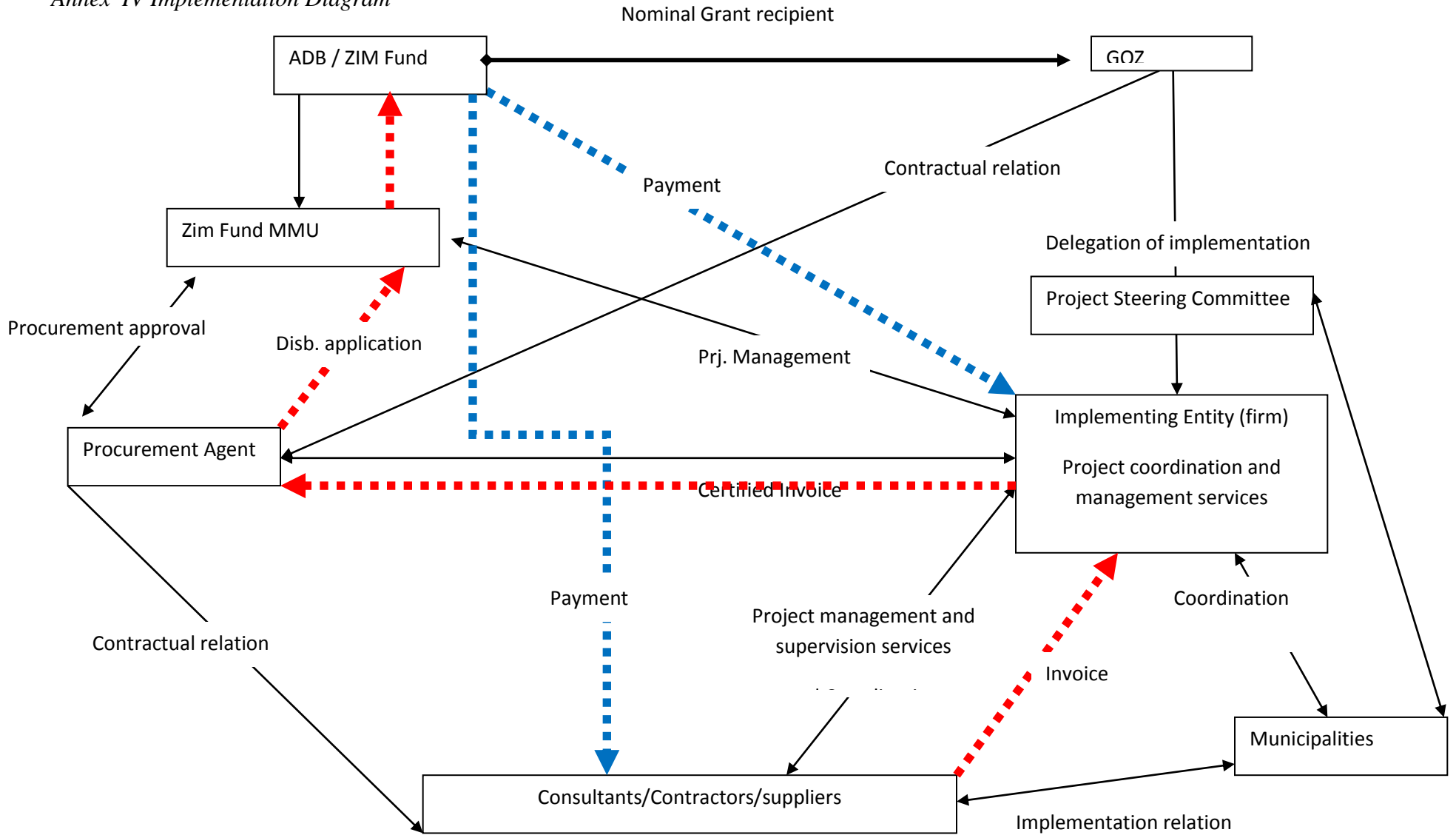
ZIMBABWE: EMERGENCY WATER SUPPLY AND SANITATION PROJECT
COST US\$ (X1000)

I. Rehabilitation Works			
City of Harare			
A. Water Supply		B. Sewerage Works - (Firle Treatment Works)	
Rehabilitation of chemical Dosing plant*,			
a) Distribution Rehab and metering	2,000,000	a) repair of intake works	300,000
b) MJ - Filters Pneumatics	2,100,000	b) rehab of unit 3	2500000
c) MJ - TP - Back Wash Recovery Plant, detailed assessment	50,000	c) Desludging and repair digesters and ponds	1000000
d) PE - TP Water Filtration	650,000	d) Final Effluent Pumps	500,000
e) Utility Vehicles/Tractors	125,000	e) O&M equipment	300,000
Sub-Total	4,925,000	Sub-Total	4,600,000
Total			9,525,000
*covers activities remaining from UNICEF intervention			
Chitungwiza			
		B. Sewerage	
		a) Zengeze WWTW	350,000
		b) Zengega Effluent Pump Station	950,000
		c) O&M equipment	100,000
		d) Utility Vehicle	30,000
		Subtotal	1,430,000
CHEGUTU			
A. Water Supply		B. Sewerage	
a) Pumping Equipment	0	a) Pumping Equipment	250,000
b) Treatments Works - blower and Back Wash pumps	90,000	b) Sewer network	350,000
c) Building Works		c) Waste Stabilization Ponds	300,000
d) Lab, tools & Equip	0	d) Building Works	100,000
e) Distribution System Rehab and metering	700,000	e) O & M Equipment	100,000
f) Utility Vehicle	30,000	f) Utility vehicle	30,000
Sub-Total	820,000.00	Sub-Total	1,130,000
Total			1,950,000

MASVINGO**			
A. Water Supply		B. Sewerage Works	
a) Refurbishment of Pumping Equipment at Intake and treatment plant including telemetry	340,000	a) Pumping Equipment	150,000
b) Refurbishment of mixers, valves and flow meters at treatment plant	50,000	b) Treatment Plant	152,000
c) Transmission Main (450mm)	700,000	c) Sewer network Rehab	900,000
d) Electrical (switch gear)	90,000	d) O&M equipment	100,000
e) Valves and Water Meters replacement	250,000	e) Utility Vehicle	30,000
f) Utility Vehicles	30,000		
Sub-Total	1,460,000	Sub-Total	1,332,000
** intervention will be coordinated with UNICEF			2,792,000
MUTARE			
A. Water Supply		B. Sewerage Works	
a) Abandoned Pipework	1,600,000	a) Rehabilitatino of Town, Sakubva and Gimboki Sewege works	1,750,000
b) Abandoned Reservoir	200,000	b) Trunk Sewer to Gimboki	450,000
c) Telemetry, Distribution Rehabilitation and metering	1,400,000	c) O&M Equipment	100,000
d) Utility Vehicles	30,000	d) utility vehicle	30,000
Sub-Total	3,230,000	Sub-Total	2,330,000
Total			5,560,000
KWEKWE			
A. Water Supply		B. Sewerage Works	
a) Pumping Equipment	540,000	a) Pumping Equipment	450000
b) Treatment Works	200,000	b) Treatment Works	500,000
c) Electrical Works at pumpstations and treatment works	300,000	c) Sewer Network Rehab	1,000,000
d) System Valves/meters/fittings	450,000	d) O&M equipment	100,000
e) Utility Vehicles	30,000	e) Utility vehicle	30,000
Sub-Total	1,520,000	Sub-Total	2,080,000
Total			3,600,000
Rehabilitation Works Subtotal			24,857,000

I. Rehabilitation Cost Summary				
A. City of Harare			B. Mutare	
a)Water Supply	4,925,000		a)Water Supply	3,230,000
b) Sewerage	4,600,000		b) Sewerage	2,330,000
Sub-total	9,525,000		Sub-total	5,560,000
C Masvingo			F Kwekwe	
a)Water Supply	1,460,000		a)Water Supply	1,520,000
b) Sewerage	1,332,000		b) Sewerage	2,080,000
Sub-total	2792000		Sub-total	3600000
D Chegutu			E Chitungwiza	
a)Water Supply	820,000			
b) Sewerage	1,130,000		Swerage	1,430,000
Sub-total	1950000			
Subtotal Rehabilitation Works				24,857,000
II. Sanitation & Hygiene Education				300,000
III. Institutional/Capacity Building technical assistance services				538,280.00
Capacity Building goods				500,000.00
Medium to Long term investment plan study				522,480
Subtotal				1,560,760
IV. Study, engineering design and supervision services				2,091,620.00
Project management services cost				756,200.00
Steering Committee Operation Cost				25,000.00
Project Audit Services				60,000
Subtotal				2,932,820
Grand Total Zim-Fund				29,650,580

Annex IV Implementation Diagram



Implementation Arrangement Diagram

Annex V – Procurement Arrangements

All procurement of goods and works and acquisition of consulting services financed by the Zim-Fund 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 as well as the Zim-Fund operations manual*, using the relevant Bank Standard Bidding Documents. A *Procurement Agent* will be responsible for the procurement of goods/works/service contracts, consulting services, training and miscellaneous items as detailed below. A table of the Procurement milestones is shown below, while the detailed Procurement Plan will be presented separately.

Summary of Procurement Arrangements

Categories	UA (million)			Total
	ICB	Other	Short List *	
A. Works				
A1 – Rehabilitation of Harare Water Supply and Sewerage and Chitungwiza waste water;	7.040 (7.040)			7.040 (7.040)
A2- Rehabilitation of Chegutu, Kwekwe	3.566 (3.566)			3.566 (3.566)
A3 – Rehabilitation of Mutare and Masvingo	5.367 (5.367)			5.367 (5.367)
B. Services				
B1. Project Implementation Entity			0.502 (0.502)	0.502 (0.502)
B2. Engineering Services, Institutional TA, Investment study			2.025 (2.025)	2.025 (2.025)
B3. Audit Services			0.039(0.039)	0.039(0.039)
C. Miscellaneous				
C1. Promotion of improved sanitation, environment and hygiene promotion;			0.193(0.193)	0.193(0.193)
C2. Institutional Capacity Building		0.321(0.321)		0.321(0.321)
GRAND TOTAL	15.973 (15.973)	0.321(0.321)	2.759(2.759)	19.053(19.053)

* *Short List applies to the use of consulting services only.*

– *other may be LIC, International or National Shopping, Direct Purchase or Force Account.*

+ *Figures in brackets are amounts financed by the Zim-Fund.*

Civil Works

Procurement of Civil Works (rehabilitation works) divided into three packages as shown above, (one for an amount of UA 7.040 million, UA 3.566 million, and UA 5.367 million) will be carried out under International Competitive Bidding procedures of prequalified contractors. The contractors will be required to assess the problems with various installations and propose solutions and method statements, and allow in their costing,

provision of supplies and labour required to undertake the repairs. These works are varied and involve different types of inputs including skills and trades.

Consulting Services

Procurement of the PIE providing project coordination and management services and a consulting firm for engineering study, design and supervision and institutional support will be carried out with total contracts valued at UA 0.502 million and UA 2.025 million respectively. The process for selections shall be through Short List and the method for evaluation is Quality and Cost Based Selection (QCBS). Procurement of consulting services, External Auditing will be carried out by a consulting firm through a contract valued at UA 0.039 million. The process for selecting the firm shall be through Short List and the method for evaluation is Least Cost Selection (LCS). For contract amounts valued at less than UA200,000 for Firms and UA50,000 for individuals, the Borrower may limit advertisement of the procurement to national or regional newspapers. However, all eligible consultants, who wish to provide the required services, may express their interest to be short-listed. For contracts valued at more than UA200,000 for Firms and UA50,000 for individuals, advertisement of the procurement must be placed on the UNDB online and the Bank's website.

Miscellaneous

The recruitment of NGO(s) (total 0.193 million) to undertake promotion of improved sanitation and hygiene education will be through a shortlist with selection method of QCBS.

The procurement of items for the institutional Capacity Building support will entail procurement of small items (< UA 50,000) over the whole project implementation period. This will be procured through Shopping in accordance with the Bank's rules and procedures and as further elaborated in the Zim-Fund operation manual.

◆ General Procurement Notice

The text of a General Procurement Notice (GPN) will be issued for publication in UN Development Business online and on the Bank's web site, upon approval of the Grant Proposal.

◆ Review Procedures

The following documents are subject to review and approval by the Zim-Fund before promulgation: ○ General Procurement Notice, ○ Specific Procurement Notices, ○ Prequalification Documents [if applicable], ○ Tender Documents or Requests for Proposals from Consultants, ○ Tender Evaluation Reports, including recommendations for Contract Award (goods/works), or Reports on Evaluation of Consultants' Proposals, , ○ Draft contracts (goods/works), if these have been amended and differ from the drafts included in the tender documents, ○ Reports on Evaluation of Consultants' Financial Proposals, including recommendations for Contract award, minutes of negotiations and duly initialed contracts documents.

◆ Post Review

Post review will not be applicable under this project.

◆ Executing Agency

A Procurement Agent will be responsible for the procurement of goods/works/consulting services/training services (as appropriate).

◆ Procurement Plan

The Zim-Fund shall review the procurement arrangements proposed by the Procurement Agent in the Procurement Plan for its conformity with the grant Agreement and its Rules. The Procurement Plan shall cover an initial period of at least 18 months. The Plan will be updated on an annual basis or as needed always covering the next 18 months period of project implementation. Any revisions proposed to the Procurement Plan shall be furnished to the Zim-Fund for its prior approval.

Annex VI – Donor Matrix

Zimbabwe major urban centres - Assessments and plans/projects for Emergency WASH rehabilitation											
#	Province	Town/City	Population district (1)	Population town/city (1)	Population estimates councils' (2)	Rapid Assessment by	Rehab by Agency	proposed works (W, water, S-sewage, SWM - Solid Waste Management)	Donor/funds source	Indicative Budget US\$	Comment/Notes
1	Matabeleland South	Beitbridge	110,105		40,000	WVI & WB	WVI	W, S, SWM	AusAID	600,000	alternative water supply
		..... " .....					WB	W, S, SWM	State & peace	3,000,000	building fund CSPf
2	Mashonaland Central	Bindura	150,981	33,637	50,000	UNICEF/Veolia	UNICEF	W, S,	UNICEF - see note 3	600,000	
3	Bulawayo	Bulawayo		676,650	1,500,000	BSTF & UNICEF/AusAid	WVI & others	W, S	SIDA, DFID, UNICEF	1,000,000	alternative water supply, sewage work etc.
		..... " .....					WVI	S	AusAID	4,000,000	
		..... " .....					BCC	??	GOZ - IMF/SDR	6,400,000	MoF announcement 12 Mar
4	Mashonaland West	Chegutu	239,009	43,424	120,000	GTZ & Veolia	FRC	water	UNICEF - see note 3	750,000	AfDB planning S works
		..... " .....					FRC	Electricity supply/tranformers	UNICEF - see note 3		
5	Mashonaland West	Chinoyi	124,487	55,968	150,000	GAA	GAA	W	ECHO	950,000	plus abstraction
6	Manicaland	Chipinge	301,251		30,000	UNICEF/AusAid	UNICEF & ACF	W, S, SWM	UNICEF - see note 3	1,000,000	ACF in Gaza HD suburb & consulting engineer in WTP
7	Harare	Chitungwiza		343,147	1,000,000	GTZ	AfDB	W, S,		3,200,000	
8	Matabeleland South	Gwanda	138,020	13,363		UNICEF					
9	Midlands	Gweru		149,468	300,000	GTZ	GTZ	W, S, SWM	German Gov.	?	
10	Harare	Harare		1,548,553	2,000,000	HCC, Vitens	Harare CC	W, S, SWM	RSA via MoF	17,000,000	AfDB planning works
		..... " .....					FRC, ICRC	W	ECHO	1,990,000	FRC 650,000 ICRC 1,340,000 (both complete)
		..... " .....					UNICEF	W	UNICEF-see note 3		
11	Mashonaland West	Kadoma	250,766	76,351	120,000	GTZ & Veolia	FRC	W	ECHO	1,220,000	
		..... " .....					GTZ	W (dist) S, SWM	German Gov.	?	
12	Mashonaland West	Kariba	62,411	25,285	34,000	GTZ	GTZ	W, S, SWM	German Gov.	?	
13	Mashonaland West	Karoi			37,000	GOAL	UNICEF	W, S	UNICEF - see note 3	900,000	
14	Midlands	Kwekwe	303,094	93,608		UNICEF/Veolia					
15	Mashonaland East	Marondera	164,193	51,847	80,000	UNICEF/Veolia	Medair	W	ECHO	700,000	AfDB planning S works Town Council to repair overhead steel water tanks, replace pumps at Nyambuya pump & booster station. Replace pumps at the Rafaro pump station.
		..... " .....					Marondera TC	???	GOZ - IMF/SDR	2,900,000	MoF announcement 12 Mar
16	Masvingo	Masvingo	280,196	69,490	100,000	GTZ	UNICEF		UNICEF - see note 3		
17	Manicaland	Mutare		170,466	300,000	UNICEF/Veolia	Mercy Corps	W, S, SWM	ECHO	662,500	
18	Mashonaland West	Norton	239,009	44,054	80,000	GTZ					
19	Matabeleland South	Plumtree	78,162			UNICEF					
20	Manicaland	Rusape	289,802	25,014	59,000	UNICEF	Mercy Corps	W & some S	UNICEF - see note 3	600,000	
21	Midlands	Shurugwi	93,828	16,863	25,000	UNICEF	UNICEF	W, S	UNICEF - see note 3	600,000	
22	Matabeleland North	Victoria falls		31,519							Water treatment plant recently refurbished reported functioning well. Sewage needs attention
23	Midlands	Zvishavane	109,471	35,229		GTZ	UNICEF		UNICEF - see note 3		
									48,072,500		
1) Population figures based on 2002 census											
2) Current population estimates by Local Councils											
3) UNICEF ER&RR programme funded by AusAID, Belgium Gov. ECHO, DFID, UN CERF											

Annex VII – Economic performance

Table C.1: key economic and financial figures

EIRR 22% and NPV US\$ 37.2 million (at 10% base case)

The underlying assumptions for the calculation of the EIRR of the project are provided below. The main assumptions are: non revenue water is projected to be reduced by 10% as a result of the project which results in incremental income, incremental water and sanitation benefits of the project, incremental health benefits from improved water supply and sanitation services and benefits due to reduced water treatment costs as a result of improved raw water quality. On the cost side, these include investment costs, replacement costs, and other items as part of operation and maintenance costs comprising of energy, chemicals, staff costs, maintenance and repairs, and other overhead costs have been taken into account. The incremental operations and maintenance costs are estimated at about 30% of the incremental revenue from incremental water revenue. In addition, the economic life of the investment is estimated as 25 years. All the costs and benefits considered are net of duties and taxes.

ASSUMPTIONS FOR EVALUATION OF ECONOMIC BENEFITS

Beneficiaries: A total population of approximately 4.15 million people living in the six cities covered by the project.

Currency: The analysis has been done in US\$.

Project's Life Span: The estimated operational life span of the project is 25 years.

Investment Costs: These are actual costs of the Project, which include (a) initial cost of the project, and (b) capital injections (10% of the initial investment) to cater for major replacement costs after 10 years normal operation. Thus in the years 2022 and 2032, an estimated 10% of the total investment costs is accounted to provide for rehabilitation or major maintenance works of the facilities.

Operation and Maintenance Costs: These are the incremental costs of chemicals, energy, labour and other necessary maintenance inputs. These are estimated at 5% of the value of investment (equivalent to 26% of the incremental revenue).

Incremental income from improved Non Revenue Water: The level of non revenue water has been assumed to be reduced by 10% after the implementation of the project. This is projected as a result of the rehabilitation and enhanced metering and revenue collection program during the first year of the project implementation, as well as the infrastructure rehabilitation works. This is the incremental revenue as a result of the decrease of non-revenue water after the completion of the project.

Incremental Water and Sanitation Revenue: This is the value of incremental water and sanitation revenue attributed to the project, estimated at 31,000 M³/day valued at the prevailing average tariff. This is the incremental water and sanitation revenue from water supplied to customers, after taking into account the UfW of 40%. The volume of incremental water sold is estimated to increase from 11.6 million to 17.9 million M³.

Salvage Value: As a conservative measure for the computation of the IRR, no residual value has been considered at the end of the project's life span.

Health Benefits: Health related benefits considered in the analysis and the assumptions used to evaluate them are as follows: the potential increase in the cases of water borne diseases is projected with reference to the population without access to clean water and sanitation services. An estimated 30%¹ reduction in disease incidence would accrue from improved water supply and sanitation services by virtue of increased quality, quantity, and regularity of water supply and sanitation services. These benefits reflect containing the cases of water and sanitation borne diseases and the savings in medical treatment costs.

¹ This figure is based on the 1991 WHO report "Effects of improved water supply and sanitation on ascariasis, diarrhea, hookworm infections, schistosomiasis and trachoma"

ZIMBABWE							
Urgent Water Supply and Sanitation Rehabilitation Project							
Computation of Economic Internal Rate of Return							
(x000 US\$)							
Year	Investment Costs	Incremental Operating & Maintenance Costs	Economic & Health Benefits	Incremental Water Sales (x 1000 m3)	Incremental sales income	Income from Improved Non Revenue Water	Net Cash Flow
2011	10,021	0		0		0	(10,021)
2012	19,630	-		-		-	(19,630)
2013	-	2,965	980	11,160	3,906	3,574	5,495
2014	-	3,024	1,000	11,383	4,183	3,646	5,804
2015	-	3,085	1,020	11,611	4,480	3,719	6,134
2016	-	3,147	1,040	11,843	4,798	3,793	6,485
2017	-	3,210	1,061	12,080	5,139	3,869	6,859
2018	-	3,274	1,082	12,322	5,504	3,946	7,259
2019	-	3,339	1,104	12,568	5,895	4,025	7,684
2020	-	3,406	1,126	12,819	6,313	4,106	8,139
2021	-	3,474	1,148	13,076	6,762	4,188	8,623
2022	5,930	3,544	1,171	13,337	7,586	4,272	3,555
2023	-	3,614	1,195	13,604	8,512	4,357	10,449
2024	-	3,687	1,219	13,876	9,551	4,444	11,526
2025	-	3,760	1,243	14,154	9,742	4,533	11,757
2026	-	3,836	1,268	14,437	9,936	4,624	11,992
2027	-	3,912	1,293	14,725	10,135	4,716	12,232
2028	-	3,991	1,319	15,020	10,338	4,810	12,477
2029	-	4,070	1,345	15,320	10,545	4,907	12,726
2030	-	4,152	1,372	15,627	10,755	5,005	12,981
2031	-	4,235	1,400	15,939	10,971	5,105	13,240
2032	5,930	4,320	1,428	16,258	11,190	5,207	7,575
2033	-	4,406	1,456	16,583	11,414	5,311	13,775
2034	-	4,494	1,485	16,915	11,642	5,417	14,051
2035	-	4,584	1,515	17,253	11,875	5,526	14,332
2036	-	4,676	1,545	17,598	12,112	5,636	14,618
2037	-	4,769	1,576	17,950	12,355	5,749	14,911
EIRR							22.05%
Sensitivity Analysis							
Revenue is reduced by 20%							19.19%
Investment cost increased by 10%							20.38%
NPV	at			10%			37,219

Annex VIII – Environmental and Social Management Plan Summary

a) Project Details:

Project Title:	Urgent Water Supply and Sanitation Rehabilitation Project
Project Number:	P-ZW-E00-002
Country:	ZIMBABWE
Department:	OWAS
Division:	OWAS.2

b) Objectives of the ESMP:

In terms of the Zimbabwean environmental legislative requirements, there is no requirement for undertaking an environmental and social impact assessment or the compilation of a management plan for upgrading existing water and waste-water facilities. Therefore the ESMP is compiled in accordance with the Bank's environmental and social assessment procedures (ESAP). It focuses on the rehabilitation of existing water and wastewater treatment facilities and associated infrastructure such as distribution and pumping facilities. It is worth noting that the project mainly involves correcting activities that have a negative impact on the environment such as discharging untreated wastewater into the natural environment. However, even such activities can result in negative environmental impacts if not properly managed hence the requirement for the ESMP.

The objectives of the ESMP are therefore:

- (i) to ensure continuous improvement of social and environmental performance, reducing negative impacts and enhancing positive effects during the rehabilitation of the facilities.
- (ii) to ensure that the rehabilitation project does not result in any immitigable negative social and environmental impact
- (iii) to outline mitigation measures, in order to manage social and environmental impacts associated with the project.
- (iv) to ensure that the rehabilitation and or upgrading of the water and wastewater infrastructure are conducted in line with the Bank's ESAP throughout.
- (v) to ensure that all relevant legislation (including national, provincial and local) is complied with during the project life-cycle.
- (vi) to identify roles and responsibilities and the cost involved and
- (vii) to propose mechanisms for monitoring compliance.

c) Brief description of the project and key environmental and social components

The project was categorized as Category 2 on 21-10-2010 according to the ADB Environmental and Social Policies and Procedures. The categorization is justified on the basis of considerable positive impact envisaged by the project which entails:

- (i) rehabilitation and upgrading of water production and distribution networks,
- (ii) rehabilitation and upgrading of wastewater reticulation, pumping, treatment and disposal facilities; both of which result in abstraction of environmentally sound quantities supply of good quality

drinking water to the majority of people and discharge of minimal and environmentally safe effluent into the natural environment such as rivers.

The Zimbabwe urban water supply and sanitation rehabilitation project involves six main urban towns of Harare, Chegutu, Mutare, Chitungwisa, Masvingo and Kwekwe. It's intended to:

- (i) improve access to adequate, safe and reliable water supply and eradicate sewage accumulation in residential areas due to burst pipes or unavailability of pumping mechanisms and the discharge of safe wastewater into the natural environment.
- (ii) enhance the institutional, operational and management capacity of the water and wastewater facilities in the six towns, and
- (iii) ensure the long-term institutional and financial viability of all six municipalities.

d) Beneficial and Adverse Impacts

The project is classified as Category 2 hence no environmental and social impact assessment (ESIA) was carried out, however an environment and social management plan has been compiled.

Expected negative environmental and social impacts are as follows:

- i. Soil contamination from the storage of fuel and chemicals and from waste water flows or leaks during the rehabilitation of pumping and treatment facilities and replacement of pipes.
- ii. Disruption of water and sewage services to users during the upgrade which would result in among others disturbing schedules or taking time away from informal trading which seems to be a living for around 75% of the population in the six towns on average.
- iii. Water quality deterioration during the upgrade of infrastructure and lack of poor quality detection due to on-going work in the laboratories where relevant
- iv. Occupation health hazards to employees during the work
- v. Emergency preparedness such as flooding of pump stations and other related emergencies where the manual checks are disrupted by focus on the new work or wastewater pipeline ruptures
- vi. Environmental pollution from the wastewater sludge and all other forms of waste generated as part of the upgrade
- vii. Reduced storage capacity of freshwater.
- viii. Increased erosion of the excavated topsoil and growth of alien plant vegetation on such areas.
- ix. Health problems and nuisance from waste water flows or leaks including possible dust, odour and noise emissions from the excavations and transportation of waste and other materials. .,
- x. Increased waste generation from the de-sludging activities.

Impacts expected from the project are mainly positive and these include:

- i. improving access to water in terms of serving more people at all times or increased frequency than the status quo.
- ii. supplying safe water and being able to guarantee that
- iii. improve the amount of water lost through leaks hence conserving natural resources
- iv. pump and treat wastewater to required standards hence ceasing the existing contamination of rivers and reducing the existing eutrophication
- v. capacitating municipality on environmentally sound sludge management and disposal including that of other waste streams
- vi. reduction of human health challenges such as diarrhoea cholera and scabies
- vii. Increased opportunities for job creation and new businesses
- viii. Improved sanitation

e) Mitigation:

Impacts expected from the project are mainly positive as the project aims at improving access to safe water supply, natural resource conservation through the reduction of leaks, reduction of pollution in rivers and other freshwater bodies by discharging wastewater of acceptable quality. Where negative impacts arise, mitigation will include:

- i. careful timing of the upgrade to be undertaken during the dry season,
- ii. local chlorination at specific locations along the water distribution network to address potential recontamination and ensure delivery of safe water;
- iii. strict environmental monitoring program as shown in the full ESMP
- iv. minimal vegetation disturbance
- v. control storm water run-off and soil erosion
- vi. development of Waste Management Strategy
- vii. control dust, odour & noise generation and establish communication platforms for complaints and compliments management
- viii. identification of high risk jobs and manage and mitigate against accidents and injuries to workers
- ix. develop an emergency preparedness plan that include communities where communities are within the vicinity of the work area.
- x. develop appropriate sludge management measures including increased re-use of the sludge
- xi. Use of vacuum trucks to remove impounding sewage and other contaminants spillages

f) Monitoring program and complementary initiatives

Monitoring includes monitoring of the implementation of the mitigation measures to assess their efficiencies and eventually develop other mitigation measures if the expected results are not reached. The other aspect of monitoring activities is the evolution of the environment that includes climate change.

g) Institutional arrangements and capacity building requirements

The current scope of work does not require any compilation and/or authorisation of an environment and social impact statement by the Zimbabwe Environmental Management Authority (ZEMA). It does not require any amendment to existing water abstraction authorisations by ZEMA. There may therefore be involvement of ZEMA in terms of monitoring the project compliance to environmental legislation as when ZEMA deems it necessary. It will therefore be the role of the AfDB to ensure that implementation and adherence to mitigation measures and the required monitoring is binding to the relevant municipality either through agreements or relevant contracts. The AfDB will also have an oversight responsibility for supervision. In addition, there will be need to train and build capacity of the involved municipalities in order for them to be able to monitor environmental parameters over time to ensure long term sustainability and value add of the project. For the community, there will be public awareness focussing on water conservation, responsibility of identifying and reporting leakages, consequences of using sand as a pot scrubbing material, public health and hygiene promotion, etc.

h) Public consultations and disclosure requirements

The ESMP has been availed to the relevant municipalities and additional impacts identified by the municipalities have been incorporated into the document. While the project appraisal team did not hold any meetings with the community, it is worth noting that municipal budgets and other developments are approved by the council. This is therefore indirect consultation with the public because counsellors represent the communities. It is also worth noting that most of the rehabilitation is similar to normal day to day running of the plants and would have very little negative impact to the surrounding communities. This ESMP summary is posted at the ADB PIC and made available to the ADB Board 30 days prior to project submission.

i) Estimated costs

The project does not have resettlement, compensation and new developments, instead it is correction of activities that are currently polluting the environment and negatively affecting the livelihood of the people in the affected areas. Therefore the mitigation measures are inherently mainstreamed in the project design and they are estimated at a cost of USD700,000.00. Post rehabilitation implementation of the ESMP will not add any extra cost to the estimated operation and maintenance of the project

ANNEX IX – Project Implementation Schedule

Schedule for Urgent Urban Water Supply and Sanitation Project																												
Activity	Responsible	2010			2011												2012											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
POC approval project pipeline / Brief	MMU	■																										
Project preparation and update	OWAS/MMU	■	■	■																								
Zim Task Force (Zim TF)	Zim TF			■																								
Operations Committee (OC) Approval	OC			■																								
POC Project Appraisal Approval	POC				■	■																						
Negotiation	MMU/OWAS					■	■																					
Translation and processing for Board	MMU/OWAS						■	■																				
Board Approval	Board							■																				
Signing	GECL/GOZ								■																			
Effectiveness	GECL/GOZ									■																		
Recruitment of project implementing entity ¹	Procurement Agent (PA) and MMU						■	■	■	■																		
Recruitment of project and engineering consultant ¹	Procurement Agent (PA) and MMU						■	■	■	■	■																	
Design and preparation of works bidding docs	PA, PIE and eng. Consultant										■	■	■															
Prequalification of Contractors	PA, PIE and eng. Consultant											■	■															
Procurement of Contractors	PA, PIE and eng. Consultant												■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Rehabilitation Works and Capacity Building	PIE, eng. Consultant and works contractors																■	■	■	■	■	■	■	■	■	■	■	■
Project completion																											■	

¹Advance Contracting is considered for the project implementing entity and engineering consultant
the advance contracting can only start when the procurement agent is on the ground