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Expanding branded toilet entrepreneurship for improved sustainable sanitation in poor neighbourhoods of Nairobi, Kenya

APPRAISAL REPORT

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS

ADB, AfDB	African Development Bank
APHRC	African Population and Health Research Center
AWF	African Water Facility
AWSB	Athi Water Services Board
EA	Executing Agency
EIA	Environmental Impact Assessment
EPZ	Export Processing Zone
FS	Faecal Sludge
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
KES, KSh	Kenya Shilling
MoPHS	Ministry of Public Health and Sanitation
MoWI	Ministry of Water and Irrigation
MTP	Medium Term Plan
NCC	Nairobi City County
NCWSC	Nairobi City Water and Sewerage Company
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
NRPP	Nairobi Rivers Rehabilitation and Restoration Program
NUHDSS	Nairobi Urban Health and Demographic Surveillance System
NWSS	National Water Services Strategy
PRSP	Poverty Reduction Strategy Paper
PSP	Private Sector Participation
UDDT	Urine Diversion Dry Toilets
WASPA	Water Services Providers Association
WASREB	Water Services Regulatory Board
WSB	Water Services Board
WSP	Water Service Provider
WSTF	Water Services Trust Fund

CURRENCY

Local Currency	:	Kenyan Shilling (KES, KSh)
1Euro (EUR, €)	:	133.36 KES (AfDB exchange rate June 2012)[1] 0.84 UA

[1] Exchange rate moved towards 100 KES/€ after election. Key costs rate have been revised with this rate.

RESULT BASED LOGICAL FRAMEWORK ANALYSIS

Country and project name: Expanding branded toilet entrepreneurship for improved sustainable sanitation in poor neighbourhoods of Nairobi, Kenya
Project and sector goal: Promote branded toilet entrepreneurship for increased access to sustainable sanitation for urban poor in slum areas in Nairobi.

	RESULTS CHAIN	PERFORMANCE INDICATORS Indicator (including CSI)	Baseline	Targets	MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
IMPACT	Improved quality of life for residents of Kenya's low income areas	% of deaths caused by unhygienic sanitation related diseases	9.9% of diarrheal disease deaths in 2008	Less than 9.9% of diarrheal disease deaths by 2025	WHO Global Burden of Disease Report – Country data MajiData; AfDB Statistical Database	**Risk**: Lack of uptake of improved sanitation due to inability of government to mobilize needed resources for scaling-up **Mitigation**: Closer collaboration and continuous dialogue with key sector public institutions to sustain political will
		% of population in low-income areas with access to hygienic sanitation	33.7% in 2010	90% by 2025		
OUTCOMES	1. Increased access to hygiene and safe sanitation in urban slums in Nairobi	1. No. of residents in target area with access to hygienic sanitation / % of which are female	1. 4,250 / 52% female in 2012	1. 100,000 / ≥ 50% of which are female by 2016	WSTF reports Project reports	**Risk**: Lack of capacity to collect and dispose the generated waste quantities leads to environmental pollution **Mitigation**: Provision of adequate capacity for waste collection, processing, and disposal activities commensurate with project demands
	2. Reduced sanitation related environmental ill health	2. % of human waste generated in the target area that is safely collected and treated	2. Nil in 2013	2. 30% by 2016		
	3. Expanded entrepreneurship and jobs in sanitation	3.1 No of new franchise operators 3.2 No of additional formal employees	3.1 > 100 / 60 female 3.2 > 100 / 50 female	3.1 > 600 / 360 female 3.2 > 170 / 85 female		
OUTPUTS	**Component 1: Develop franchise entrepreneurs and create employment in the sanitation value chain**					
	1.1. Hygiene & sanitation marketing campaigns undertaken	1. a) No. of hygienic sanitation marketing campaigns 1.1. b) No. of additional people sensitized / % of which are female	1.1. a) N/A in 2013 1.1. b) N/A in 2013	1.1. a) 50 by 2016 1.1. b) Up to 150,000 / ≥ 50% female by 2016	Project progress reports	**Risk**: Lack of community interest in the sensitization and sanitation marketing **Mitigation**: Continuous dialogue and consultation with community elders and review of campaign approach
	1.2. Household sanitation infrastructure manufactured, sold and installed	1.2. a) No. of additional hygienic urine diversion dry toilets installed in target area 1.2. b) No. of micro-credit applications processed 1.2. c) No. of operating procedures for franchisees	1.2. a) N/A in 2013 1.2. b) N/A in 2013 1.2. c) N/A in 2013	1.2. a) 1,000 by 2016 1.2. b) Up to 500 by 2016 1.2. c) 1 Operating procedure guidelines for franchisees	Project progress reports	**Risk**: Low willingness to invest into hygienic sanitation facilities **Mitigation**: Attractive financing options put in place to increase affordability
	1.3. Local capacity for improved management of household sanitation built	1.3. No. of additional trained local small-scale sanitation service providers and field staff / % of which are female	1.3. N/A in 2013	1.3. 500 / ≥ 60% of which are women by 2016	Project progress reports; Training reports	**Risk**: Failure of small-scale sanitation service providers to apply the acquired technical and business skills to operate and maintain facilities **Mitigation**: Continuous monitoring and supervision of service providers

	RESULTS CHAIN	PERFORMANCE INDICATORS Indicator (including CSI)	Baseline	Targets	MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
	Component 2: Value chain logistics up-scaled				Project progress reports Procurement reports and Lease contracts	**Risk**: 1. Reduced accessibility in informal-settlements 2. Delayed procurement of project inputs for collection and removal of human waste **Mitigation**: 1. Appropriate technology and methods for safe collection, sealing, removal, and transport are deployed as part of the project infrastructure 2. Timely procurement of inputs
	2.1. Local capacity for primary collection services built	2.1. a) No. of human waste collection carts 2.1. b) No. of faecal sludge cartridges 2.1. c) No. of human waste collectors trained	2.1. a) N/A in 2013 2.1. b) N/A in 2013 2.1. c) N/A in 2013	2.1. a) 25 by 2016 2.1. b) 4,000 by 2016 2.1. c) 50 by 2016		
	2.2. Secondary collection system established	2.2. a) No. of additional transfer stations established 2.2. b) No. of additional collection vehicles leased 2.2. c) Quantity of additional human waste safely removed per year	2.2. a) N/A in 2013 2.2. b) N/A in 2013 2.2. c) N/A in 2013	2.2. a) 12 by 2016 2.2. b) 5 by 2016 2.2. c) 5,000 tons/yr, 2016		
	Component 3: Treatment capacity and revenue from safe re-use improved					
OUTPUTS	3.1. Collected waste treated and processed into safe end products	3.1. a) Additional quantity of human waste treated and processed into safe end-products 3.1. b) No. of additional treatment and processing plants established 3.1. c) No. of quality test samples 3.1. d) No. of staff trained	3.1. a) N/A in 2013 3.1. b) N/A in 2013 3.1. c) N/A in 2013 3.1. d) N/A in 2013	3.1. a) 3,000 tons/yr, 2016 3.1. b) 1 by 2016 3.1. c) 150 by 2016 3.1. d) 8 by 2016	Project progress reports	**Risk**: 1. Lack of demand for human waste end-products 2. Failure of treatment processes to meet acceptable standards **Mitigation**: 1. Effective promotion and marketing put in place in collaboration with relevant sector public and private sector partners Continuous performance monitoring and design review of treatment process when necessary
OUTPUTS	3.2. End product marketed and sold	3.2. a) No. of demonstration farms established 3.2. b) Marketing and sales strategy developed 3.2. c) Quantity of end product sold	N/A in 2013	3.2. a) 3 by 2016 3.2. b) 1 strategy by 2014 3.2. c) 2,500 tons FS fertilizer by 2016	3.2. a-c) Project progress reports	
	Component 4: Project and Knowledge Management					
OUTPUTS	***Project Management*** 4.1. Project Inception 4.2. Coordination and management mechanisms established 4.3. Procurement undertaken 4.4. Monitoring, evaluation and reporting realized 4.5. Project up-scaled to other settlements	4.1. Collaborating partners mobilized and project launched 4.2. Project steering committee (PSC) and management (PMT) teams scheduled meetings 4.3. Goods, Works, and Services procured 4.4. Project Progress Reports; Evaluation, PCR and Audit Reports 4.5. No. of settlements up-scaled	4.1. N/A 4.2. N/A 4.3. N/A 4.4. N/A 4.5. N/A	4.1. Project launch workshop realized 4.2. 1 PSC and 1 PMT established and meeting as agreed 4.3. All project goods, services and works procured 4.4. All project reports prepared and submitted 4.5. 2 settlements by 2016	4.1. Project inception report 4.2. Minutes of meetings 4.3. Procurement documents and contracts 4.4. Mid-term and final evaluation reports 4.5. Project progress report	

RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
	Indicator (including CSI)	Baseline	Targets		
Knowledge management 4.6. Financial sustainability of demonstrated sanitation chain processes documented 4.7. Project results disseminated to other cities and beyond	4.6. Documentation of best practices including financial viability, storage, collection, transportation, treatment and reuse. 4.7. a) No. of cities / WSPs informed 4.7. b) Nr. publications/year 4.7. c) Nr. workshops/year 4.7. d) Nr. of MSc Thesis submitted	4.6. N/A in 2013 4.7. a-d) N/A in 2013	4.6. Best practices documented, financial analysis of whole sanitation chain prepared 4.7. a) 20 cities reached / 50 WSPs by 2016 4.7. b) 2 publications/year by 2016 4.7. c) 2 workshops/year; by 2016 4.7. d) 2 MSc. Theses, by 2016	4.6. Best practice reports with financial analysis of the business model 4.7. a) Project progress reports 4.7. b) Publications 4.7. c) Workshop reports 4.7. MSc Thesis	

KEY ACTIVITIES

COMPONENTS	INPUTS	
Component 1: Develop franchise entrepreneurs and create employment in the sanitation value chain	Source of funding and summary of costs per component	
a. Conduct refined baseline studies, hygiene awareness, community wide and targeted sanitation marketing campaigns	**Component 1**	**€ 1,240,000**
b. Manufacture hygienic sanitation facilities; expand employment and train community based artisans	AWF	€ 255,000
c. Sell and install hygienic sanitation facilities to predominantly women entrepreneurs of target area	Sanergy co-finance	€ 585,000
d. Provide operational, business and financial management training and support to local sanitation entrepreneurs and field managers	Beneficiaries	€ 400,000
e. Establish linkages with micro-credit facility	**Component 2**	**€ 235,600**
Component 2: Up-scale value chain logistics	AWF	€ 85,600
f. Select, train and formally employ waste collectors from urban poor communities	Sanergy co-finance	€ 75,000
g. Establish and operate additional primary waste collection transfer stations within the community	Beneficiaries	€ 75,000
h. Lease and operate waste collection trucks	**Component 3**	**€ 1,110,000**
i. Select and train primary and secondary waste collectors	AWF	€ 270,000
Component 3: Increase treatment capacity and revenue from safe re-use	Sanergy co-finance	€ 840,000
j. Installation, operation, and maintenance of waste treatment and processing facilities	**Component 4**	**€ 207,680**
k. Recruit and train plant operating and maintenance staff	AWF	€ 86,000
l. End product quality testing and monitoring	Sanergy co-finance	€ 121,680
m. Product certification and demonstration plots		
n. Market and sell end products	Contingencies	€ 139,700
	Total Cost	**€ 2,932,980**
Component 4: Project and knowledge management		
o. Manage all project components, including project launch, procurement and implementation, etc.	**Total AWF**	**€ 731,400**
p. Project reporting, monitoring, evaluation and audits	Sanergy co-finance	€ 1,702,830
q. Document business model financial analysis through MSc. Thesis and disseminate lessons learned (success stories)	Beneficiaries	€ 498,750

EXECUTIVE SUMMARY

Background: The rationale for the project is the need to address the current problem of inadequate access to sound sanitation services by the urban poor slum dwellers in Mukuru and other informal settlements in Kenya, and to learn lessons for improved knowledge management that positively impacts on the lives of urban informal settlers. The Project provides an opportunity to scale up a pilot initiative that seeks to improve access to hygienic sanitation in an affordable and sustainable manner through franchised management of shared facilities, with supportive delivery of collection, treatment and reuse services.

Objectives: The overall objective of the project is to improve livelihoods of the urban poor by promoting predominately female franchise entrepreneurs to provide branded toilets to provide improved access to affordable and sustainable hygienic sanitation in Mukuru and other informal settlements. The realization of this objective will result in three key outcomes: (i) increased access to safe sanitation; (ii) reduced sanitation related environmental ill-health in poor urban slums; and (iii) expanded entrepreneurship and formal jobs in sanitation services.

Description: The project will be implemented through four components, with AWF support. *Component 1: Develop franchise entrepreneurs and employment in the sanitation value chain* aims at increasing hygiene awareness among residents, refining baseline data, and sanitation marketing to increase demand for improved services. In addition, it provides for extended operation of a toilet manufacturing facility, sale and installation of toilets, and provision of operational and business management training support to toilet owners.
Component 2: Up-scale value chain logistics provides for both primary and secondary waste collection with provision of transfer stations.
Component 3: Increase treatment capacity and re-use revenue establishes an enhanced treatment unit for human excreta, and processing facilities for compost and fertilizer production; establishment of demonstration farms and marketing and sale of end products, among others.
Component 4: Project and knowledge management relates to project management activities, financial analysis and documentation of the whole sanitation chain, the successes, and activities that up-scale the adopted and workable approach and disseminate results to other Kenyan cities and beyond.

The direct beneficiaries are an initial 100,000 urban poor inhabitants and subsequently 300,000 urban poor inhabitants living in Mukuru and surrounding poor informal settlements in Nairobi. Specifically, the project will result in increased hygiene awareness, and improved access to affordable and sustainable hygienic sanitation through the provision of 1,000 toilet facilities that are privately owned and operated. The project will create at least 570 new jobs (500 franchisee, 50 primary collection, 4 manufacturing unit, 8 treatment and 8 reuse jobs), of which more than 50% will be for women.

Cost and financing: AWF will co-finance the project along with the Recipient - Athi Water Services Board (AWSB), and their Collaborating Partners. AWF funds will contribute € 731 400 representing 25% of the total project cost of € 2 932 980. The Recipient and Collaborating Partners will together contribute the remainder amounting to € 2 201 580. The Project will be implemented for a total duration of 24 months.

Recommendation: It is recommended that an AWF Grant not exceeding € 731 400 be extended to the Athi Water Services Board (AWSB) for the implementation of the project as described in this report.

1. BACKGROUND

1.1 Origin of the Project

1.1.1 Nairobi, the most populous city in East Africa, has a population growth rate of 4% per annum, one of the highest in Africa.[2] As the capital city of Kenya, Nairobi has experienced a rapid increase in population since independence in 1963. As stated by UNEP, the city had a population of only 8,000 people in 1901, and about 343,500 people sixty years later. According to the 2009 census, Nairobi now has a population of more than 3.1 million people.[3] The population is projected to reach five million in 2025. This rapid growth has led to uncontrolled development of more than 100 informal (slums and squatter) settlements which are dense, unsanitary and insecure. The slums and squatter settlements host more than half of Nairobi's population characterised by inadequate access to the city's basic infrastructure services like education, health care, water supply and sanitation.[4]

1.1.2 At the household level, most people do not have access to hygienic toilets, and large amounts of human waste are discharged to the environment without adequate treatment. It is estimated that about 70% of residents are not connected to the municipal sewers, and rely on unsafe pit latrines, "flying toilets",[5] and open defecation.[6] On the average, about 150 people share one (1) toilet, most of which are unhygienic[7]. This situation has major consequences for environmental health and quality of life.

1.1.3. The project is the outcome of a proposal submitted by Sanergy, a registered social enterprise that provides hygienic and affordable sanitation options to informal settlements in Kenya, to the African Water Facility (AWF) in February 2012. Sanergy's initial Concept Note responded to a call launched by the AWF in September 2011 to improve non sewered sanitation for the urban poor and was retained due to its particularly innovative business model and service improvement approach, equally supported by winning awards by MIT[8], SIDA[9] and others. The project adopts a business model to provide services along the sanitation value chain, thereby creating jobs for beneficiary poor slum dwellers in Nairobi with resultant improvement in environmental health and increase in household incomes. The comparative advantages of the proposed solutions over competing concepts include the branding, marketing and franchising of sanitation services and facilities specifically targeting the urban poor.

1.1.4 Since January 2010, Sanergy has been working with key stakeholders – Government of Kenya, Nairobi City County, and its predecessor City Council of Nairobi, local leaders, residents of Nairobi's informal settlements and NGOs – to pilot toilets (developed by Sanergy, in collaboration with the University of Nairobi) together with adoption of a successful sanitation business model and waste collection services in Kibera and Lunga Lunga, both informal settlements in Nairobi. From a modest number of 2 constructed toilets in September 2010, Sanergy has up-scaled their operations to provide 200 toilet facilities in the Viwandani and Mukuru informal settlements in Nairobi as of July 2013, with safe collection, removal and processing of human waste from the community into treated organic fertilizer. The local community toilet entrepreneurs generate income from the use of facilities.

[2] Nairobi Urban Sector Profile, UN HABITAT 2006
[3] Kenya National Bureau of Statistics (KNBS), 2009
[4] UN Habitat estimates, 2001 (available at www.unhabitat.org)
[5] Excreta placed in (plastic) bags and thrown into public space
[6] Government of Kenya, 'Citizens Report Card on urban water, sanitation, and solid waste services in Kenya', 2007
[7] Umande Trust, 'The Right to Water and Sanitation in Kibera, Nairobi, Kenya', 2007
[8] Massachusetts Institute of Technology, 100K Business Plan Winner (2011)
[9] Swedish International Development Cooperation Agency, Innovator of the Year (2012)

1.1.5 The proposed project aims to further refine and expand the approach in slum areas of Nairobi with the purpose of providing universal and sustainable hygienic sanitation coverage in the target areas and full cost recovery at the current market rates.

1.2 Sector Status and Priorities

1.2.1 The Government of the Republic of Kenya (GOK) adopted the Water Act in 2002 as a reform measure to address the problem of institutional fragmentation by clearly separating the roles and responsibilities of all relevant sector institutions. Currently, the institutional set up for the sector at the national level include (a) the Ministry of Public Health and Sanitation (MoPHS), that is responsible for sanitation policy formulation and sector coordination; (b) the Ministry of Water and Irrigation (MoWI), that is responsible for management of water resources, planning and resource mobilization for sector investments; (c) the National Environmental Management Authority (NEMA), that ensures environmental management and regulation; (d) the Water Services Trust Fund (WSTF), that acts as a basket fund for mobilizing resources and providing assistance for capital investments, particularly in deprived communities.

1.2.2 At the provincial or basin level, Water Services Boards (WSBs) acts as asset holders of water supply and sanitation infrastructure; and at the municipal level, Water Service Providers (WSPs) are contracted by the WSBs to provide water supply and sanitation services on behalf of municipalities. In addition, municipalities provide hygiene and sanitation support services in collaboration with the MoPHS mainly in un-sewered communities.

1.2.3 The government also recognizes that provision of safe water supply and sanitation is cross-cutting and therefore impacts on the effort towards achievement of socio-economic wellbeing of Kenyans. Thus, the Government of Kenya's Vision 2030 and the associated 4 year (2008 – 2012) Medium Term Plan (MTP) fully support this recognition and also provide for increased investments to improve access to safe water and sanitation in both rural and urban areas.

1.2.4 Vision 2030 and the MTP further advocate the need for strong policy and effective environmental management to address environmental issues due to positive economic growth and rapid urbanization. In particular, Vision 2030 and the MTP provide the framework for increased investments in the informal and urban poor settlements in Kenya to improve access to safe water supply and sanitation and to adopt safe waste disposal measures to ensure a clean, healthy and secure environment.

1.2.5 The Kenya Poverty Reduction Strategy Paper (PRSP) emphasizes structural reforms that encourage among others, the introduction of Private Sector Participation (PSP) in service delivery. As a result of the marginal increase in coverage (2% per year) for urban sanitation, the PRSP also recognizes the need to improve the living conditions of millions of the urban poor that lack access to basic water and sanitation.

1.2.6 The National Water Services Strategy (NWSS) of the Ministry of Water and Irrigation, the Pro-Poor Implementation Plan for Water Supply and Sanitation (MoWI, 2007), and the Implementation Plan for Sanitation (MoWI, 2009) specify 2015 strategic goals for urban water supply and sanitation that seek to (a) increase access to basic sanitation from 55% to 77.5%; and (b) achieve operation & maintenance cost recovery for water & sanitation services.

1.3 Problem Definition and Opportunities

1.3.1 On average, sanitation coverage in low income urban areas in Kenya is below 50%. Progress towards increasing coverage is hampered by various factors paramount among which are the shortage of technologies adapted to lack of space and high water tables, financial incentives for sustainable service provision, low hygiene awareness in combination with ever increasing urban population numbers and densities, particularly in the informal settlements. Over the years, Municipal Authorities have been overwhelmed by the situation resulting in limited access to improved sanitation for the urban poor who are confronted with environmental ill health that impacts on productivity.

1.3.2 Despite the broad ranging water sector reforms and the commitment to invest in water supply and sanitation, Kenya still faces considerable challenges in reaching the water and sanitation Millennium Development Goals (MDGs). To achieve the MDGs, 15.8 million more people need to obtain access to water and 16.5 million to sanitation. Even if targets are met, an additional 8.5 million people will remain without access to safe water, and 12.2 million will lack sanitation.[10]

1.3.3 MajiData[11] states that Kenya has more than 1,800 low income informal settlements with a total estimated population of more than 8.5 million.[12] In Nairobi, there are 100 such settlements with total population of about 1.75 million people (about 50% of Nairobi's population) which are ever increasing. The Kenyan government is constrained by capacity and funding to improve provision of basic services in these informal settlements thereby making dwellers in such settlements vulnerable to a host of health and environmental hazards.[13]

1.3.4 Over 50% of hospital attendance in Kenya is the result of insufficient water supply, sanitation and hygiene services, with the associated diseases being water and sanitation related diseases adversely affecting mortality for children under 5.[14] A survey conducted in 2000 by the African Population and Health Research Center (APHRC), provides details on the health conditions of slum dwellers in Nairobi. Infant mortality rate in Nairobi slums is 96 per 1,000 live births – higher than any other region of Kenya, and 25% higher than the national average. Under-five mortality rates in the slums (151 per 1,000 live births) are more than double the Nairobi average of 62, and greater than that for rural Kenya (113 per 1000 live births).

1.3.5 The main challenges to provide access to safe and acceptable sanitation in urban areas with a dense and generally poor population include (a) available space, (b) the institutional performance for delivery of services, and (c) willingness and ability to pay. Currently, the majority of dwellers in informal settlements pay between KES 3 and KES 5[15] per use to access communal pit latrines that are drained into waterways or rely on open defecation and flying toilets especially during the night.[16] The dumping of flying toilets and waste from the pit latrines exposes the community to high health and environmental risks.

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[10] Getting Africa on Track to Meet the MDGs on Water and Sanitation: UNDP, Dec. 2006

[11] MajiData is a pro-poor database covering all the urban low income areas of Kenya which has been prepared by the Ministry of Water and Irrigation (MWI) and the Water Services Trust Fund (WSTF) in cooperation with UN-Habitat, the German Development Bank (KfW), Google org. and GIZ.

[12] MajiData, http://majidata.go.ke/

[13] Amnesty International, July 2010. Insecurity and Indignity: Women's experiences in the slums of Nairobi, Kenya, Amnesty International Publications, London, UK

[14] Kenya Demographic and Health Survey (KHDS) 2008-2009

[15] About 3 to 5 €-cents

[16] Excreta placed in (plastic) bags and thrown into drainages or disposed in public areas.

1.3.6 Shared pit latrines are often in unhygienic conditions, rarely cleaned, have unbearable smell, and attract insects and other disease vectors. Once the pit is filled up, it is emptied manually or closed and relocated. Odour and fly nuisance are very common with these latrines which also contaminate surface and underground water.

1.3.7 There are also approximately 50 pay-as-you-use public toilets, in the central business district as well as slums, which require high donor funding for capital[17] and operational expenses. The technology provided uses pour flush toilets connected to an underground septic tank or biogas digester. The large concrete structures need sufficient space and are constructed onsite over several months. This sanitation system requires constant water supply, connection to a municipal sewer for effluent disposal, as well as large space. They are usually constructed in the outskirts, where slums border industrial areas or planned settlements, and therefore, are not easily accessible. Due to lack of security and street lighting, women risk rape or other gender-based violence to use the toilets at night. Amnesty International's recent report detailed that women and children in Kenya's slums are at highest risk of rape and sexual assault as they walk to and from toilets. The accumulated faecal sludge is mainly not reused and disposed of into the sewer system or drained into waterways.

1.3.8 Mukuru is one of the largest informal settlements in Nairobi and has over 700,000 people. It is located in the middle of the main industrial area in the city, and at a site that was previously an old quarry that had been reclaimed through waste dumping by the municipal authorities. Initially, the scavengers on the dumps started to build temporary structures for habitation. Over the years, their numbers have increased due to immigration of poor people from other communities in and around the city. Mukuru residents are extremely poor. Many do odd jobs and live in tiny rooms with large families and dependants. Many families depend on less than 2 dollars per day. Roads are inadequately provided and residents have limited access to good drinking water and electricity. Houses are packed together with poor drainage and sanitation.

1.3.9 To address the inadequate sanitation in informal settlements in Nairobi, the project seeks to make safe sanitation accessible, affordable, and sustainable in order to have a positive impact on the environment, human health and general living conditions. The proposed branded and franchised toilets will provide income and employment for residents of the informal settlements while providing dramatically improved sanitation services at the current cost of service. Subscription to daily emptying will be cross subsidised from sale of treatment products.

1.4 Objectives of the Project

1.4.1 The overall objective of the project is to improve livelihoods of the urban poor through the promotion of entrepreneurial skills and formal sanitation related employment that will foster the provision of improved access to affordable and sustainable hygienic sanitation in Mukuru and other informal settlements in Nairobi. These services will be provided through promoting franchise entrepreneurs – the majority of which will be female – by business training and access to branded toilet franchise as well as creation of formal employments in the poor communities in waste collection and treatment. Achieving this objective will result in three key outcomes: (i) increased access to hygiene and safe household sanitation; (ii) reduced

[17] Cost about USD 25,000 to build ablution block with 6 stalls, sometimes including treatment and community center.

sanitation related environmental ill-health in the poor urban slums in Nairobi; and (iii) expanded entrepreneurship and formal jobs in sanitation services.

1.4.2 The project will explore the further refinement and expansion of a successfully piloted franchising approach to set the stage for future full scale investments. Knowledge and lessons will be documented and disseminated regarding:

a) Community-based private ownership and franchised management of branded toilet facilities;
b) Micro-credit financing and sanitation marketing to improve access; and
c) Demonstrated financial viability of sanitation services along the value chain from storage through collection, treatment and reuse.

1.5 Beneficiaries and Stakeholders

1.5.1 The ***direct beneficiaries*** of the project are an initial 100,000 poor residents in Mukuru and surrounding informal settlements, including the customers of improved sanitation, operators, collectors, treatment plant staff, and farmers. In the medium to long term, up-scaling of the project is expected to benefit about 300,000 people living in informal settlements in Nairobi, and ultimately poor people living in other urban areas in Kenya and beyond. Specifically, the project will result in increased hygiene awareness, and improved access to affordable and sustainable hygienic sanitation through the provision of 1,000 new urine diversion dry toilet facilities that are privately owned and operated as small businesses. The project will create at least 570 new jobs (500 franchisee, 50 primary collection, 4 manufacturing unit, 8 treatment and 8 reuse jobs). More than 50% will be for women; in particular among the franchise operators their current share already exceeds 60%.

1.5.2 The project's ***indirect beneficiaries*** include: (i) Nairobi City County (NCC) and Nairobi Water and Sewerage Company (NWSC); (ii) Athi Water Services Board (AWSB), NGOs, Community Leaders and Private Sector Service Providers; and (iii) national level actors including the Ministry of Water and Irrigation, Ministry of Energy, Ministry of Agriculture, and National Environmental Management Authority (NEMA), and the Ministry of Public Health and Sanitation, among others; (iv) Sanergy is an innovative private sector implementation partner, with an interest in proving the effectiveness and efficiency of their innovative approach and business model.

1.5.3 The following key stakeholder interests have been incorporated in the project design through a consultative process:
(i) Farmers, as potential customers of the treated faecal sludge (FS) fertilizer. This is based on recent studies that show that local agriculture is in dire need of organic soil conditioning, and that FS fertilizers are appropriate sources of nutrients with good value for money;
(ii) Ministry of Water & Irrigation, interested in increased sanitation coverage and the likely positive outcomes and opportunities for up-scaling;
(iii) Ministry of Energy, with interest in alternative sources of energy including biogas and electricity generation from biogas to complement on-going effort to provide adequate and reliable supply of energy.

1.5.4 The ***Project Target Area*** covers Mukuru and surrounding informal settlements in Nairobi. Areas for up-scaling may include other informal settlements out of the 100 informal settlements in Nairobi. Project outcomes will be disseminated in a number of other Kenyan cities with un-sewered informal settlements.

1.6 Relevance for AWF Intervention

1.6.1 Improved quality of life of the urban poor in Mukuru and other informal settlements in Nairobi will be achieved through up-scaled franchised management of sanitation infrastructure and services along the sanitation value chain that can be replicated to other urban-poor communities in Kenya and beyond. The project thus adopts an *innovative business approach* to provide sanitation services along the value chain by creating opportunities for different private sector actors to invest in or leverage parts of the chain. The wider application of innovative but tested sanitation approaches include micro-credit financing to increase access, franchised management of privately owned shared sanitation facilities, and commercial collection and processing of FS and urine into reusable and sellable products.

1.6.2 The project fits within the AWF mandate and strongly links to *all three AWF pillars* as follows:

Bankable projects for investments - Small strategic investment projects, through adoption of innovative and sustainable financing mechanism (micro-credit financing) for delivery of shared sanitation facilities; strategic investments to improve collection, treatment and reuse of faecal sludge and urine which will be scaled-up to other informal settlements;
Enhancing water governance, through promotion of pro-poor approaches to improve access; establishment of a framework for increased public private partnership; raising of public awareness on WASH related environmental issues; and improved and controlled performance of service providers, among others;
Promote knowledge management, through contribution to peer learning and dissemination of information on best practices among sub-Saharan African countries.

1.6.3 In addition, the AWF funding for this project promotes leveraging of additional resources from other donors (e.g. USAID-funding which has already been secured by Sanergy) and private financiers to support activities downstream of the value chain that include treatment, processing, marketing and sale of reusable end products. AWF funding will enable the project objectives to be achieved, and will mainly support activities for capacity building, up-scaling, knowledge management, project management, and investments in collection and quality monitoring of reusable products.

2. THE PROJECT

2.1 Goal

The long-term goal is to improve the quality of life of the urban poor through promotion of predominantly female entrepreneurs to provide branded toilets for increased access to sustainable sanitation for urban poor in slum areas in Nairobi.

2.2. Impact

The expected impact will be improved quality of life for residents in Kenya's low-income areas in Nairobi.

2.3 Outcomes

The realization of this objective will result in two key outcomes:

Outcome 1: Increased access to hygiene and safe household sanitation services in urban slum areas in Nairobi.
Outcome 2: Reduced sanitation related environmental ill health in urban slum areas in Nairobi.
Outcome 3: Expanded entrepreneurship, in particular female franchisees, and formal jobs in the whole sanitation value chain.

2.4 Components, Outputs and Activities

2.4.1. Components

The Project has 4 Components:
Component 1: Develop franchise entrepreneurs and create employment in the sanitation value chain
Component 2: Up-scale value chain logistics
Component 3: Improve Treatment capacity and revenue from safe re-use
Component 4: Project and knowledge management

2.4.2. Outputs and Activities

The outputs to be achieved under each of the above components are detailed below together with their corresponding activities:

Component 1: Develop franchise entrepreneurs and create employment in the sanitation value chain

Output 1.1: Hygiene and sanitation marketing campaigns undertaken.

Activities

a) *Conduct a baseline study.* The study will be carried out in the target community to determine the existing socio-economic characteristics, including employment, income and housing status together with knowledge, attitudes and practices (KAP) related to hygiene and sanitation, in particular hand washing and toilet use. Data collected shall be compared with that obtained from MajiData, and the Nairobi Urban Health and Demographic Surveillance System (NUHDSS) that provides data on amenities, household assets, mortality, morbidity, etc., on regular basis. In addition to providing the baseline for monitoring and evaluation, as key investment and behavioural decisions are often made at the household level, the study results will be used to (i) develop the sanitation marketing and hygiene awareness campaigns, and (ii) improve product designs to ensure that local community needs and challenges are

addressed and (iii) refine the human waste (faecal sludge and urine) collection arrangements. The baseline will cover a representative sample of the community.

b) Carry out hygiene awareness campaign among residents. The objective is to increase hygiene awareness that has a positive impact on use of hygienic sanitation. The campaign defined under a) above will build on earlier work carried out by local NGOs and others in the target community. Local residents will be selected and given orientation and training to increase local capacity in conducting such campaigns. The campaigns will be repeated a few times to reinforce the messages, and to reach new migrants and the most vulnerable of the target population.

c) *Carry out sanitation marketing and micro-credit facility promotion.* This will involve active campaigning through local shops and by outreach workers with information on micro-credit fund and subsidy arrangements for purchase of toilets. The marketing and promotion activity will run alongside and be linked to the hygiene awareness campaign. The approach to be adopted will constitute two parts: The first part involves community wide events that educate residents on the importance of improved sanitation for their personal health and community well-being, and also makes them aware of available, affordable and appropriate technological choices. The second part involves actions that trigger behavioural change of residents living within the reach of each toilet installed. The owner/operator of an installed toilet will be provided information, education and communication (IEC) materials and assisted to implement a customized marketing campaign that is adapted to the peculiar circumstances of the households within 100 m of the installed toilet in order to generate market interest in the facilities as well as the use of the toilet facility.

Output 1.2: Household sanitation infrastructure manufactured, sold and installed:

Activities

a) Manufacture of toilets: The existing Sanergy manufacturing centre established under the USAID funded pilot initiative will be expanded and used to manufacture the toilets. The centre already produces high-quality urine diversion dry toilet facilities made of prefabricated elements using materials available in the local market. Nine additional local residents will be hired and trained to manufacture and install the toilets. At a current production rate of 3 toilets per week, the facility will be upgraded to produce at least 12 toilets per week.

b) Sale and installation of toilet facilities: Ten additional women and men from the target community will be selected and trained in sales and business development skills. These sales people will identify potential entrepreneurs, including landlords, community institutions (e.g. churches, schools, etc.), merchants, and households that are interested in improving access to sanitation for themselves and others and are interested in purchasing a toilet. Based on results to date, women entrepreneurs will be specially targeted and form the majority of new entrepreneurs. Financial literacy of franchisees will be supported both during the initial training as well as through follow-up coaching. The manufactured toilets (with superstructure) will be sold at cost (i.e. no profit) at about 500 Euros (50,000 KES) for the first toilet, and 300 Euros (30,000 KES) for the second toilet, if both are purchased outright for the same location. The amount includes an installation fee of 25 Euros, and a one-year primary collection fee of 90 Euros. This is the standard instalments option, through the KIVA micro-credit facility described below, where a buyer of a single unit pays a deposit of 14,000 KES (140 €) and monthly payments of 3,000 KES for 12 months. A buyer of two units makes a deposit payment of 20,000 KES, and after, make monthly payments of 5,000 KES over 12 months using the micro-credit facility. Upfront cash payment will result in a reduction of 5,000 KES (50 €).

c) Establishment of linkages with KIVA micro-credit facility: Potential owners shall be assisted to process their application for micro-credit financing. The aim is to promote the purchase and use of the UDDTs through the micro-credit facility already established with KIVA – an internet-based micro-credit financing company[18]. It is expected that about 1,000 toilet urine diversion dry toilet facilities shall be sold to local franchisees or private owners. Given the expressed demand for sanitation, and the typical user fee of KES 5 per visit, a toilet owner/operator may earn an annual income up to 850 Euros. In addition, depending on the income level of the purchaser, support in the form of subsidies as described under b) above will be provided to facilitate purchase: The project will provide funds to subsidize up to 25% of the cost of the toilets when 2 toilets are purchased by the same owner.

Output 1.3: Local capability for improved management of household sanitation built.

Activities

a) Operational training and support. Owners/operators shall be provided with upfront operational training to build their capacity to run a successful sanitation franchise and earn a return on their investments. In addition, women and men from the target community shall be hired and trained as field staff who provide on-going operational support and business mentorship to the owner/operators, while also enforcing hygiene standards and compliance with standard operating procedures of the franchise[19]. With the provision of long term support, and by ensuring the financial viability of each toilet, a dense network of easily accessible and affordable high-quality toilets is made available to provide increased access to safe sanitation for residents.

b) Business management training. In addition, business management training shall be provided to owners/operators to enhance basic skills in accounting and book keeping, business management, conflict resolution, etc. Each operator shall be provided with a Business Tool Kit comprising relevant manuals and materials for the smooth running of the toilet as a small business.

***Component 2:* Up-scale value chain logistics**

Output 2.1: Local capacity for primary collection services built.

Activities

a) Purchase of Collection Containers. Support will be provided to purchase 4,000 collection containers for separate collection of faecal sludge and urine at household level. The containers shall have sizes of 25 litres for urine and 30 to 45 litres for faeces. Each facility will be provided with two containers. At the time of emptying, the filled containers will be replaced with two empty ones by the waste collector.

b) Establishment of primary collection of FS and Urine. A primary collection system will be established comprising two persons. Initially, about twelve (12) collectors will be selected and trained and resourced to provide FS/urine collection services under a contract agreement. Subsequently, additional 13 trained collectors shall be established and trained to meet increasing demand. Primary collection equipment will be provided that include simple handcarts that can collect up to 10 containers per trip. About 25 handcarts shall be provided. It

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[18] Kiva works with microfinance institutions to provide loans to people without access to traditional banking systems. Leveraging the internet and a worldwide network of microfinance institutions, Kiva lets individuals lend as little as $25 to help create opportunity around the world.
See www.kiva.org

[19] The standard operating procedures of the franchise will adapt the standards set by the Water Services Regulatory Board (WASREB) which monitor compliance with standards on infrastructure development and maintenance, monitor and enforce licenses, determine tariffs, monitor handling of consumer complaints among other functions. See *Enforcement and Compliance Strategy, 2012* at www.wasreb.go.ke

is envisaged that each team (pair) of collectors will collect an average of 60 containers from 30 toilets a day. Most of the primary collection cost – from toilet to collection centre –is covered by the subscription fee. AWF funds will be used as a temporary subsidy for the onward transport to the treatment plant (by truck). Revenue accruing from sales of treatment products will cover these costs once a larger scale is attained.

Output 2.2: Secondary waste collection system established.

Activities

a) *Establishment of Transfer Stations:* Twelve (12) collection centres (Transfer Stations) for temporary storage of FS and urine will be established in Mukuru. Each collection centre will have capacity for temporary storage of waste from about 80 toilets. Each transfer station will handle approximately 500 tons of FS and urine per year. Land for the centres will be negotiated by Sanergy in collaboration with NCC and NCWSC and leased for the purpose and in line with health and safety guidelines as required by the National Environment Management Agency (NEMA). The centres will be strategically located to facilitate timely and safe evacuation of waste from the toilets.

b) Outsourcing of secondary collection and transport of FS and Urine. FS/urine will be transferred from the collection centres to the EPZ treatment and processing facility with leased trucks. Project funds shall be used to facilitate the establishment of these secondary collection services. It is envisaged that revenues accruing from the reuse sales would be used to support the operational costs.

c) *Training of Primary and Secondary FS waste Collection Operators* shall be carried out to ensure adequate provision of services and safe handling. The training shall further include operation and maintenance, record keeping, basic accounting and finance, conflict resolution, etc.

***Component 3:* Treatment Capacity and Revenue from safe Re-use improved**

Output 3.1: Collected waste treated and processed into safe end products.

Activities

a) *Detailed design of treatment plant.* Sanergy and the partners through the co-financing will secure the required treatment site proposed at EPZ. A treatment plant that has capacity to treat FS of at least 400 tons FS per month shall be provided at the designated site acquired for the purpose. Detailed design of all treatment units (composting, sludge drying, digester, etc.) will be carried out taking into account the FS volumes and characteristics, including hygienic quality of the collected FS and urine.

b) *Construction of Sludge Drying/Composting Unit.* Sludge drying and composting units will be constructed at some of the collection centres where adequate space can be secured to cater for the initial low volumes of collected FS. Sanergy has successfully demonstrated this set-up in its pilot phase in Mukuru.

c) *Construction of Urine Holding Tanks.* 2 urine-holding tanks will be constructed at EPZ treatment site for minimum storage of 1 month (to ensure treatment) before agricultural use as per WHO standards[20].

20 Guidelines for the Safe Use of Wastewater and Excreta in Agriculture and Aquaculture - Measures for public health protection, prepared by D. Mara, University of Leeds, UK and S. Cairncross, London School of Hygiene and Tropical Medicine, UK, ISBN 92 4 152248 9

d) *Training of Treatment Plant Operators* shall be carried out to ensure adequate operational performance.

e) *Quality Monitoring* of effluent and end products shall be carried out in collaboration with an appropriate quality monitoring government-endorsed institution, and in accordance with standard practice. All results shall be properly analysed and documented as evidence of performance monitoring.

Output 3.2: End products marketed and sold.

Activities

a) Establishment of FS fertilizer demonstration farms. Three farms will be established and managed over a period of one year to demonstrate the agricultural value addition of FS and urine products for crops (maize, vegetables, sugar, cotton, etc.) at selected locations, to be identified after consultation with and in line with the guidelines of the Ministry of Agriculture.

b) Dialogue with the relevant public institutions. Continuous dialogue with the Ministry of Agriculture and other relevant authorities will be carried out regarding identification of demonstration farms; certification of the final fertilizer products; and overall project outcomes related to safe re-use of the treated FS fertilizer.

c) Marketing and sale of end products. A marketing and sale strategy will be developed for the treatment products. The project will ensure certification of the safety of all end products by the relevant Kenyan Authority. About 2,800[21] tons of FS fertilizer shall be produced in a year.

Component 4: Project and Knowledge Management

Output 4.1: Project Inception

Activities

Project Launch and Mobilization. Following project signing and effectiveness, AWSB shall organize a project launch workshop to which all stakeholders shall be invited. Presentations and clarification on project objectives and desired impact, implementation arrangements, knowledge management, etc., shall be made. In addition, the collaborating partners shall be made to confirm their participation and expected roles by signing MOUs, and to nominate staff responsible for communication and all other project related matters. AWSB shall lead the process of project launch and mobilization.

Output 4.2: Coordination and Management mechanisms established

Activities

Establishment of Management Teams: Letters will be sent by AWSB to identified and relevant sector institutions inviting them to nominate individuals to serve on the Project Steering Committee (PSC). As earlier mentioned, the existing PSC will be expanded to be used for the project.

Output 4.3: Procurement undertaken.

Activities

Implementation of Procurement and Work Plans. The draft procurement plan in Annex 5 shall be revised and implemented according to schedule. All procurement of goods, works and

[21] The actual quantity will depend at the new treatment process and plant.
Currently the added sawdust roughly replaces the water and organic matter lost in the process.

services shall follow AfDB procurement rules. The overall project work plan shall be followed to ensure timely completion of the project.

Output 4.4: Monitoring, Evaluation and Reporting realized.

Activities

a) Project monitoring and evaluation shall be carried out by AWSB as scheduled in the work plan. Project monitoring shall include supervision missions and progress reporting by the project management team. A mid-term and end of project evaluation shall be carried out by AWSB to assess the extent to which project objectives have been met in relation to the expected impact.

b) *Preparation of reports.* All relevant project reports shall be prepared by AWSB and submitted. The reports include inception, progress, mid-term review, completion and specific study reports, knowledge products and documentation.

Output 4.5: Project up-scaled to other settlements.

Activities

Undertake up-scaling of project approach and process of collection and transport. This will be carried out in two other informal settlements and will require establishment of additional collection points and provision of additional collection vehicles and equipment that will be financed partly from revenues generated from the project and partly from AWSB and Sanergy's resources.

Output 4.6: Financial sustainability of demonstrated sanitation chain documented.

Activities

a) *Analyses of financial sustainability of value chain.* Based on the project implementation experiences, an analysis of the financial sustainability of each link (storage, collection, transportation, treatment and reuse) in the value chain will be assessed and documented by AWSB. This will include acceptable tariffs to ensure cost recovery and margin of profit for operators, per capita costs for the various technologies adopted, options for cross subsidy, among others.

b) *Documentation of Best Practices*. The best project practices will be distilled and documented and made available for dissemination by AWSB. Documentation will include capturing of the relevant project processes and related outcomes, e.g., modalities for setting up and effectively managing a Sanitation Micro-Credit Fund, role of community leadership in community mobilization and effective participation in sanitation programs, use of community based enterprises in the delivery of sanitation services, demand and sale of FS fertilizer and biogas energy, among others.

c) *Master of Science Theses.* The processes in these activities a) and b) shall be supported by two Master's Degree student competitively selected by AWSB who will submit thesis on the safe reuse aspects as well as the financial sustainability of the whole sanitation chain and further capture the lessons learnt through this project.

Output 4.7: Project Results disseminated to other cities and beyond.

Activities

a) *Dissemination of project approach to other WSPs and Municipalities.* This will be carried out by AWSB through WASPA (Water Services Providers Association) in which 64 Kenyan WSPs are represented. The WSPs and municipalities / county governments will be invited to participate in seminars and exposures. The WSTF and the MoWI will also play a

key role in disseminating project outcomes. NGOs will disseminate the results through their networks.

b) *Dissemination of project approach to other stakeholders.* This will be carried out through presentations at national and regional conferences, including international conferences.

2.5 Risk Management

2.5.1 A number of risks that may hamper successful implementation and therefore achievement of the desired objectives and outcomes are presented in the log frame and are summarised in Table 1 below.

Table 1: Potential Risks and Mitigation Methods

Risks	*Mitigation measures*
Lack of uptake of improved sanitation due to inability of government to mobilize needed resources for scaling-up.	Closer collaboration and continuous dialogue with key sector public institutions to sustain political will.
Lack of capacity to collect and dispose the generated waste quantities leads to environmental pollution.	Training and formal employment of waste collectors; provision of adequate capacity for waste collection, processing, and disposal activities commensurate with project demands.
Lack of interest from the community in the sensitization and sanitation marketing campaigns	Continuous dialogue and consultation with community elders and review of campaign approach.
Low willingness to invest into hygienic sanitation facilities	Attractive financing options put in place to increase affordability
Failure of small-scale sanitation service providers to apply the acquired technical and business skills to operate and maintain facilities	Continuous monitoring and supervision of service providers.
Reduced accessibility in informal-settlements Delayed procurement of project inputs for collection and removal of human waste.	Appropriate technology and methods for safe collection, sealing, removal, and transport are deployed as part of the project infrastructure. Timely procurement of inputs.
Lack of demand for human waste end-products. Failure of treatment processes to meet acceptable standards.	Effective promotion and marketing put in place in collaboration with relevant sector public and private sector partners. Continuous performance monitoring and design review of treatment process when necessary.

2.6 Costs and Financing Plan

2.6.1 The estimated total cost of the project is € 2 932 980 and include provision for 3.5% physical and 1.5% price escalation contingencies, and exclude taxes. A breakdown of the proposed financing plan by project Component and Source of Financing is summarized in Table 2 with details shown in Annex 2. Table 3 below provides an overview of the estimated costs by category of expenditure.

2.6.2 The AWF will finance 25% of the total project costs (estimated at **€ 731 400**), mainly for the provision of supportive infrastructure (including operation and maintenance) and related training services, studies and sanitation marketing campaigns, and support for knowledge and project management. AWSB, Sanergy, beneficiaries and the other

development partners will finance the remainder amounting to (€ 2 201 580), mainly for provision of household sanitation infrastructure (urine diversion dry toilets), treatment and processing facilities, hygiene and sanitation promotion and project up-scaling. A summary of the project costs by expenditure category is provided in Table 3 below while Table 4 highlights the per capita expenditure costs.

Table 2: Project Cost Estimates by Component and Sources of Financing (in '000 Euros)

Component	*Total Cost*	*AWF*		*Sanergy, Beneficiaries & Others*	
1. Develop Entrepreneurs / Employmt	1,240.0	255.0	21%	985.0	79%
2. Up-Scaled Value Chain Logistics	235.6	85.6	36%	150.0	64%
3. Treatment and Re-use	1,110.0	270.0	24%	840.0	76%
4. Project and Knowledge Management	207.7	86.0	41%	121.7	59%
Total Base Cost	*2,793.3*	*696.6*		*2,096.7*	
Contingencies (Physical, Price, 5%)	139.7	34.8		104.9	
Total Project Cost	**2,933.0**	**731.4**		**2,201.6**	
Percentage	100%	25%		75%	

Table 3: Project Cost by Category of Expenditure (in '000 Euros)

Category of Expenditure	*Total Cost*	*AWF*	*Beneficiaries / Others*
Works	850.0	0.0	850.0
Goods	510.0	110.0	400.0
Services	553.6	218.6	335.0
Operating costs	880.7	369.0	511.7
Total Base Cost	*2,793.3*	*696.6*	*2,096.7*
Contingency (5%)	139.7	34.8	104.9
Total Project Cost	**2,933.0**	**731.4**	**2,201.6**
% Contributions		*24.9%*	*75.1%*

Table 4: Sanitation Infrastructure Per Capita Investment Costs (Euros)

Description	*No. of people served*	*Unit Cost*	*Per Capita Cost*
Capturing and Storage			
New urine diversion dry Toilet	50	500	10
Treatment			
Construction of FS treatment and Processing Facilities	300,000	600,000	2.0
Urine Hygienization	150,000	70,000	0.5
Description	*No. of Trips per Day*	*Daily Capital Cost*	*Capital Cost Per Trip*
Collection and Transport			
Hand cart	3		
Hired Trucks	3	2.4	0.8

3. PROJECT IMPLEMENTATION

3.1 Recipient

3.1.1. Athi Water Services Board (AWSB) will be the Grant Recipient and Executing Agency. AWSB was established in 2001 as a Water Services Board. It draws its mandate from the 2002 Water Act that grants its eligibility to hold water and sanitation infrastructure assets and manage resources for providing water supply and sanitation services. AWSB employs some 50 permanent and 10 temporary staff, and manages through a performance contract, the operations of the NCWSC. Nairobi City County (NCC) is the owner of NCWSC and is also represented at the governing board of AWSB together with representatives of civil society, industry, consumers, women's organizations, and hotels.

3.1.2 AWSB is currently implementing two AfDB funded projects, namely, the Water Services Board Support Project – Kibera Development Program, and the Nairobi River Basin Rehabilitation/Restoration Program amounting to Euros 40 million since 2008. The AWSB has built internal capacity for project management including expertise for procurement and financial management.

3.1.3 The NCC and NCWSC have concluded a Memorandum of Understanding mandating NCWSC to provide sanitation related services in un-sewered informal settlements in Nairobi. The NCC is directly responsible for hygiene promotion and solid waste management services.

3.1.4 Sanergy will be a strategic implementation partner due to their experience, positive results and co-financing already outlined in Sections 1.1 and 1.5 and further scrutinized in Annex 6.

3.2 Project Organization /Implementation Arrangements

3.2.1 The planned organizational arrangements for implementing the project are presented in Table 5 and Annex 4. A Project Steering Committee (PSC) that will be chaired by the CEO of AWSB shall comprise members representing various stakeholders and relevant sector ministries including the Ministry of Health, Ministry of Water & Irrigation, Ministry of Agriculture, Ministry of Energy, Ministry of Public Health and Sanitation, NEMA, NCWSC, NCC, the community and farmer association. The PSC shall meet once every quarter to review project progress and provide general guidance and oversight of project execution.

3.2.2 To ensure coordination of project activities with, and to optimize use of available resources for other on-going AWSB projects, membership of the existing PSC for the two on-going AfDB funded projects would be expanded to include representatives from the key institutions mentioned under 3.2.1 above.

3.2.3 A Project Implementation Unit (PIU) consisting of a Project Manager and assisted by a team of multi-disciplinary staff with extensive experience in project management, procurement and financial management shall be established. Staffing of the PIU will be sourced from the available staff of AWSB with experience in similar activities. AWSB will provide the PIU with office space.

3.2.4 The main duties of the PIU will focus on project management and procurement, and will include the following, among others: (i) project coordination among stakeholders, viz.: AWSB, NCWSC, NCC, MOA, MOWI, MOE, NEMA, AWF, etc.; (ii) procurement of consulting services, goods and works; (iii) processing payment requests; (iv) preparation of project reports, and (v) knowledge management.

Table 5: Implementation Arrangements

Role	*Organization*	*Project Responsibility*
Recipient/Executing Agency	Athi Water Services Board (AWSB/	Receives and administers funds, overall project management and coordination, procurement of goods, services and works.
Strategic Partner	Sanergy	Provides services to ensure proper implementation and support of the franchisee model; arranges micro-credit finance and provides support to manage micro-credit applications, manufacture and sale of new urine diversion toilets, collection and transportation of FS and urine; and technical assistance to procure and operate the FS treatment and processing facilities, and management of the reuse component of the project.
Implementing Partners	Nairobi City County (NCC)	Part involvement in promotion of hygiene awareness and sanitation marketing, supports effort to license franchisees and compliance with environmental regulations regarding FS disposal. Support for up-scaling to other informal settlements in Nairobi.
	Nairobi City Water and Sewerage Company (NCWSC)	Collaborates with the NCC to provide support services towards community sensitization. Ensures integration/synergies with existing sanitation approaches.
Development Partners	USAID, BMGF	Co-financing, technical assistance.
National Government	MoWI - Ministry of Water and Irrigation	Policy, strategy formulation and planning.
	MoA - Ministry of Agriculture	
	MoE – Ministry of Energy	
	NEMA	Environmental standards, regulation and quality monitoring.
	MoPH – Ministry of Public Health and Sanitation	Sanitation policies, improved hygiene promotion
Private Sector	Franchisees, local companies (SMEs), private individuals	Support sanitation services delivery along value chain.
Community	CBOs, school children, home owners and individuals.	Participation in project activities along value chain.
End users	Small scale farmers, biogas energy consumers	Participate in testing and use of FS fertilizer and hygienized urine, purchase of energy, price fixing, etc.

3.3 Implementation Schedule

3.3.1 The Project is expected to commence in beginning March 2014 and for a total duration of 24 months. Signing of the Grant Agreement is planned for February 2014 which allows three months for Grant Effectiveness and AWF first disbursement. The summarized project implementation schedule is presented in Table 6. A detailed schedule is presented in Annex 3.

Table 6: Implementation Schedule Summary

COMPONENT	Month																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Develop Entrepreneurs / Employment																								
Up-Scaled Value Chain Logistics																								
Treatment and Re-use																								
Project / Knowledge Management																								

3.4 Procurement Arrangements

3.4.1 Procurement of goods, works and consultancy services financed by AWF shall be in accordance with the ***AWF's Operational Procedures***, the Bank's ***Rules and Procedures for Procurement of Goods and Works,*** and ***Rules and Procedures for the Use of Consultants,*** and based on the relevant Bank Standard Bidding Documents. The Procurement arrangements for the project are summarized in Table 7 below. The details are presented in Annex 5. The overall justification for selecting the branded Fresh Life toilets offered by Sanergy is based on lowest investment and operation costs among the improved sanitation options for informal settlements in Nairobi as outlined in Annex 6.

3.4.2 *Civil Works*: Civil works for Installation of Fabrication Facility for Toilet Manufacturing (estimated to cost about € 250,000) and Installation of Waste Disinfection & Processing Equipment (estimated to cost € 600,000) are Non- AWF Funded and will therefore be carried out under the implementing partners' own procurement rules and procedures.

3.4.3 *Goods*: Procurement of inputs for *Production/Manufacturing Components of Hygienic Sanitation Facilities* (valued at € 500,000, of which AWF financing amounts to € 100,000) as well as *Safety and Personnel Equipment for Waste Collectors* (valued at € 10,000) will be carried out using Shopping. Shopping is considered appropriate because the items are standard, locally available goods and requirements will be ordered intermittently in small quantities over the project period. Outputs will be 1000 Fresh Life branded toilets for accelerated up-scaling of the Sanergy business model.

3.4.4 *Non-Consulting Services*: *Sale and Installation of Hygienic Sanitation Facilities* (€ 25,000) is Non-AWF Funded and will be carried out under the Recipient's own procurement rules. Other contracts for Non-Consulting Services will be procured using Shopping. These include *Establishment of Demonstration Farms* (€ 40,000), *Laboratory Quality Analysis* (€ 12,000), Lease of vehicles for waste collection (5 trucks for 24 months estimated at € 48,000) and Documentation and Dissemination to be conducted by AWSB (€ 30,000). Miscellaneous expenses comprising operating and recurrent costs for the toilet manufacturing facility, waste collection vehicles and waste disinfection & processing equipment for an aggregate amount of € 360,000 will be procured through shopping. Shopping is considered appropriate because these are standard services, supplies and tools that are locally available and requirements will be ordered intermittently in small quantities over the project period.

3.4.5 *Consulting Services: Conducting Hygiene Awareness Campaigns* (€ 10,000), *Community-Wide Sanitation Marketing and Sensitization Campaigns* (€ 15,000), *Customized and Targeted Sanitation Marketing Campaigns* (€ 35,000), and *Provision of Operational and*

Business Training and Support to Operators (€ 250,000) are is Non-AWF Funded and will be carried out under the Recipient's own procurement rules. Consulting Services for *Baseline Studies in Target Area for Sanitation Awareness, Access, and Affordability* (€ 35,000), *Marketing and Sales Strategy Development and Implementation* (€ 50,000) will be acquired using Least Cost Selection method. LCS is considered suitable because these are small routine assignments using well-established local practitioners operating within the communities. *Health, Safety and Occupational Training for Waste Collectors* (estimated at € 3,600) may be awarded using Single-Source Selection (SSS) because the contract is of small value.

Table 7: Procurement Arrangements (expressed in '000 Euros)

Project Categories	*€ '000*			
	Use of NPP or CPS	*AWF* [+]	*Non- AWF Funded*	*TOTAL*
1. Works				
1.1 Installation of (a) fabrication facility for toilet manufacturing, (b) waste disinfection & processing equipment	N/A	-	850.00	850.00
2. Goods				
2.1 Production /manufacture components of hygienic sanitation facilities	N/A	[100.00]	400.00	500.00
2.2 Safety and personnel equipment for waste collectors	N/A	[10.00]	-	10.00
3. Non-Consulting Services				
3.1 Establishment of demonstration farms	N/A	[40.00]	-	40.00
3.2 Laboratory Quality Analysis	N/A	[12.00]	-	12.00
3.3 Sell and install hygienic sanitation facilities to residents of target area	N/A	-	25.00	25.00
3.4 Lease of waste collection vehicles	N/A	[48.00]	-	48.00
3.5 Documentation and Dissemination		[30.00]	-	30.00
4. Consulting Services				
4.1 Develop baseline studies, community wide / customized and targeted sanitation marketing and sensitization campaigns, Marketing and sales strategy development and implementation	N/A	[85.00]	60.00	145.00
4.2 Provide operational and business training, support to operators and hygiene awareness campaigns	N/A	-	250.00	250.00
4.3 Health, safety, and occupational training for waste collectors	N/A	[3.60]	-	3.60
5. Miscellaneous				
5.1 Project / Knowledge Management Costs	N/A	[36.00]	121.68	157.68
5.2 Operational Costs for manufacturing facility, waste collection vehicles and waste disinfection & processing equipment	N/A	[312.00]	-	312.00
5.3 Local youth and residents employed as waste collectors and waste processing	N/A	-	190.00	190.00
5.4 Waste processing supervising engineers (2 engineers)	N/A	-	200.00	200.00
5.5 Support 2 MSc students' theses	N/A	[20.00]	-	20.00
Total Base Budget		[696.60]	2,096.68	2,793.28
Contingency (inflation and physical)	-	[34.80]	104.90	139.70
TOTAL PROJECT BUDGET		**[731.40]**	**2,201.58**	**2,932.98**

+Figures in brackets are amounts financed by AWF.

3.4.6 Contracts for Consultancy Services or Works of value higher than € 50 000 funded by AWF will be subject to prior review by the AWF. The following documents are subject to review and approval by the AWF: Specific Procurement Notices (SPN), tender/ bid documents or requests for proposals from consulting firms, tender/bid evaluation reports or reports on evaluation of consultants' proposals.

3.4.7 Contracts for Consultancy Services or Works of value less than € 50 000 funded by AWF will be subject to post review by the AWF, and will be processed under the full responsibility of AWSB. Ex-post technical verification and ex-post financial control systems will be used in these instances to enable AWSB to expedite procurement of goods, works and to acquire consulting services. Procurement documents including SPNs, tender/bid documents or request for proposals, tender/bid evaluation reports as well as signed contracts will be kept by AWSB for periodic review by the AWF supervision missions or special audits.

3.5 Disbursement Arrangements and Expenditure Schedule

3.5.1 The grant amounts covering the AWF funded portion of the project (as noted in Section 2.6) will be disbursed using the Special Account method of disbursement, in line with the Bank rules and procedures. The AWF funds will be channelled through AWSB, who will open a Special Account denominated in Euro in a bank acceptable to the AWF.

3.5.2 The proceeds of the Grant shall be disbursed by the AWF in three tranches, based on the implementation schedule and progress with estimated amounts as shown in Table 8. Supporting documentation required for disbursement of the second and third tranches will be a Statement of Expenditure (SOE)/Form A2 supported by bank statement(s) and special account bank reconciliation(s), justifying utilization of at least 50% of previous tranche and 100% of the 1st tranche in case of disbursement of 3rd tranche.

Table 8: AWF Expenditure and Disbursement Schedule (amounts in Euros)

Category of Expenditures	*Tranche 1*	*Tranche 2*	*Tranche 3*	*Total*
Works	0	0	0	0
Goods	50 000	40 000	25 500	115 500
Services	100 000	79 500	50 000	229 500
Operating costs	100 000	186 400	100 000	386 400
Total	*250 000*	*305 900*	*175 500*	***731 400***
Percentage	34%	42%	24%	

3.5.3 Obligations of the AWF to make the first disbursement of the Grant shall be conditional upon the opening of a Special Account, the nomination acceptable to the AWF of the Project Manager, preparation of an implementation plan (including a procurement plan), and presentation of a signed memorandum of understanding (MoU) with the collaborating partners.

3.5.4 Additionally, the last tranche would be released not later than six months to the grant closing date. The last tranche shall be justified within three months after the grant closing date. All detailed documents related to utilization of AWF funds will be held by AWSB for

subsequent verification and confirmation by the external auditors.

3.6 Accounting and Audit Arrangements

3.6.1 AWSB shall be responsible for the financial management of the project. AWSB has sufficient qualified and experienced financial management staff including: Project Manager, Administrative Assistant and a dedicated Accountant. They will maintain an accounting system and books of account specifically for the AWF project, and shall prepare quarterly financial statements in accordance with AfDB procedures. These statements will be submitted together with the quarterly progress reports. All payments will be endorsed by the Project Manager. Segregation of duties shall be maximized between authorizing, accounting and control functions.

3.6.2 Two audits are expected to be carried out by en external auditor recruited by the AWF: an interim audit approximately half-way through the project (i.e. after the second disbursement), and a final audit at the end of the project. The AWF will recruit and retain an auditor for this purpose, and the cost of the audit shall be paid from the AWF administrative budget, not from this Grant.

3.7 Supervision, Monitoring and Reporting Arrangements

3.7.1 The AWF's supervision of the project will include regular communication and correspondence with AWSB, as well as review of the Quarterly Progress Reports and other documents. AWF may undertake field supervision missions whenever necessary. Two annual supervision missions are anticipated.

3.7.2 The LFA shall serve as the basis for a results based assessment of the outputs of the project during implementation and after completion. The key indicators for monitoring progress of project implementation and overall performance as identified in the LFA will be further elaborated to prepare a detailed Implementation Plan.

3.7.3 The Recipient shall submit to the AWF the reports/documents noted in Table 9. The project completion report shall include details on project activities and a comprehensive expenditure report on the utilization of the Grant. All documents shall be transmitted to the AWF in soft and hard copies.

Table 9: AWF Reporting Requirements

Documents to be Submitted to the AWF	Reporting Schedule	AWF Action
1. Implementation and Procurement Plans	Within one month after Grant approval	Review and approval
2. Procurement Documents as noted in Section 3.3	As noted in Procurement Section	Review and "no objection"
3. Quarterly Progress Report in AWF format (with report on expenditures)	Within two weeks of end of quarter	Review and comment
4. Annual Report including audited accounts	End of 1st quarter of following year	Review and comment
5. Project Completion Report in AWF format	Within 3 months after end of project	Review and acceptance
6. Minutes of Project Management Meetings	Within 10 days of meeting	Review and comment
7. Minutes of other project related meetings/Stakeholder Dialogue, etc.	Within 10 days of meeting	For information

4. PROJECT BENEFITS

4.1 Effectiveness and Efficiency

4.1.1 The project adds value by (a) aligning to the relevant national policies like the PRSP, the 2015 strategic objectives of the National Water Supply and Sanitation Strategy and the Pro-Poor Implementation Plan for Water Supply and Sanitation of the Ministry of Water and Irrigation that seek to increase urban sanitation access to over 77% by 2015, with cost covering of operation and maintenance; (b) complementing implementation of the Urban Basic Sanitation Improvement Program (UBSIP) – a national program that provides 80,000 onsite toilets in peri-urban areas; (c) better municipal level planning and implementation of un-sewered sanitation in a coordinated and integrated manner; (d) strengthening of public private partnership for delivery of sanitation services through collaboration with relevant public sector institutions like the NCC, NWSC, AWSB, sector ministries, etc.; and (e) providing opportunity for knowledge sharing regarding adoption of pro-poor business approaches, among others.

4.1.2 The project objectives are expected to be met with AWF contribution that is approximately one quarter of the total project cost thereby offering high value for money. Project activities will apply an effective and innovative approach that assures financial sustainability through reuse to provide sustainable services along the sanitation value chain to the pro-poor urban population.

Table 10: Effectiveness and Efficiency

Objective	Description
Increase hygiene awareness and sanitation marketing in Mukuru	Increasing hygiene awareness coupled with sanitation marketing, the establishment of a micro-credit financing scheme for household sanitation will contribute to generate increased demand for improved access to safe sanitation services in the targeted community.
Establish a sustainable partnership arrangement for household sanitation services.	An innovative approach to the delivery of sustainable FS collection and transport services by the private sector (franchising system through social enterprise) with public sector support for (i) initial capital investments, (ii) financing of operation and maintenance costs through user fees and end use tariff revenue, and (iii) staff training. This arrangement will enhance the capacity of the private sector for sustainable delivery of critical services along the value chain.
Demonstrate the potential for adding value and marketing of FS and human urine for fertilizer production	Appropriate processing and treatment options will be employed to convert FS and urine into reusable end products. Digested sludge will be composted with solid waste or dried as fertilizer pellets for use by farmers to improve crop yield and local income. Existing cultural habits that negatively affect ready use of such end products are overcome through increased community sensitization that targets various economic groupings.
Upscale project outcomes to other informal settlements of Nairobi.	This will result in improved sanitation and hygiene access to an additional 300,000 urban poor people living in nearby informal settlements in Nairobi to improve their environmental health and productivity.
Disseminate to other cities and WSPs in Kenya and beyond.	The lessons learned on socio-economic impacts will be documented along the innovative approaches and technologies adopted and incorporated in advocacy and project planning materials for dissemination in 20 other Kenyan cities and elsewhere. This will contribute to reduce environmental health costs and poverty in informal settlements in cities across the continent.

4.1.3 Adoption of NCC supported franchising arrangements with individual community members and private companies in the delivery of services, with opportunities to generate income along the sanitation value chain will ensure effective and efficient management of faecal sludge in the pro-poor urban areas. In addition, institutional anchoring of the sanitation value chain and adequate knowledge management through learning, documentation and

sharing of project related experiences enhance the efficiency of services delivery as detailed in Table 10 above.

4.2 Sustainability

4.2.1 Stakeholder consultations, hygiene awareness and sanitation marketing activities (Component 1) will enhance mobilization of the community and generate demand, which are necessary for sustainable delivery of sanitation services along the value chain.

4.2.2 At the level of *relevant policies*, the project is supported by the national strategic objective to increase urban basic sanitation access from fifty five percent (55%) to seventy seven and a half percent (77.5%) by 2015. The Water Services Trust Fund and the Ministry of Water and Irrigation are committed to support up-scaling to other Kenyan cities.

4.2.3 The project addresses issues relating to *cost recovery and sustainability* along the value chain through (a) marketing and sale of shared toilets which are owned by individuals through micro-credit financing, (b) franchised management of the shared toilet facilities, (c) contracted collection and transportation services by private operators, (d) cost covering treatment and processing operations through marketing and sale of FS fertilizer. In the medium to long term, savings accruing from FS fertilizer sales may be used to cross subsidize collection activities.

4.2.4 The sustainability of the project results has been considered carefully in terms of financing and institutional arrangements, environmental management and equitable access to project benefits.

4.2.5 With regard to financing arrangements, the most important source of funds for O&M of improved infrastructure will be user fees. This is in line with sector policies supporting cost recovery for water supply services including O&M and systems expansion and improvement, and the widespread practice of payment for WASH services is in all urban communities. In addition, the participatory decision-making will facilitate improved financial management and willingness to pay.

4.2.6 Environmental Management issues will be taken care of by complying with NEMA regulations and procedures. NEMA has clearly laid out procedures for ensuring compliance with regulations. These require environmental assessments and registration, preparation of environmental management plans where required, on-going monitoring and routine tracking and reporting on environmental actions.

4.2.7 Socio-economic and gender benefits will be considered and assured as follows:

- The initial analysis and studies under the project include detailed socio-economic reviews. The outcomes are used to overcome social barriers such as illiteracy, poverty and gender inequity, cultural and religious barriers.
- The project activities will include preparation and dissemination of information products which will help promote gender, including (i) gender awareness training materials emphasizing access to training opportunities by women; and (ii) promotion of women's participation at all levels and in community leadership.

4.2.8 The risks posed by climate change and variability will be considered in the design of faecal sludge processing and drainage facilities. The flood proof location of dry sanitation facilities will receive the required attention.

4.2.9 ***Expected Reuse Revenue and related costs:*** Table 11 below shows a calculation of the potential revenues assuming that > 90% of FS and urine is collected. The indicative market values for urine and FS compost – with biogas / electricity to be added at a later stage – are based on: (i) phosphate and nitrogen fertilizer costs (conservative estimates); (ii) commercial value of compost. These revenues will be used to cover operation expenditures of FS and urine processing, marketing, transport, etc. in the long run. The computations show that this aspect of the sanitation value chain could become self-financing. The main cost will be production of compost at approximately 75 Euro per ton.

Table 11: Sales Targets

Product	*2014*	*2015*	*Indicative market value*[22]	*Potential revenues p. a. (indicative, EUR)*
Urine	1,000 m^3/a	18,250 m^3/a	150 – 200 € / m^3	150,000 - 300,000
FS compost / fertilizer	500 t/a	600 t/a	200 – 250 € / t	100,000 - 150,000
Total Revenue Per Year				*250,000 - 450,000*

4.2.10 AWSB will be supported with AWF funds to procure relevant vehicles and equipment with approximate value of EUR 72,000 for secondary transportation of human waste. Subsequently, the collection and transportation services will be cross-subsidized with accrued savings from the sale of the FS end products.

4.3 Environmental and Social Impact

4.3.1. Environment: The project will not have any adverse social but will require application of the Environmental and Social Assessment Procedures especially at the treatment site in EPZ. Environmental Impact Assessments shall therefore be undertaken in line with the NEMA guidelines and procedures.

The project will also have significant positive environmental and social impacts:

- Introduction of 1,000 new urine diversion dry toilets will reduce groundwater pollution;
- Increased sanitation coverage and hygiene awareness will reduce water borne disease;
- Reuse of organic fertilizer will serve as alternative source of nutrients for agriculture as resources for mineral fertilizers (especially phosphates) are increasingly becoming scarce, globally.

4.3.2. Climate Change: Accumulated and untreated faecal sludge from existing latrines already causes methane emissions (with 25 times more greenhouse impact than CO_2). This project aims at collecting and digesting faecal sludge and using FS and urine fertilizer will diminish use of artificial fertilizers, reducing significant amounts of (indirect) CO_2 emissions.

4.3.3. Gender and social equity: The project will have positive impacts on gender that include: (i) increased access to improved and safe toilets for women and children, (ii) reduction of violence against women related to use of shared toilets, (iii) increased job opportunities for women regarding promotion and marketing of sanitation related activities, processing and sale of end products. Also, the project will ensure that women and men are provided with equal opportunities, and participate equally in the decision-making process.

[22] Eunice Likoko, Ecological Management of Human Excreta in an Urban Slum: A Case Study of Mukuru in Kenya, http://uu.diva-portal.org/smash/get/diva2:638161/FULLTEXT01.pdf

4.3.4. Social impacts: The project will have positive social impacts that include:

(i) *Job creation*: New jobs will be created along the value chain for manufacture and sale of new urine diversion dry toilets, franchised management of toilets, collection and transportation of FS and urine, and treatment, processing and sale of reusable products. Together, about 570 jobs will be created, of which more than 50% will be for women. Most jobs will be targeted at the low(est) income groups, thereby contributing to an improvement in their income.

(ii) *Women and children*: Women and children will have access to safe and improved toilet facilities, with observance of better hygienic practices, privacy and security. Women and children are disproportionately affected by poor hygiene and environmental sanitation.

(iii) *Ownership:* More house owners and residents in the community will own toilets that can be operated as small businesses to generate additional income.

(iv) *Improved Health:* The project will reduce the environmental ill health of the people through reduction of environmental pollution and the incidence of sanitation related diseases. Approximately 80 percent of the outpatient hospital attendance in Kenya is due to preventable diseases, of which 50 percent is related to poor water supply, sanitation and hygiene.

4.3.5. Involuntary Resettlement: The project will not result in any involuntary resettlement of people. The treatment facilities are likely to be constructed at the current site for municipal sewage treatment or at designated sites approved by NEMA for the purpose. Temporary storage tanks will be constructed at designated sites provided by the Nairobi City County or negotiated and purchased from individual owners.

4.3.6. Anticipated Negative Social Impacts: The project may result in high expectations in the target community and cause a backlash in neighbouring communities that are not direct project beneficiaries. These will be mitigated by dissemination of accurate information is through stakeholder meetings and community involvement, and the scaling up of project activities to cover the neighbouring poor communities.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

5.1.1. The project offers an opportunity to further improve the sanitation situation in Mukuru and other informal settlements with financial contribution from the African Water Facility. The approach adopted is an innovative model of a sanitation value chain that is replicable in other towns and cities in Kenya and in other African countries.

5.1.2. In addition, given the clear logical framework and justifiable objectives, outputs and activities, and with adequate and sustainable implementation arrangements, there appear to be no outstanding issues that may impact adversely on successful implementation of the project.

5.1.3. The total project cost is € 2 932 980 of which the AWF is requested to fund € 731 400, constituting some 25%. The remainder is covered through the combined financial contribution of the Recipient, other Donors and project beneficiaries.

5.2. Recommendations and Conditions

5.2.1. It is recommended that a Grant not exceeding € 731,400 from the African Water Facility resources be extended to Athi Water Services Board (AWSB) for the implementation of the project as described in this appraisal report.

5.2.2. Obligations of the AWF to make the first disbursement of the Grant shall be conditional upon:

i) The opening of a Special Account,
ii) The nomination acceptable to the AWF of the Project Manager,
iii) Preparation of an implementation plan and detailed procurement plan, and
iv) Presentation of a signed memorandum of understanding (MoU) with the collaborating partners.

ANNEX 1: MAP OF KENYA SHOWING PROJECT LOCATION

AWF Project Location

Disclaimer

This map was provided by the African Development Bank exclusively for the use of the readers of the report to which it is attached. The names used and the borders shown do not imply on the part of the Bank and its members any judgment concerning the legal status of a territory nor any approval or acceptance of these borders

ANNEX 2:

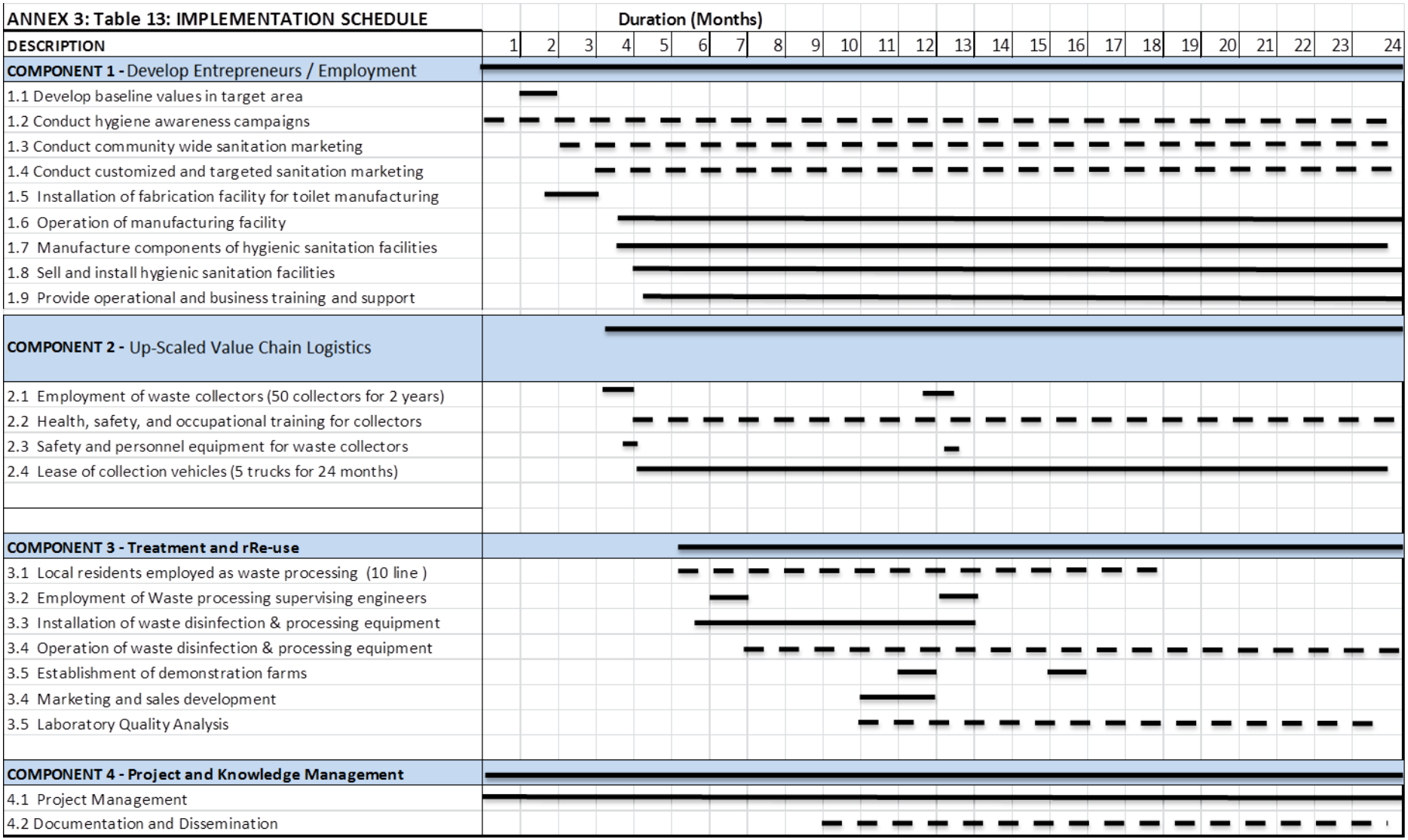
COST ESTIMATE (AMOUNTS IN EURO)

Description	Unit	Quantity	Rate	Total	AWF	Sanergy / partners	Beneficiaries
COMPONENT 1 - Develop entrepreneurs / Employment							
1.1 Develop baseline values in target area for sanitation awareness, access, and affordability	Lump sum	1	35000	35000	35000	0	0
1.2 Conduct hygiene awareness campaigns	Lump sum	1	10000	10000	0	10000	0
1.3 Conduct community wide sanitation marketing and sensitization campaigns	Lump sum	1	15000	15000	0	15000	0
1.4 Conduct customized and targeted sanitation marketing campaigns	Lump sum	1	35000	35000	0	35000	0
1.5 Installation of fabrication facility for toilet manufacturing	Lump sum	1	250000	250000	0	250000	0
1.6 Operational Costs for manufacturing facility	Month	24	5000	120000	120000	0	0
1.7 Produce/manufacture components of hygienic sanitation facilities	Number	1000	500	500000	100000	0	400000
1.8 Sell and install hygienic sanitation facilities to residents of target area	Number	1000	25	25000	0	25000	0
1.9 Provide operational and business training and support to operators	Number	1000	250	250000	0	250000	0
Subtotal - Component 1				*1240000*	*255000*	*585000*	*400000*
COMPONENT 2 - Value chain logistics							
2.1 Local youth employed as waste collectors (50 waste collectors for 2 years)	Man year	100	1500	150000	0	75000	75000
2.2 Health, safety, and occupational training for waste collectors	Workshop	24	150	3600	3600	0	0
2.3 Safety and personnel equipment for waste collectors	Set	100	100	10000	10000	0	0
2.4 Lease of vehicles for waste collection (5 trucks for 24 months)	Month	120	400	48000	48000	0	0
2.5 Operational Costs for waste collection vehicles	Month	120	200	24000	24000	0	0
Subtotal - Component 2				*235600*	*85600*	*75000*	*75000*

COMPONENT 3 – Treatment capacity and safe re-use							
3.1 Local residents employed at waste processing (10 line)	Man year	20	2000	40000	0	40000	0
3.2 Waste processing supervising engineers (2 engineers)	Man year	4	50000	200000	0	200000	0
3.3 Installation of waste disinfection & processing equipment	Month	24	25000	600000	0	600000	0
3.4 Operational cost of waste disinfection & processing equipment	Month	24	7000	168000	168000	0	0
3.5 Establishment of demonstration farms	Lump sum	1	40000	40000	40000	0	0
3.4 Marketing and sales strategy development and implementation	Lump sum	1	50000	50000	50000	0	0
3.5 Laboratory Quality Analysis	Sample	150	80	12000	12000	0	0
Subtotal - Component 3				*1110000*	*270000*	*840000*	*0*
TOTAL (Components 1 - 3)				**2395600**	**610600**	**1500000**	**475000**
COMPONENT 4 - Project and Knowledge Management							
4.1 Documentation and Dissemination	Lump sum			30000	30000	0	0
4.2 Project Management Costs	Lump sum		0	157680	36000	121680	0
4.3 Support MSc students' theses	Lump sum	2	10000	20000	20000	0	0
Subtotal - Component 4				*207680*	*86000*	*121680*	*0*
Total Base Budget				2773280	676600	1621680	475000
Contingency (inflation and physical, 5% rounded)			0	139700	34800	81150	23750
TOTAL PROJECT BUDGET				**2932980**	**731400**	**1702830**	**498750**

Description	**TOTAL**	**AWF**	**Sanergy**	**Beneficiary**
Component 1: Develop franchise entrepreneurs and create employment in sanitation	1240000	255000	585000	400000
Component 2: Value chain logistics up-scaled	235600	85600	75000	75000
Component 3: Treatment capacity and revenue from safe reuse	1110000	270000	840000	0
Component 4: Project and knowledge management	207680	86000	121680	0
Sub Total	2773280	676600	1621680	475000
Add 5% contingencies	139700	34800	81150	23750
Total Project Costs	**2932980**	**731400**	**1702830**	**498750**

ANNEX 3: Table 13: IMPLEMENTATION SCHEDULE

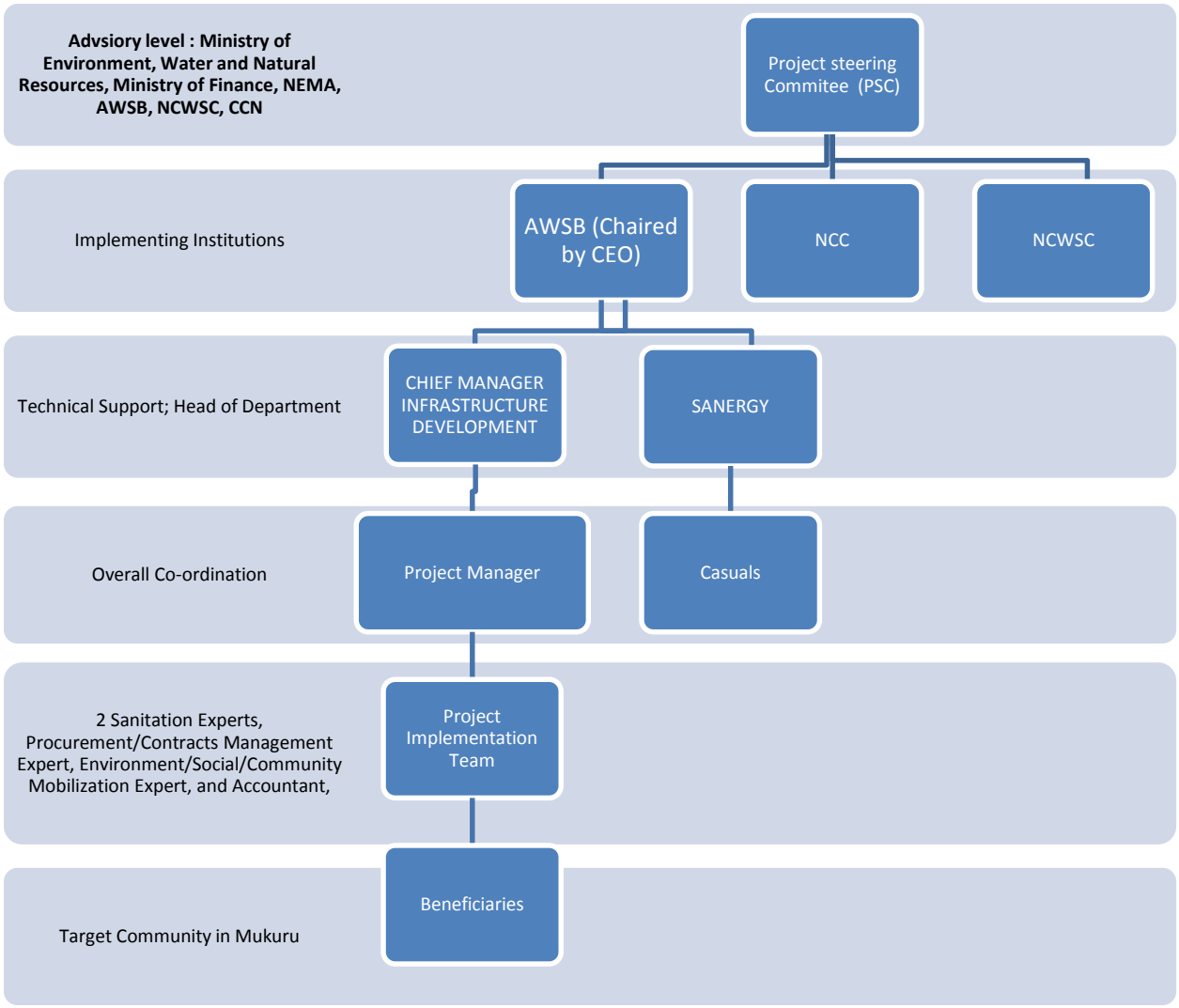


ANNEX 4: SUMMARY OF IMPLEMENTATION ARRANGEMENTS

The implementation of the project will use existing structures incorporating lessons learnt and experiences gained from other similar operations. The Athi Water Services Board (AWSB) will be Recipient of the AWF Grant and the Executing Agency (EA) of the Project and Sanergy the co-funding implementation partner. A Project Implementation Team (PIT), comprising a Project Coordinator, 2 Sanitation Experts, Procurement/Contracts Management Expert, Environment/Social/Community Mobilization Expert, and Accountant, within AWSB will be in charge of the Project implementation. AWSB will provide a dedicated staff of the PIT for the implementation of the project. AWSB has adequate experience in implementation of projects of similar magnitude. As the project will be implemented within the broad framework of the Nairobi Rivers Rehabilitation and Restoration Program (NRRP), the steering committee of the NRRP (in collaboration with the Ministry of Environment and Mineral Resources) will continue to monitor and guide the project implementation during its quarterly coordination meetings.

AWSB has the responsibility for the overall coordination of the project and reporting obligations to the Bank. The EA jointly with NCC and NWSC will implement the project. The Bank's KEFO will assist the EA in the application of the relevant Bank's rules and procedures.

The organization chart of AWSB and the implementation arrangement are shown in the diagram below.


Advsiory level : Ministry of Environment, Water and Natural Resources, Ministry of Finance, NEMA, AWSB, NCWSC, CCN
Project steering Commitee (PSC)
Implementing Institutions
AWSB (Chaired by CEO)
NCC
NCWSC
Technical Support; Head of Department
CHIEF MANAGER INFRASTRUCTURE DEVELOPMENT
SANERGY
Overall Co-ordination
Project Manager
Casuals
2 Sanitation Experts, Procurement/Contracts Management Expert, Environment/Social/Community Mobilization Expert, and Accountant,
Project Implementation Team
Target Community in Mukuru
Beneficiaries

ANNEX 5: DETAILS OF PROCUREMENT ARRANGEMENTS

A.5.1 National Procedures and Regulations - Use of Country Procurement System

B.5.1 National Procedures and Regulations - Use of Country Procurement System

The main findings of National Competitive Bidding (NCB) Assessment Reports (NCB Report) for Kenya was that the national procurement procedures NPP in Kenya is globally consistent with the Bank's Rules and Procedures for NCB, but with minor deviations. The conclusion of the assessment is that due to the minor deviations observed, the Bank should accept the NPP in Kenya when NCB is anticipated in Bank's financed projects, provided that the following exceptions to the law are accepted: (a) Government-owned enterprises may participate in procurement only if they can establish that they are legally and financially autonomous, operate under commercial Act, and are not dependent agencies of the Recipient or Sub-Recipient; (b) Joint Ventures shall be permitted on voluntary basis with a requirement for joint and several liabilities to be respected ; (c) Bidders shall be allowed not less than 28 days to prepare and submit bids for medium to large NCB procurements; (d) Any application Margin of Preference for suppliers or contractors based on region or locality of registration, small size, ethnic ownership, shall be discussed and agreed with the Bank; and (e) Price adjustment shall be permitted for contracts extending beyond 18 months. Further, the national SBDs document misses several sections and Standard Forms compared with the Bank's and cannot be accepted in its present form; however, it should be accepted provided it is revised and aligned to the harmonized SBD. In the meantime, Kenya should continue to use the Bank's SBD. In addition, the following specific mitigation measures shall be taken by the Bank to address potential risks with respect to internal controls: (i) Carryout procurement capacity assessment of the Execution Agency (EA), (ii) set up prior review thresholds based on procurement risk of the EA, (iii) recommend the prior review of a number of NCB contracts, (iv) ensure the annual post review of NCB contracts. All of the discrepancies identified in the NCB report and which have been summarized in the GAP presented in Section A.5.7, will be reflected in an annex of the Financing Agreement of the Project.

B.5.2 Procurement Arrangements

Procurement arrangements vis-à-vis the use of the NPP (or CPS) are summarized in Table 14 below. All procurement of goods, works and acquisition of consulting services financed by the Bank will be in accordance with the Bank's Rules and Procedures: "*Rules and Procedures for Procurement of Goods and Works", dated May 2008 Revised July 2012*; and "*Rules and Procedures for the Use of Consultants", dated May 2008 Revised July 2012*, using the relevant Bank Standard Bidding Documents, and the provisions stipulated in the Financing Agreement.

The various items under different expenditure categories are described below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, estimated costs, prior-review requirements, and time frame are agreed between the Recipient and the Bank project team will be provided in the Procurement Plan (see section B.5.5).

Table 14: Summary of Procurement Arrangements vis-à-vis the use of country procurement system

Project Categories	*€ '000*			
	Use of NPP or CPS	*AWF* +	*Non- AWF Funded*	*TOTAL*
1. Works				
1.1 Installation of (a) fabrication facility for toilet manufacturing, (b) waste disinfection & processing equipment	N/A	-	850.00	850.00
2. Goods				
2.1 Production /manufacture components of hygienic sanitation facilities	N/A	[100.00]	400.00	500.00
2.2 Safety and personnel equipment for waste collectors	N/A	[10.00]	-	10.00
3. Non-Consulting Services				
3.1 Establishment of demonstration farms	N/A	[40.00]	-	40.00
3.2 Laboratory Quality Analysis	N/A	[12.00]	-	12.00
3.3 Sell and install hygienic sanitation facilities to residents of target area	N/A	-	25.00	25.00
3.4 Lease of waste collection vehicles	N/A	[48.00]	-	48.00
3.5 Documentation and Dissemination		[30.00]	-	30.00
4. Consulting Services				
4.1 Develop baseline studies, community wide / customized and targeted sanitation marketing and sensitization campaigns, Marketing and sales strategy development and implementation	N/A	[85.00]	60.00	145.00
4.2 Provide operational and business training, support to operators and hygiene awareness campaigns	N/A	-	250.00	250.00
4.3 Health, safety, and occupational training for waste collectors	N/A	[3.60]	-	3.60
5. Miscellaneous				
5.1 Project / Knowledge Management Costs	N/A	[36.00]	121.68	157.68
5.2 Operational Costs for manufacturing facility, waste collection vehicles and waste disinfection & processing equipment	N/A	[312.00]	-	312.00
5.3 Local youth and residents employed as waste collectors and waste processing	N/A	-	190.00	190.00
5.4 Waste processing supervising engineers (2 engineers)	N/A	-	200.00	200.00
5.5 Support 2 MSc students' theses	N/A	[20.00]	-	20.00
Total Base Budget		[696.60]	2,096.68	2,793.28
Contingency (inflation and physical)	-	[34.80]	104.90	139.70
TOTAL PROJECT BUDGET		**[731.40]**	**2,201.58**	**2,932.98**

+Figures in brackets are amounts financed by AWF.

B.5.2.1 **Civil Works**

Civil works for *Installation of Fabrication Facility for Toilet Manufacturing* (estimated to cost about € 250,000) and *Installation of Waste Disinfection & Processing Equipment* (estimated to cost € 600,000) are Non-AWF Funded and will therefore be carried out under the Recipient's own procurement rules and procedures.

B.5.2.2 **Goods**

Procurement of inputs for *Production/Manufacturing Components of Hygienic Sanitation Facilities* (valued at € 500,000, of which AWF financing amounts to € 100,000) as well as *Safety and Personnel Equipment for Waste Collectors* (valued at € 10,000.00) will be carried out using Shopping. Shopping is considered appropriate because the items are standard, locally available goods and requirements will be ordered intermittently in small quantities over the project period.

B.5.2.3 **Non-Consulting Services**

Sale and Installation of Hygienic Sanitation Facilities (€ 25,000) is Non-AWF Funded and will be carried out under the Recipient's own procurement rules. Other contracts for Non-Consulting Services will be procured using Shopping. These include *Establishment of Demonstration Farms* (€ 40,000), *Laboratory Quality Analysis* (€ 12,000), Lease of vehicles for waste collection (5 trucks for 24 months estimated at € 48,000) and Documentation and Dissemination (€ 30,000). Miscellaneous expenses comprising operating and recurrent costs for the toilet manufacturing facility, waste collection vehicles and waste disinfection & processing equipment for an aggregate amount of € 360,000 will be procured through shopping. Shopping is considered appropriate because these are standard services, supplies and tools that are locally available and requirements will be ordered intermittently in small quantities over the project period.

B.5.2.4 **Consulting Services**

Conducting Hygiene Awareness Campaigns (€ 10,000), *Community-Wide Sanitation Marketing and Sensitization Campaigns* (€ 15,000), *Customized and Targeted Sanitation Marketing Campaigns* (€ 35,000), and *Provision of Operational and Business Training and Support to Operators* (€ 250,000) are Non-AWF Funded and will be carried out under the Recipient's own procurement rules. Consulting Services for *Baseline Studies in Target Area for Sanitation Awareness, Access, and Affordability* (€ 35,000), *Marketing and Sales Strategy Development and Implementation* (€ 50,000) will be acquired using Least Cost Selection method. LCS is considered suitable because these are small routine assignments using well-established local practitioners operating within the communities. *Health, Safety and Occupational Training for Waste Collectors* (estimated at € 3,600) may be awarded using Single-Source Selection (SSS) because the contract is of small value.

Short-lists of consultants for services estimated to cost less than € 100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the *Rules and Procedures for the Use of Consultants", dated May 2008 Edition, Revised July 2012*. Universities, Government Research institutions, Training Institutions, NGOs and any special organizations may be included in a consultant short list if they express interest, if the Recipient finds their qualifications satisfactory.

When the amount of the contract is less than € 200,000, the Recipient may limit the publication of a Specific Procurement Notice (SPN) requesting for expressions of interest to national or regional newspapers. However, any eligible consultant, being regional or not, may express his desire to be short-listed.

B.5.3 **Assessment of the Executing Agency**

Athi Water Services Board (AWSB) will be responsible for the procurement of goods/works/consulting services/training services. An assessment of the capacity of the Executing Agency to implement procurement actions for the project has been carried out by the Bank. The assessment reviewed the organizational structure for implementing the project and the interaction between the project staff responsible for procurement activities and the relevant central unit for administration and finance of the Executing Agency.

From the assessment, AWSB has a procurement unit responsible for coordination of all corporate procurement activities, established in line with the national Public Procurement and Disposal Act (2005). The unit is currently staffed by 4 (four) officers, headed by a Manager, that reports administratively to the CEO and serves as the secretariat for the Tender and Procurement Committees.

The Board has a Tender Committee that approves procurement processes for high value procurement, while the Procurement Committee adjudicates over small value purchases, procured mainly through shopping. The Board also has an Internal Audit Committee responsible to the Board of Directors, and an internal audit unit staffed by three (3) officers that are responsible for internal control, risk management and related corporate governance responsibilities.

AWSB has documented procedures in operational manuals for procurement, financial management and internal audit. It also has a computerized financial management information system (IFMIS) that has an integrated procurement management module, incorporating purchase order input, contract management and payment processes. Requisition management is still done manually.

AWSB is currently handling several other donor-financed projects in addition to the procurement workload from the Board's corporate budget. This includes two ADF-financed Projects. Most of the staff on the proposed project team have been trained in Bank procurement procedures and have competently handled procurement activities on the two Bank-financed Projects. Thus, AWSB's overall risk rating on procurement management is considered to be low. The resources, capacity, expertise and experience of AWSB are considered adequate to meet the procurement requirements under the proposed project. The resources, capacity, expertise and experience of AWSB are adequate to carry out the procurement. The overall project risk for procurement is considered low.

B.5.4 General Procurement Notice

The text of a General Procurement Notice (GPN) has been agreed with Recipient and it will be issued for publication in *UNDB online* and in the *Bank's Internet Website*, upon approval by the Board of Directors of the Financing Proposal.

B.5.5 Procurement Plan

The Recipient, at appraisal, developed a Procurement Plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the Recipient and the Project Team and is available at AWSB offices. It will also be available in the Project's database and in the Bank's external website. This Procurement Plan will be

updated by the Recipient's Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. Any revision proposed to the Procurement Plan shall be submitted to the Bank prior no objection. The Recipient shall implement the Procurement Plan in the manner in which it has been agreed with the Bank.

1.1.1.1.1 Goods and Works and non-consulting services

Prior Review Threshold: Procurement Decisions subject to Prior Review by the Bank as stated in Appendix 1 to the *Rules and Procedures for Procurement of Goods and Works:*

N°	*Procurement Method*	*Prior Review Thresholds*	*Bank's Review*
1.	ICB and LIB (Goods)	N/A	N/A
3.	ICB and LIB (Works)	N/A	N/A
N°	*Procurement Method*	*Post Review Threshold*	*Bank's Review*
1.	NCB (Goods)	N/A	N/A
2.	NCB (Works)	N/A	N/A
3.	Non-Consultant Services	Above € 50,000	First contract
4.	Shopping	Above € 50,000	First contract

Any Other Special Selection Arrangements: N/A

Goods and Works Contracts with Procurement Methods and Time Schedule:

Ref. No.	*Description*	*Estimated Cost € '000*	*Procurement Method*	*Review by Bank (Prior / Post)*	*Expected SPN Advertising Date*	*Expected Contract Commencement Date*	*Comments*
1.	Production of hygienic sanitation facilities components	500	Shopping	Post	N/A	January 2014	1st contract for Prior Review
2.	Safety and personnel equipment for waste collectors	10	Shopping	Post	N/A	January 2014	

1.1.1.1.2 Selection of Consultants

Prior Review Threshold: Selection decisions subject to Prior Review by Bank as stated in Appendix 1 to the *Rules and Procedures for the Use of Consultants.*

	Selection Method	*Prior Review Thresholds*	*Bank's Review*
1.	Competitive Methods (Firms)	Above € 50,000	All
2.	Single Source (Firms)	Above € 50,000	All
3.	Individual	Above € 15,000	All

Short list comprising entirely of national consultants: Short list of consultants for services, estimated to cost less than € 50,000.00 equivalent per contract, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the *Rules and Procedures for the Use of Consultants.*

Any Other Special Selection Arrangements: *[including advance procurement and retroactive financing, if applicable or delete if not applicable]*

Consultancy Assignments with Selection Methods and Time Schedule:

Ref. No.	*Description of Assignment*	*Estimated Cost € '000*	*Selection Methods*	*Review by Bank*	*Expected EOI Publication Date*	*Expected Contract Commencement Date*	*Comments*
	Develop baseline values in target area for sanitation awareness, access, and affordability	35.00	LCS	Post	November 2013	January 2014	1st contract for Prior Review
	Health, safety, and occupational training for waste collectors	3.60	LCS	Post	November 2013	January 2014	

B.5.6 Frequency of Procurement Post Review mission

In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended two annual procurement supervision missions to visit the project and carry out post review of procurement actions.

B.5.7 Global Action Plan for improvement to National Procurement Procedures

The following discrepancies with the Bank's Rules and Procedures: "*Rules and Procedures for Procurement of Goods and Works", dated May 2008,* have been identified in the national procurement law and regulation Public Procurement and Disposal Act (2005), and shall not be used for procurement activities financed by the Bank:

ISSUES	**MITIGATION MEASURES**	**RESPONSIBLE AGENCY**	**IMPLEMENTATION STATUS**	**COMPLETIONDEADLINE**
COMPLIANCE WITH BANK FIDUCIARY OBLIGATION				
Discrepancies identified in the PPDA Act and Regulations				
Missing provisions on; i) Eligibility of parastatal organizations and state enterprises to bid ii) Participation of Joint-Ventures iii) Minimum time for bid preparation and submission shorter than the Bank's requirement for 28 days	Provisions to be incorporated	PPOA	Prepare proposal to GOK amending the Act.	December 2011
		Parliament	Act amendment passed	December 2012

ISSUES	MITIGATION MEASURES	RESPONSIBLE AGENCY	IMPLEMENTATION STATUS	COMPLETIONDEADLINE
iv) Prohibition of advance contracting and retroactive financing.				
Discrepancies identified in the National Standard Bidding Documents				
Missing sections of : (a) Instructions to Bidders and General Conditions of Contract (b) Non-conformity of the Bid Data Sheet and Special Conditions of Contract (c) The SBD for Works has discrepancies and several sections and standard forms missing.	Inclusion of missing sections and harmonization of discrepancies	PPOA	Amend Instructions to Bidders, Conditions of Contract and include missing standard forms in the Kenya SBD	December 2011

ANNEX 6: ASSESSMENT OF SANITATION IMPROVEMENT OPTIONS FOR INFORMAL SETTLEMENTS IN NAIROBI

Fax: +254- 020 -2724295
Mobile: +254- 715-688272
Email: info@awsboard.go.ke
Website: www.awsboard.go.ke

Athi Water Services Board
Upper Hill
Africa Re-Centre, Hospital Road
P.O. Box 45283 - 00100, Nairobi
Tel: +254 -020- 2724292/3, 2727438/441/442/440

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23rd September 2013

The Regional Director
African Development Bank
Kushee Towers
P. O Box 4861-00200
NAIROBI

Dear Sir,

BRIEF NOTE ON IMPROVEMENT OPTIONS FOR INFORMAL SETTLEMENTS IN NAIROBI

Forwarded herewith please find enclosed a brief note on the Assessment of Sanitation Improvement Options for Informal Settlements in Nairobi.

AWSB has compared various options of feacal sludge removal in slums in Nairobi including manual, mechanical and proposed double sealed catridges by Sanergy. From the analysis, the preferred option for upscaling improved sanitation in slums is the option being offered by Sanergy due to high hygienic standards, better accessibility and lower investment and running costs.

Yours faithfully,

ENG. MALAQUEN MILGO
CHIEF EXECUTIVE OFFICER

ASSESSMENT OF SANITATION IMPROVEMENT OPTIONS FOR INFORMAL SETTLEMENTS IN NAIROBI

September 2013

Access to Sanitation in Nairobi Slums

In Kenya, 75% of Nairobi lives in informal settlements across the city, occupying just 5% of the land.[1] The population in the country's slums is increasing rapidly at 6% per year, with 80% of the 10 million slum dwellers without adequate sanitation mainly due to the high costs, land tenure challenges and lack of basic infrastructure to facilitate delivery of sanitation services.[2] The result is environmental pollution and high incidences of water and sanitation related illnesses.

70% of the slum dwellers do not have a connection to sewers and rely on unsafe pit latrines, 'flying toilets', and open defecation.[3] An average size family of 5 often live in 10 m^2 shacks that are organized in plots of 10-15 households. These tight living quarters make privately owned at-home toilets close to impossible. The current availability of toilets in Kenya's slums is confirmed as significantly less than demand: where sanitation facilities exist, they are communally used with users paying up to $0.06 per use and are often unhygienic, unaffordable, or inaccessible. On average 150 people share 1 toilet despite the fact that 65% of the pit toilets constructed are in disrepair. Over 50% of the slum population use either communal ablution blocks or resort to the use of use and throw plastic bags otherwise known as flying toilets.

There are successful interventions that have provided acceptable practical sanitation options, but these are on a limited small scale mainly undertaken as model demonstrations but lacking effective strategies and plans for taking them to scale. For instance, centralized ablution blocks are mainly funded by INGOs and other donors and built by organizations like Maji na Ufanisi, Umande Trust and Ecotact, cost 25,000 USD each, take several months to build, and are often not within close proximity to households, i.e. sometimes nearly half a kilometre away from most homes posing security risks. Most of these interventions are not well coordinated by the sector for effective learning of lessons and for up scaling.

Though most toilets charge an access fee of 0.04-0.06 USD per visit, the lack of profitability inhibits scaling and creates a dependence on large donations to fund construction, and a lack of local ownership creates a disincentive for long-term maintenance. A key challenge for the residents is cost and affordability of these improved options. Studies have shown that efforts to improve the sanitation situation can neither focus on scale redevelopment nor provision of municipal sewerage systems in the short and medium term. A recent study by the Water and Sanitation Programme (WSP, 2012) indicated that the annual cost of poor sanitation in Kenya results in a loss of about 27 billion Kenyan Shillings, (equivalent to 324 million USD).

Given the existing sanitation options, the cost of faecal sludge removal and disposal is also quite high due to the challenges emanating from lack of infrastructure for sewerage and transport services. Due to the high cost of waste removal service (up to 200 USD per trip) and limited road access, exhaustion trucks are rarely used rendering almost 65% of existing but full pits useable in majority of the slums. The infrequency of waste removal not only allows the waste in the pits to leach into the water-table but also leaves it untreated and exposed to disease-spreading vectors like mosquitoes and flies. During the rainy season, many pits take storm and other surface water and flood out onto the streets. When emptied, most pits are exhausted manually without protective gear and contents often drained directly into waterways.

Tables 1 and 2 below provide a comparison of the investment and operational costs of currently available sanitation solutions and related removal options within the Nairobi slums. Both, costs as well as acceptable quality and risks will determine the selection of the currently preferred option for up-scaling.

[1] UN Habitat Estimates, 2001 (available at www.unhabitat.org)
[2] Umande Trust, 'The Right to Water and Sanitation in Kibera, Nairobi, Kenya', 2007
[3] Government of Kenya, 'Citizens Report Card on urban water, sanitation, and solid waste services in Kenya', 2007

Table 1: Competitive Analysis of Sanitation Facilities in Nairobi			
	Independent Pit Latrines	Bio-Centers	Plot-Level Sanitation
			
Companies & Organizations	Landlords, Youth Groups	Umande Trust, GOAL, and other NGOs	**Sanergy/Fresh Life**
Installed Areas	Slums	Slums, Large schools	Slums
Slum % using option	80% including other options like use of plastic bags	20%	10,000 users per day 0.02%
Technology	Small hole into unlined pits or directly into waterways	Water-flush into onsite biogas digester	Urine Diverting Dry Toilet (UDDT) with urine and faeces collected in separate 30L double-sealed barrels
Superstructure	Piecemeal of rusted metal, wood, plastic or cloth tarps	Large concrete buildings constructed onsite over several months	High-quality prefabricated ferro-cement assembled in 2 days
Capital Cost	100 USD / unit average of 20 users/d 5 USD/user	25,000 USD / unit average of 500 users/d[4] 50 USD/user	550 USD / unit average of 70 users/d[5-6] 8 USD/user
Max. Operating Cost	$0-0.5 per day	$4.28 per day per center	$0.85 per day per FLT
Funding Source	Self-financed	Donor	Micro-entrepreneurs purchase; usage fees cover operating costs[7]
Ownership Model	Private	Community Group	Franchised to individuals
Management Structure	Self-managed	Community- managed	Owner-operated with support and supervision from Sanergy
Usage Charge	$0.04-$0.06	$0.04-$0.06	$0.04-$0.06[8]
Accessibility	Residential and commercial areas	Commercial areas of slums	Residential areas and within commercial enterprises
Hygiene	Most are unhygienic - Lack of competition gives operators little incentive to maintain hygiene	Mixed - dependent on community group's commitment and management capacity	Hygienic – Sanergy provides operational and business training, daily waste collection, check-ins on hygiene standards

While user charges are roughly identical, the quality of the offer is very different.
Capital costs of Fresh Life toilets (FLT) are above pit latrines but much below bio-centers.
FLT is retained as a preferred option due to lowest investment cost among quality options.

[4] Aidah Binale, Umande Trust Bio-Centre Approach in Slum Upgrading, http://halshs.archives-ouvertes.fr/docs/00/75/59/05/PDF/Aidah_Binale_-_UMANDE_TRUST_BIO-CENTRES.pdf, accessed 2013-09-17

[5] Capacity of 100 daily customers, profitable business with 40,
case study shows averages ranging from 34 to 102 daily customers for 7 owners having records.

[6] Eunice Likoko, Ecological Management of Human Excreta in an Urban Slum: A Case Study of Mukuru in Kenya, http://uu.diva-portal.org/smash/get/diva2:638161/FULLTEXT01.pdf, accessed 2013-09-17

[7] The initial business-in-a-box is purchased by operators, cash or with microfinance loan. It includes all materials needed to open the FLT. Operational costs include provision of toilet tissue, soap, water, sawdust and cleaning supplies. On average, this costs operators $0.85/day, with an average revenue of $2.88/day, with 50 users per day charging an average 5KES/use

[8] Typically 5 KES, with overall range from 3-10 KES/visit, depending on customers and competition; free in some schools.

Table 2: Options and cost of faecal sludge removal in slums in Nairobi			
	Manual	**Mechanical**	**Double-Sealed Cartridges**
			
Companies & Organizations	Independent Providers	Private Sector, NGOs, Government	**Sanergy**
Annual Cost	$100	$250	$100
Worker Safety	Extremely Dangerous	Safe	Safe

It is clear that manual emptying involves unacceptable risks; not requiring road access makes it attractive. Mechanical emptying should be the standard option; due to cost and access issues it is often not applicable. The 30 liter sealed cartridges used in the FLT provide acceptable hygienic standard and universal access at the cost of manual emptying and are therefore retained as the preferred option.

Justification for Sole Sourcing Sanergy

In conclusion, the franchise system offered by Sanergy under Fresh Life brand offers the preferred option for up-scaling improved sanitation in slums due to hygienic standard, accessibility, investment and running cost which are also offered together with a complete value chain including safe re-use. The solution is already operating the franchise system with over 200 "Fresh Life" branded toilets, franchised to community based operators. The approach offers user interface to collection and transport system with formally employed community members and industrial treatment for safe re-use in a well-managed composting plant (to be upgraded to industrial level process and quality assurance of product).

Sanergy sells and services its high-quality small-scale sanitation centers, which produce toilets made of prefabricated with attractive locally available materials that make them easier and cheaper to clean and maintain. These toilets have a small footprint that enables installation closest to homes, improving safety and convenience. Given that each toilet currently provides for up to 100 users daily, the toilets generate good revenue to the local entrepreneurs and contribute to the improved livelihoods and to a more hygienic environment.

Other favourable aspects of the sanitation facilities include:

- **Compact** Size: At 1x2 meters, the facility fits in almost any small space available in the densely-packed urban slums.
- **Water-Free** Collection System: The Urine-Diverting Dry Toilet (UDDT) system captures urine and faeces in separate 30L cartridges, which are double sealed and therefore transported with ease. Any human-waste contact or leaching into the water table are avoided. The cartridges are sized to handle the waste from 100 uses/visits. A team of formally employed waste collectors removes the cartridges on a daily basis thus job creation for local youth is assured. The cartridges are transported to processing facility using handcarts, reducing cost and improving access to most of the slum. This is a dramatic improvement over manual emptying of pit latrines, at the same cost.
- **Pre-Fabricated**, Pre-Cast Materials: All parts are pre-cast in a centrally-located, controlled workshop by a team of trained personnel. High-quality and with quick delivery can be assured.

- **Rapid Assembly** On-Site: The pre-fabricated structure allows rapid assembly on-site, currently 2 persons for two days but with further improvement already under development. The foundations required are only 2ft deep and raising is feasible if there is a risk of flooding.
- **Ferro-cement** Panels: This highly durable and easy to maintain toilet will last for at least 5 years of heavy use. It is also compact, facilitating transport.
- **Cleanliness**: Epoxy paint on the floor prevents staining and is easy to clean.
- **Centralized waste processing** leverages economies of scale to small scale biogas or composting. The waste undergoes thermophilic box composting, transforming faecal sludge into a valuable natural resource. Currently ten large farms have expressed demand for hundreds of tons at 300 USD/ton. Sanergy works with partners to sell the toilets and wants to ensure a feedstock of waste for conversion into marketable by-products. This has been piloted with positive results confirming demand.

Each sanitation center costs 550 USD to fabricate and install. This is sold in conjunction with a waste collection service that costs approximately 100 USD per toilet, annually. In comparison with other available improved sanitation options, the per capita cost of 8 USD for the FLT is much lower. As indicated in Table 1 above other key sanitation service providers like Umande and the Nairobi City Council per capita investment cost is about 50 USD, while the urban plot and household level sanitation program by the Ministry of Water and Irrigation (MWI) and the Water Services Trust Fund (WSTF) per capita investment cost is 21 USD.

Sanergy is currently the only sanitation provider for onsite household or plot level that manufactures toilet facilities that have been adapted to the densely populated slum situation and which combines it with a response to ensuring sustainability of the facility i.e. offers options for the containment, collection, disposal and safe, environmentally sound re-use. Most other providers offer services only on specific part of the sanitation value chain.

ANNEX 7: SANERGY SUMMARY OF INCOME AND EXPENDITURE PROJECTION

Income and Expenditure	2013		2014		2015		2016		2017	
	million KES	Thsd EUR[23]	million KES	Thsd EUR	million KES	Thsd EUR	million KES	Thsd EUR	million KES	Thsd EUR
Toilets - Existing Design	18.000	180	20.000	200	23.000	230	26.000	260	28.000	280
Toilets - New Design	0	0	4.500	45	11.000	110	14.000	140	16.000	160
Waste Collection	1.400	14	4.500	45	9.000	90	15.000	150	21.000	210
Electricity	0	0	0	0	10.000	100	15.000	150	25.000	250
Fertilizer	38.000	380	97.000	970	180.000	1800	300.000	3000	400.000	4000
Total Revenue	57.400	574	125.000	1250	233.000	2330	370.000	3700	490.000	4900
Total COGS[24]	27.400	274	56.000	560	110.000	1100	150.000	1500	200.000	2000
Total Operating Income	30.000	300	70.000	700	123.000	1230	220.000	2200	290.000	2900
Staffing Costs	46.000	460	58.000	580	75.000	750	100.000	1000	120.000	1200
Lease[25]	7.000	70	6.000	60	10.000	100	14.000	140	20.000	200
SG&A[26]	6.000	60	12.000	120	21.000	210	30.000	300	40.000	400
Research & Development	9.000	90	9.000	90	9.000	90	9.000	90	10.000	100
Depreciation	12.000	120	23.000	230	25.000	250	27.000	270	30.000	300
Total Operating Expenses	80.000	800	108.000	1080	140.000	1400	180.000	1800	220.000	2200
EBIT[27]	-50.000	-500	-38.000	-380	-17.000	-170	40.000	400	70.000	700

[23] At exchange rate of 100 KES/€
[24] Cost of Goods Sold
[25] Head Office, Field Office, Fabrication Workshop, Processing Center, WC Transfer Point
[26] Selling, General and Administrative Expenses: Travel, Professional Services, Marketing, Training, Administrative, Communication
[27] Earnings before interest and tax

ANNEX 8: SUMMARY OF TREATMENT TECHNOLOGY/DIGESTER OPTIONS

Biomax Rapid Thermophilic Digester

The Biomax Rapid Thermophilic Digester is manufactured by Biomax Technologies, which is based in Singapore. It is able to process 22 tons of waste per day. The digester uses a mix of heat, agitation, and a thermophilic enzyme to convert the waste into an organic fertilizer in 24 hours. Temperatures inside the digester reach over 70 degrees Celsius, eliminating harmful pathogens, and because the waste is enclosed inside the digester, there is no odor release. Since there is no need to mature the material that exits the digester, the operational space requirements are below an acre. A staff of 2 people is required to operate the digester and it only needs to be monitored for the first 4 hours of operation. The digester is durable in construction, though it requires a shed be built overhead. Materials for maintenance can all be purchased locally in Nairobi. The large design of the digester makes relocation and future scaling of operations difficult. Furthermore, Biomax Technologies is the sole producer of the thermophilic enzyme.

Aerated Static Pile

Sanergy would construct the Aerated Static Pile (ASP) compost operation. The compost operation would be designed using data collected from Sanergy's current compost operation, in combination with information gathered from other compost operations around the US. All waste would be placed in windrows over perforated pipes. The pipes would blow air into the waste on a schedule set by a timer. A biofilter would be placed over the waste to reduce odour. This operation requires 2 people to run and 3 months to complete. All materials would be sourced locally to reduce costs and allow for easy availability of replacement parts. The ASP operation would require a large area of land, about 2 to 3 acres, and a large portion of that land must be concreted to prevent the waste from entering the environment. Due to the simplicity of the ASP design, the system can be easily scaled and repeated in various locations.

Biomax Thermophilic Digester

Aerated Static Pile

ANNEX 9: DRAFT MEMORANDUM OF UNDERSTANDING BETWEEN ATHI, SANERGY AND NAIROBI CITY WATER AND SEWERAGE COMPANY (NCWSC) AND NAIROBI CITY COUNTY (NCC)

MEMORANDUM OF UNDERSTANDING

Between

NAIROBI CITY COUNTY

And

ATHI WATER SERVICES BOARD

And

NAIROBI CITY WATER AND SEWERAGE COMPANY LIMITED

AND

SANERGY

On

IMPLEMENTATION OF A SANITATION PROGRAM IN MUKURU INFORMAL SETTLEMENT IN NAIROBI, KENYA

THIS **MEMORANDUM OF UNDERSTANDING ("MOU")** is made on this _____ day of _____2013 **BETWEEN:**

1. **NAIROBI CITY COUNTY ("NCC"),** a County Government within the meaning of Article 176 of the Constitution of Kenya situated at City Hall, P.O. Box 30075, 00100, Nairobi; and
2. **ATHI WATER SERVICE BOARD ("AWSB')**, a State Corporation established under the Water Act (Act No. 8 of 2002) situated at Africa Re Centre, 3rd Floor, Upper Hill, Hospital Road, P. O. Box 45283 - 00100 (GPO), Nairobi, Kenya; and
3. **NAIROBI CITY WATER AND SEWERAGE COMPANY LIMITED ("NCWSC"),** a Water Service Provider within the meaning of section 55 of the Water Act (Act No. 8 of 2002) situated at Kampala Road, P.O. Box 30656, 00100 Nairobi; and
4. **SANERGY**, a registered social enterprise that provides hygienic and affordable sanitation options to informal settlements in Kenya.

WHEREAS

a) The African Water Facility (AWF) established by the African Development Bank (AfDB) has accepted a project proposal submitted by Sanergy in respect of non-sewered sanitation improvements in Mukuru informal settlement in Nairobi; and
b) AWSB is proposed to be the Grant Recipient and Executing Agency for this project while Sanergy is proposed to be the contractor for the project; and
c) NCC had, through its predecessor the City Council of Nairobi, promised to support public hygiene promotion activities within the project area as well as avail land for establishing waste transfer stations and waste processing and treatment areas; and
d) NCWSC has promised to support public hygiene promotion activities within the project area and provide water connection to the sanitation units; and
e) The Aide-Memoire agreed between the parties and AfDB requires the parties to enter into this MOU to facilitate the implementation of the project.

AGREEMENT IN PRINCIPLE

Article 1 – Purpose of the MoU

The objective of this MoU is to:

i) Provide for a framework by which the parties will co-operate to satisfy the pre-condition requirements for disbursement as provided for in the Aide Memoire,
ii) Provide a time-frame for the performance of the obligations expected from each party,
iii) Provide for a project implementation team to co-ordinate the pre-contract implementation activities.

Article 2 – Pre-contract implementation activities

The parties mutually agree to co-operate with each other to complete their respective pre-contract implementation activities as provided below:

i. NCC
    a) To provide team from its Environmental Health Department which will be responsible for undertaking public hygiene promotion activities in the project area in collaboration with the Informal Settlement Unit from NCWSC,
    b) To provide liaison persons from its Planning Department to ensure quick approval of the project designs,

c) To provide project sites for the construction of the sanitation blocks as well as land for establishing waste transfer stations, waste processing and treatment areas, and bio-fertilizer demonstration plots,
d) To provide liaison persons at the local level to support community communication activities and collaboration during project implementation.
e) To support the licencing and operations of the sanitation franchisees;
f) To provide guidance to the Contractor on compliance with environmental regulations regarding faecal sludge disposal;
g) To provide access to the Project to the existing waste treatment facilities at Ruai for faecal sludge disposal during the Project timeframe if required.

ii. AWSB

a) To provide financial management i.e. receive and administer the Project funds through a Special Account;
b) To provide overall management to the Project;
c) To prepare a project monitoring and evaluation plan for the project and submit to AWF quarterly Project Progress and Financial reports in accordance with AfDB procedures;
d) To establish by expanding the representation in the existing AFDB Project Management Unit (PMU) currently supporting the implementation of the Nairobi River Basin Rehabilitation and Restoration Programme for the implementation of this Project as defined in the AWF Project Appraisal Report;
e) To establish and Chair a Project Steering Committee (PSC) with representation from key stakeholders – project partners, relevant sector ministries, and target community representatives.
f) To submit to AWF for approval a revised Procurement Plan and Implementation schedule;
g) Establish accurate unit costs to be financed under the project including the cost for establishing the transfer stations and use of motorized transport,
h) Develop a suitable financial plan for the collection and utilization of the revenue derived from the sale of bio-fertilizer and energy,
i) Review and re-confirm the suitability and sustainability of the proposed technology and all its components and, in particular, provide a system for integrating it to the national sanitation program being implemented by the Government of Kenya,
j) To review and re-confirm all the designs proposed for the project, including the design for the proposed package treatment facility for the production of bio-fertilizer and bio-gas,
k) To establish appropriate community sensitization and engagement programs, field supervision and performance monitoring mechanisms during and after project implementation,
l) To prepare appropriate procurement plan and bidding documents for the implementation of the project,
m) To prepare a risk management plan for the project and in particular, provide mitigation strategies for the risks identified in the Aide Memoire.
n) To liaise with NCC, NCWSC and Sanergy to ensure the performance of their respective activities,

iii. NCWSC

a) To provide team from its Informal Settlement Unit which will be responsible for undertaking public hygiene promotion activities in the project area in collaboration with the Environmental Health Department team from NCC,
b) To provide adequate facilities and personnel for extending water connections to the sanitation units,
c) To provide expert services to counter-check the adequacy of waste disposal procedures undertaken by Sanergy to ensure they are in compliance with the set standards,

iv. iv. AWF

The AWF funds for activity implementation detailed under table 1 below shall be disbursed subject to an implementation work program and budget prepared and submitted to AWF by AWSB, approved by the PMU.

Table 1: Project Cost by Category of Expenditure (in '000 Euros)

Category of Expenditure	**Total Cost**	**AWF**	**Beneficiaries/Other**
Works	850.0	0.0	850.0
Goods	510.0	110.0	400.0
Services	553.6	218.6	335.0
Operating costs	879.7	368.0	511.7
Total Base Cost	**2,793.3**	**696.6**	**2,96.7**
Contingency (5%)	139.7	34.8	104.9
Total Project Cost	**2,933.0**	**731.4**	**2,201.6**
% Contributions		**23.0%**	**77.0%**

v. v. SANERGY

will collaborate in the Project as contractor with existing franchising sanitation services and shall:

i) Avail to the Project counterpart financing of activities amounting to **EURO 1,081,000** as proposed and as detailed in the Project Appraisal report as summarized under Table 2 below:

Table 2: Co-financing of Activities by Sanergy

Component	**Activity**	**Budget amount in EURO**
1. Improved Hygiene and Sanitation Services	Hygiene awareness Campaigns amounting	10,000
2. Collection and Transport of Faecal sludge (faeces and urine	Employment of 50 waste collectors (youth) for two years	75,000
	Operational costs for waste collection vehicles	24,000
3. Treatment and Re-use	Employing local residents waste processing	40,000

	Employing 2 Waste processing supervising Engineers	200,000
	Installation of waste disinfection and processing equipment	600,000
	Operational cost for waste disinfection and processing equipment	168,000
TOTAL		**EURO 1,081,000**

ii) Secure temporary storage space (transfer stations) for faecal waste (faeces and urine) collection;
iii) Acquire the necessary land for the treatment of the faecal sludge (faeces and Urine);
iv) Provide the technical/design specifications of the treatment facility proposed for implementing Component 3 treatment activities and provide necessary technical assistance for the operations and maintenance of the facility;
v) Secure the demonstration plots for safe re-use of treated faecal sludge;
vi) Secure the disposal site and/or establish the incineration of waste bags used during faecal waste collection.
vii) Define the model for the micro-credit financing of new toilets and support franchisees/buyers to establish linkages and make applications for loans and subsidies.
viii) Identify and train masons responsible for manufacturing at least 1000 new urine diversion dry toilets.
ix) Undertake business management of franchisees, prepare training toolkits for sanitation marketing and training of field managers to identify and support establishment of sanitation franchisees;
x) Collaborate with NCC's Environmental Health Department and NCWSC's Informal Settlement Unit for effective implementation of the promotion of hygiene awareness, sanitation marketing and community sensitization activities, and ensuring integration / synergies with existing interventions and sanitation approaches.
xi) Submit to AWSB quarterly progress reports highlighting any challenges/risks and the mitigation measures.

Sanergy shall be engaged under direct contracting with AWSB given that the Project is a continuation of its sanitation franchising activities funded by USAID in Mukuru: and considering its expertise in the implementation of the franchising model with micro-credit financing opportunities. The signed Contract Agreement between AWSB and SANERGY shall supersede this MoU.

Sanergy will prepare and submit a work plan to AWSB for approval by the PMU.

Article 3 – Pre-contract implementation timeframe
The parties mutually agree to perform their respective activities within the timeframe set out in the Schedule hereto.

Article 4 – Pre-contract implementation team

The parties mutually agree to establish a pre-contract implementation team to as the liaison person within each party and to assist in the co-ordination of each party of their activities contributing to the project.

Article 5 - Project pre-condition requirements report
The pre-contract implementation team shall prepare a Project Pre-Condition Requirements Report to AWF indicating the manner in which all the pre-condition requirement have been addressed.

Article 6 – Undertakings
Each party undertakes to the other that it shall:

i. In good faith, discharge any obligation reasonably expected of it under this MoU.
ii. In good faith, consider, negotiate and/or enter into any discussions required or reasonably expected of it under this MoU.
iii. Provide such information and documents in its possession as may be required in the implementation of this MoU, provided always, that any confidential information that is disclosed to a party shall be held in confidence, be disclosed only to authorized persons or persons having need-to-know, and used only for the purposes of this MoU. This undertaking shall continue even after the termination of this MoU. It shall be the obligation of each party to advise and ensure that their employees and agents having access to confidential information do abide by this clause.
iv. In good faith, negotiate the implementation agreement(s) contemplated by Article 8 below.
v. That the signatories hereunder are duly authorized to sign this MoU.
vi. That each party has the power and authority to perform this MoU.

Article 7 - Duration
The period of validity of this MOU shall be Three (3) years after the date of its execution unless the Parties agree to extend its validity.

Article 8 – Project implementation Agreements

i. AWSB shall negotiate and enter into binding implementation agreements with each of the parties upon the signing of the Grant Agreement with AWF.
ii. The implementation agreements shall be substantially consistent with the parties' respective obligations as inferred from this MOU.

Article 9 - Effectiveness
This MoU shall become effective upon its execution by the duly authorized representatives of the Parties.

Article 10 – Binding nature
Save for the undertakings in Article 6 (iii) to (vi) both inclusive, this MoU shall not constitute legally binding commitments on the parties.

Article 11 – Termination
This MoU shall stand terminated upon the first occurrence of any of the following events:

i. The Parties agree in writing to terminate this MOU; or
ii. Any of the parties, upon giving thirty (30) days written notice, notifies the others of its intention to withdraw from this MoU; or
iii. The agreement(s) contemplated in Article 8 is signed by all the Parties; or

iv. On the occasion of an event of force majeure exceeding six (6) months.

Article 12 - Dispute Resolution

Should any dispute arise from or under this MoU which cannot be resolved within fourteen (14) days of the dispute arising by the liaison persons nominated by each institution in Article 4, the same shall be resolved by negotiation between the accounting officers of the parties, failing which this MoU shall stand terminated.

Article 13 - Amendment

i. This MOU may be varied and/or amended by agreement of the Parties.
ii. A party proposing an amendment shall write to the other specifying the purpose and wording of the proposed amendment for the concurrence or comments of that other party.
iii. The amendment shall become effective upon the concurrence of both parties.

IN WITNESS WHEREOF the duly authorized representatives of the parties hereto have set their hands hereon on the day and year here above written.

SIGNED and **SEALED** with the Common)
Seal of **NAIROBI CITY COUNTY**)
In the presence of)
)
)
……..)
)
)
……..)
)

SIGNED and **SEALED** with the Common)
Seal of **ATHI WATER SERVICES BOARD**)
In the presence of)
)
……..)
CHIEF EXECUTIVE OFFICER)
)
)
……..)
LEGAL MANAGER)

SIGNED and **SEALED** with the Common)
Seal of **NCWSC**)
In the presence of)
)
……..)
)
)
)

……..)

SIGNED and **SEALED** with the Common)
Seal of SANERGY)
In the presence of)
)
……..)
)
)
)
……..)

Drawn by:
Kirimi Mugambi
Advocate
P.O. Box 45283, 00100
Nairobi

ANNEX 10:
PROGRESS AND LESSONS LEARNT FROM SANERGY PILOT IN MUKURU

Sanergy's Current Status: As of May 2013, we have successfully launched 194 franchises to 98 local entrepreneurs in Mukuru, Nairobi – a slum of 500,000 people. Each toilet receives an average of 50 paying users each day and over 8,000 residents now have access to hygienic sanitation. Our franchise network has created a further 50 jobs in the community in operating the sanitation businesses. The waste is being collected daily without fail by our network of waste collectors. To date, we have collected over 750 mt of waste and safely removed it from the community. We are processing over 20mt of waste per week into organic fertilizer, which we distribute to a variety of farms that produce flowers, tea and coffee, as well as to distributors who work with small-holder farms throughout Kenya. We are also producing biogas. We continue to make it profitable and thus sustainable, to provide sanitation services in the slums. At each step, Sanergy creates jobs and opportunity, while simultaneously addressing serious social and economic needs.

Lessons Learned

Data Integration: Sanergy has invested heavily in the customization and utilization of Salesforce. This enables us to not only track our sales pipeline, but also integrate lessons learned from our M& E work into our daily operations. This ensures that we can understand who makes for the most effective sanitation operator, which we can replicate.

Successful Entrepreneurs: Through studying data pulled from Sanergy's existing toilet operations, we have found that successful entrepreneurs tend to be female, business owners or landlords who have installed their FLTs in household plots, in another business or at slum entry points, and who target residents and local business owners as customers, rather than commuters.

Female entrepreneurs have 25% more users each day than male entrepreneurs. 50% of our FLOs are women. These women have lived in the community for a long time and command respect because of their concern for public health and their business savvy. This gender disaggregated data is encouraging us to target women specifically as entrepreneurs, introducing business training components related to securing access to land, which can be difficult for some women who are not heads of households. As we go into our pilot stages of testing product sales, at our FLTs including feminine hygiene products, this data suggests targeting our female FLOs specifically may show more successful revenues.

Entrepreneurs who hire employees as operators have 10% more users. Such data is encouraging us to provide business training and support to youth in the community who can by employable as operators who may not have access to land or financing to purchase their own toilets. Not only will this encourage use of the FLTs, it will also create sustainable jobs in Mukuru where there is a 40% unemployment rate.

Landlords have 23% more users, and toilets with over 400 nearby residents have 19% more users per day. This data is encouraging us to expand our network to household plots, allowing landlords to make hygienic sanitation accessible 24 hours a day for residents.

Going Cashless: A final lesson learned in working with our FLOs is the aversion to risk involved in delivering large amounts of cash. Sanergy has thus gone cashless, using mPesa for all transactions between Fresh Life Operators and the company. This enables potential operators to pay immediately and with no risk of theft or fraud in transfer of cash.

ANNEX 11: USAID GRANT TO SANERGY

April 5, 2013

FIXED OBLIGATION GRANT TO:

Sanergy, Inc. for "Sustainable Sanitation in Urban Slums of Kenya"

Pursuant to the authority contained in the U. S. Foreign Assistance Act of 1961, as amended, the U.S. Agency for International Development (hereinafter referred to as "USAID"), hereby awards to Sanergy, Inc. (hereinafter referred to as "Recipient"), the sum of U.S. Dollars **$1,499,984**, according to the Milestone Budget agreed upon to support the subject award.

USAID is not liable for reimbursing the Recipient for any amount in excess of the obligated amount. This FOG is subject to the terms and conditions as set forth in the attachments listed following the signature below, which together constitute the entire Grant Agreement and have been agreed to by your organization.

The funding from this grant is aimed to support the capital costs associated with the setup of the waste processing facility in or near Nairobi Kenya to process fecal sludge from Sanergy's network of toilets installed in low-income slums of Kenya.

At scale, the funding will have four primary long-term outcomes:
1. Access to and usage of hygienic sanitation will be increased for slum residents in Kenya.
2. Local capacity to provide hygienic sanitation services will be increased.
3. Environmental pollution in slums will be reduced by increasing the capacity of safe fecal sludge collection and removal in the target areas.
4. Availability of products for safe reuse will increase by processing the fecal sludge into useful byproducts.

ANNEX 12: TREATMENT SITE LETTER OF ACCEPTANCE FROM EPZ

Export Processing Zones Authority

Administration Building
Viwanda Road,
Off Nairobi - Namanga Highway
Athi River, Kenya.
E-mail: info@epzakenya.com
Website: www.epzakenya.com

P.O. Box 50563 - 00200
Nairobi, Kenya.
Tel: +254-45-6626421/6
Wireless: +254-20-2511969
ISDN line: +254-45-6621000
Fax: +254-45-6626427

CONF/EPZ/2260/CEO(21)

June 4, 2013

Mr. Anirudh Vallabhaneni,
Sanergy Ltd.,
P. O. Box 50721 - 00200
NAIROBI - KENYA

Dear Ani,

RE: APPLICATION FOR EPZ BUSINESS SERVICES PERMIT: SANERGY LTD.

We refer to your application for an EPZ Services License which was received on 15th April 2013 in relation to establishing a waste management project at the EPZA Waste Management Facility located at Kinanie in Mavoko Municipality, Machakos County.

We are pleased to inform you that the application has been **approved in principle.**

Prior to obtaining an EPZ Business Service Permit you will be required to do the following:-

1. Submit certified copies of the duly registered memorandum and articles of association for Sanergy Ltd.,

2. Liaise with EPZA's Operations Department, Property Executive to finalize on the requirements for identification and survey process for the proposed location following which you will obtain and re-submit to EPZA an accepted letter of offer for space,
3. Carry out and obtain an Environmental Impact Analysis (EIA) License from the National Environmental Management Authority (NEMA) for the proposed waste management facility,
4. Pay Ksh. 20,000.00 to EPZA as annual EPZ Business Service Permit fee,
5. Comply with any other EPZ requirements as may be communicated.

The permit will bear conditions including:-

- To comply with local and international laws and regulations governing waste management and trade in waste by-products;
- To locate within a validly gazetted EPZ;
- Not to carry out any activities contravening the EPZ Act, Cap 517, Laws of Kenya or any other laws and regulations in Kenya.

Kindly also note that EPZA levies a fee on exhauster trucks/vehicles accessing the EPZA Waste Management Facility for waste disposal, in your case, the monthly fee payable shall be Ksh. 150,000.00 to cover all your suppliers.

We thank you for your interest in the EPZ program and wish you well in your new undertaking.

Yours sincerely.

CYRILLE NABUTOLA
CHIEF EXECUTIVE OFFICER
RMM-PA, CEO/FK

African Water Facility
Facilité africaine de l'eau
Mobilising Resources for Water in Africa
Mobiliser des ressources pour l'eau en Afrique

AFRICAN WATER FACILITY

COMMUNICATION AND VISIBILITY GUIDELINES

Adopted by the Governing Council 27 November 2013

African Water Facility I Facilité africaine de l'eau
African Development Bank I Banque africaine de développement
BP 323 - 1002 Tunis Belvédère – Tunisie
Tel: + 216 71 102 197 Fax: + 216 71 348 670
Email : africanwaterfacility@afdb.org
www.africanwaterfacility.org

Hosted by the African Development Bank

COMMUNICATION AND VISIBILITY GUIDELINES

Communication and brand visibility greatly matter to the AWF. The AWF views communication as a strategic function firmly tied to its strategies and business objectives. Steady communication with AWF stakeholders helps build credibility and secure their trust and esteem, which in turn, helps AWF build and protect its reputation. Communications is also about disclosure. The AWF is a multi-donor fund, and is accountable to a Governing Council that expects the AWF to hold itself to the highest level of accountability and transparency. The AWF is committed to making every effort to disclose, share and report information useful and relevant to its stakeholders and the greater public. This entails effectively communicating its achievements, progress, and results by using all means available, in a timely manner. All these elements are important for business and essential to attract and retain donors, and for AWF to maintaining its social license to operate.

Brand awareness is about making sure the public knows AWF exists and can tell the AWF apart from other water funds or organisations. The brand is a visual, memorable trigger, or a logo, that embodies the AWF and captures its core identity. Brand awareness is achieved over time, through activities meant to increase brand visibility, by repeated use and exposure of the logo at strategic places and times. The AWF logo is used as a seal or a signature used to signal AWF financial support or special collaboration.

The AWF has established ***Communication and Visibility Guidelines*** *to the attention of partners, AfDB regional offices and grant recipients to help AWF more effectively achieve its brand and communications objectives, as laid out in the AWF Long Term Communications Strategy 2006 approved by the AWF Governing Council in 2006.*

1. GENERAL REQUIREMENTS

1.1 At an early stage, when preparing communication activities related to an AWF supported event of project, contact the Communication Officer at AWF Secretariat, copying the AWF Project Manager.

1.2 At a minimum, and wherever possible, the AWF logo should be applied to outreach materials that pertain to AWF supported projects or events. The proper use of the logo should be discussed with the AWF Communication Officer.

1.3 The AWF should be verbally mentioned as donor of the project it is funding at public speaking events where the project is discussed, and also be mentioned as donor in any Power Point presentations relevant to the project funded by the AWF, using the name and the logo of the AWF appropriately.

1.4 The logo is to be obtained upon request from the AWF Communication Officer.

1.5 Documents and publications related to an AWF supported project or sponsored publication should contain the AWF logo, as well as this phrase on the cover page: "*This project/program/study is funded by the African Water Facility*".

1.6 Implementing and executing agencies should always have a link to the AWF website on the page of their website relevant to an AWF-funded project/activity. The website is:

www.africanwaterfacility.org

1.7 The AWF asks that grant recipients report back to the AWF Secretariat, any special mention, award nominations or recognition that the project may have received.

2 VALIDATION PROCESS

2.1 The AWF management is responsible for the final clearance of AWF communications products/outputs.

3 PRESS RELEASES & MEDIA ADVISORIES

3.1 The AWF will issue an AWF-branded press release every time a project is approved and/or signed, and when completed (handover).

3.2 AWF press releases must always include a quote from the Coordinator of the AWF, which must be cleared by the Coordinator.

3.3 The AWF encourages and appreciates initiatives to issue joint press releases with its grant recipients. A standard joint press release can be issued at any time agreed with the AWF (between launch and completion).

3.4 When the grant recipient wishes to produce a press release, liaising with the AWF Communication Officer is required, as well as receiving a quote from the AWF Coordinator, as appropriate, and getting approval and clearance.

3.5 The AWF should be included in the title and/or first paragraph of the press release, as appropriate.

3.6 The press release should incorporate the AWF logo, mention that funding was provided by the AWF, and mention the amount of the AWF funding.

3.7 If a press conference is planned, the press release should include the name of an AWF senior representative who will be present at the press conference, when relevant.

3.8 All press releases must bear the name and contact information of the AWF Communication Officer, and if possible that of the communication/media representative from the grant recipient.

3.9 The AWF boilerplate text ("About the AWF") must be added to the text, including the AWF web site address. Please contact the AWF Communication Officer for the latest version.

3.10 The AWF has final validation of all its press releases, following a review process involving reviewers.

3.11 The rules above also apply to media advisories.

4 PRESS CONFERENCES

4.1 Press conferences to launch projects funded by the AWF should be organized in cooperation with the AWF, as much as possible.

4.2 The invitations should bear an AWF logo.

4.3 The AWF logo of a visible size should appear on any banner or poster to be displayed at the site of the conference.

4.4 Press kits need to include a press release with the AWF logo.

4.5 Whenever possible, an AWF banner should be on hand and set up to serve as a backdrop for TV and photo purposes.

5 PRESS VISITS

5.1 When appropriate, journalists should be invited to visit the project funded by AWF, accompanied by representatives of the AWF or the AWF Focal Point in the respective authority / government of the grant recipient.

6 VISITS BY GOVERNMENT OFFICIALS, AWF DONORS

6.1 Visits to projects by government officials and AWF donors are encouraged. Those should be prepared in coordination with the AWF and the AWF Focal Points of the host government. This can include meetings with local beneficiaries.

6.2 These visits may also include government officials and AWF donors' participation to round tables and other events, as relevant.

7 LEAFLETS, BROCHURES AND NEWSLETTERS

7.1 All leaflets and brochures relevant to the project/program financed by AWF should incorporate the basic elements of the AWF visual identity, i.e. the AWF logo -with or without tagline.

7.2 Leaflets and brochures produced by a grant recipient must also incorporate a definition of the AWF (boilerplate text).

7.3 The cover page of all documents pertaining to the project financed by the AWF must clearly identify the activity as being part of an AWF-funded activity.

7.4 Copies, including electronic copies of the publications, should be made available to the AWF.

8 ELECTRONIC COMMUNICATION

8.1 Electronic communication disseminating information on AWF-funded projects including websites, newsletter, and social media platforms, should link to the AWF website.

9 SIGNAGE

9.1 The grant recipient should produce display panels, posters or banners to promote their AWF-funded or AWF-related activities at exhibitions and other events, placed in strategic locations for all to see.

10 VEHICLES, SUPPLIES AND EQUIPMENT

10.1 AWF generally requests that vehicles, supplies and equipment funded by AWF be clearly identified, and visibly carry the AWF logo and the phrase "Provided with the support of the African Water Facility" in English, French or Portuguese, as relevant.

10.2 This requirement is subject to negotiation between AWF and the grant recipient as some supplies and equipment may be exempt.

10.3 The grant recipient must provide evidence of compliance with this rule (digital photos sent by email are recommended.)

11 PHOTOGRAPHS AND AUDIOVISUAL PRODUCTIONS

11.1 Professional high resolutions (300 Dpi) digital photographs of the project funded by AWF should be supplied to the AWF throughout the different phases of the project, to document the progress of actions and events related to these, and to be used in print and online publications.

11.2 All photos should be submitted with full caption and credit information.

11.3 The AWF will be entitled to use or reproduce photos submitted to it without payment of royalties.

11.4 Whenever relevant, audiovisual materials should acknowledge AWF support, by featuring the AWF logo at the beginning and/or end of the movie/documentary.

11.5 Copies of the movie(s) / documentary (ies) should be supplied to the AWF.

12 COMMEMORATIVE PLAQUES OR SIGNAGE

12.1 Whenever relevant, the grant recipient should place a permanent plaque, or some other type of large, commemorative signage on the most visible part of the building, infrastructure or nearby the project site, which received funding by AWF, beside the name of the implementing agency and/or name of the project, for visitors to see.

12.2 When appropriate, the plaque or signage could contain the following sentence: "This [name of the infrastructure] was funded by the African Water Facility" alongside the AWF logo.

13 PROMOTIONAL ITEMS

13.1 Before taking any decision on the production of such items, the Communication Officer at the AWF should be consulted.

13.2 Promotional items bearing the AWF logo can be distributed to support communications activities related to the project funded by AWF. This may include T-shirts, caps, pens, notebooks, USB keys etc.

PROJECT SPECIFIC WAIVER FOR IMPLEMENTING PARTNER

AWF acknowledges that the guidelines will fully apply to the Recipient but recognizes and agrees that the implementing partner Sanergy will not explicitly advertize this grant to residents of the target communities and communities where this program may scale in the future – as this might compromise the viability of the business model. The up-scaling of the provision of hygienic sanitation to residents of Nairobi's urban slums, which is at the core of the project, will be through franchising a network of public toilets and the provision of associated services, such as waste collection, business support, marketing and training. Sanergy will therefore promote its own "FRESHLIFE" brand of hygienic toilets and be exempted from AWF branding on visible infrastructure, and community facing program materials. This is based on AWF understanding that:

- Sanergy's franchisees / operators run the toilets as a business. Prominent advertising of donor funding will lead to expecting free facilities and services. This makes it difficult for the operator to run the facility as a business. Not attracting customers will cause the entire sanitation value chain breaks down and make it impossible to demonstrate the benefits of the business model based on branding and franchising – which is the main purpose of the project.
- Sanergy is very much focused on building a community-based Kenyan organisation. Residents of the target community take pride in how they are a hard-working community that is lifting itself out of poverty. Prominent display of donor funding, such as AWF branding and marking, would put at risk this critical aspect of the critical drive toward sustainability.

The aim of this AWF grant is to catalyze the scaling of innovative market based solutions, with the primary audience being service providers, technical experts, and other potential investors that will enable the project to acquire the necessary resources. The main communication materials targeting this audience will be websites, oral presentations, conference papers and periodic updates where the AWF will be clearly mentioned.