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REPUBLIC OF GHANA
A Business Approach for Improved Sanitation in Ghana – Organic Fertilisers and Energy as Drivers

Proposed sanitation site and anaerobic digester for waste co-composting in Ashaiman, 2012

APPRAISAL REPORT

TUNIS, MAY, 2013

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LIST of ABBREVIATIONS and ACRONYMS

AfDB	African Development Bank
AMCOW	African Ministers' Council on Water
ASHMA	Ashaiman Municipal Assembly
AWF	African Water Facility
AWV	Africa Water Vision (2025)
BNARI	Biotechnology and Nuclear Agriculture Research Institute
BOOT	Build, Own, Operate, and Transfer
CN	Concept Note
CoC-RWDP	Church of Christ Rural Water Development Program
CONIWAS	Coalition of NGOs in Water and Sanitation
CSB	Communal Sanitation Block
EPA	Environmental Protection Agency
AWF	African Water Facility
FASDEP	Food and Agriculture Sector Development Program
FS	Faecal sludge
FSM	Fully integrated and sustainable management system with reuse
GIDA	Ghana Irrigation Development Authority
GPRS	Growth and Poverty Reduction Strategy
IFDC	International Fertiliser Development Centre
MESSAP	Municipal Environmental Sanitation Strategy and Action Plan
MDGs	Millennium Development Goals
MLGRD	Ministry of Local Government and Rural Development
MOFA	Ministry of Food and Agriculture
PRUSPA	Private Utility Service Providers Association
SDI	Slum Dwellers International
SSA	Sub-Saharan Africa
SSF	Safi Sana Foundation
SSGL	Safi Sana Ghana Limited
SSH	Safi Sana Holding BV
TMA	Tema Municipality
TPP	Tri-Partite Partnership, Improved Sanitation Project
TREND	Training Research and Networking for Development Group
USP	Urban Sanitation Portfolio
WASH	Water, Sanitation and Hygiene sector
WT plant	Waste Treatment plant

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RESULT-BASED LOGICAL FRAMEWORK

Country and Project Name: GHANA – A Business Approach for Improved Sanitation in Ghana – Organic Fertilisers and Energy as Drivers
Project Objective and Sector Goal: Improved hygiene, health and quality of life for urban slum communities in Ghana through demonstrated and replicable business models for improved sanitation services and waste management; contributes to the sector goal of providing 90% of the population with a domestic toilet by 2020 and the remaining 10% with access to hygienic public facilities

	RESULTS CHAIN	PERFORMANCE INDICATORS: Indicator (including CSI)	PERFORMANCE INDICATORS: Baseline	PERFORMANCE INDICATORS: Targets	MEANS OF VERIFICATION	RISKS / MITIGATION MEASURES
IMPACT	Improved health conditions and welfare for urban slum communities through improved environmental sanitation, food security and access to clean energy in Ghana	1) Reduction in environmental pollution 2) Enhanced food production 3) Bio-energy production	1) 30% reduction in environmental pollution 2) 2% organic matter in top agricultural soil 3) n/a	1) 20% reduction in 2020 2) 10% increase by 2020 3) 10 MW by 2020	National Ministerial Reports on Sanitation, Health, Waste, Energy and Agriculture	*Inadequate funding to support scaling to other parts of Ghana.* The successful implementation of the project will leverage further financial support and lead to improved local technical capacities.
OUTCOME	1) Increased access to improved sanitation 2) Increased private sector investment in affordable municipal-level anaerobic waste treatment approach 3) Enabling regulatory framework for accelerated national access to bio-fertilisers and energy 4) Improved knowledge on sustainable and replicable business models for combined FS / organic waste re-use	1) Number of persons with access 2) Persons served by replicated business model 3) Fertiliser certification and Renewable Energy to grid 4) Customers served and utilizing bio-fertilisers	1) 69,000 in 2011 2) n/a 3) MoFA certification of FS fertilisers; Energy Bill 2011 applied 4) 69,000 in 2011	1) 125,000 persons benefitting from improved environmental sanitation by 2015 2) 300,000 customers served by 2020 3) Government regulatory framework; certification and operation licences by local entrepreneurs secured by 2013 4) 300,000 in 2015	1) Municipality Sanitation (MMDAs) Report 2) National Ministry Reports 3) EPA reports 4) Market reports	*Untimely release of land for the sanitary facilities and production plant could delay project start up:* The project site is an official demarcated sanitary site for ASHMA municipality waste treatment and discussions are on-going with ASHMA and MLGRD; An MoU is signed confirming immediate availability.

OUTPUT	***Component 1: Sustainable waste collection and storage***					
	1.1. Improved public toilets 1.2. Operational public toilet and organic waste collection; supported by hygiene campaigns	1.1. No of public toilets constructed / rehabilitated 1.2. No. of male/female public toilet operators recruited, trained and no. of hygiene campaigns undertaken.	39 public toilets in target municipality unimproved n/a	1.1. 3 gender-segregated public toilets rehabilitated and 1 new constructed by 2015 1.2. 1 Operations training manual; advocacy, multi-media IEC materials; and behavior change hygiene workshops/campaigns by 2015	Progress reports	*Bio-fertiliser sales are lower than expected.* Tests undertaken with end-users involvement. MOFA's committed to provide advocacy through its extension services. Other markets for the bio-fertilisers will be explored beyond urban agriculture.
	Component 2: Waste treatment & Safe Re-use					
	2.1. Operational anaerobic co-composting waste treatment plant 2.2. Established bio-fertiliser and biogas production units 2.3. Trained staff for production	2.1. No and capacity of treatment plant (digester) 2.2. No and capacity of treatment plant and production units (electricity, fertiliser) 2.3. Recruitment and training of Management, production and sales staff	n/a n/a n/a	2.1. 1 Anaerobic waste treatment plant (2500 m^3) by 2014 2.2. 1 bio-fertiliser production unit (500 tons/yr.) 1 Combined Heat and Power Plant (capacity 100 kW el) by 2014 2.3. 16 production units staff trained, of which 50% women, by 2014	Progress reports	*Delay in implementation of preferential electricity tariff.* MoE, the EC and PURC committed publish thresholds and quotas. PURC confirm that the capacity of the energy produced would qualify for preferential tariff.
	Component 3: Market entry of bio-fertiliser and electricity					
	3.1. Waste-based fertiliser sold 3.2. Renewable energy connected to grid 3.3.Operational bulk sales structure	3.1.Quantity of packaged bio-fertiliser and number of clients 3.2. Electricity sold to grid 3.3. Signed contracts with identified power and bio-fertiliser purchasers	n/a n/a n/a	3.1. Sale volumes of, at least, 300 tons/yr and application by 1300 farmers by 2015 3.2. 1600 kWh/d by 2014 3.3. At least 1 contract with EC and PURC and 1 contract with MOFA	Progress reports	*See above*

OUTPUT	*Component 4: Project management and Knowledge management*					
	4.1.Project inception 4.2. Project implementation 4.2.Monitoring, reporting and evaluation 4.3.Knowledge generation & dissemination 4.4.Project Promotion Event & Preparation of new follow-up investment projects	4.1. Work programme and annual budgets 4.2. Quarterly activity reports, work-programme implemented, M and E reports - project progress reports and annual financial statements and audit reports 4.3. a) Marketing of products, Tools development, knowledge plan and products prepared and shared; b) 2 Masters (MSc.) thesis on biogas production/bio-fertiliser submitted 4.4. Documented project results, final project workshop organised	n/a n/a n/a n/a	4.1. Prepared / updated annually, covering 18 months 4.2. QPR submitted with Goods, Works and Services procured in accordance with plan 4.3. Production of 2 case studies; 4 fact sheets; 2 briefing notes; 2 MSc thesis; NLLAP meetings & website hosting 4.4. Project completion and audit report	Progress, completion and audit reports	*Diverse government stakeholders involved in the implementation of the project may potentially complicate the management of the project and slow implementation.* Stakeholders have been consulted and will be represented in the project steering committee. MoUs with clear TORs will be signed.

INPUTS (in Euros)			
Component 1: Sustainable waste collection and storage	€ 151,250	**AWF**	**€ 1,084,500**
Component 2: Waste treatment & Safe Re-use	€ 755,325	**Safi Sana Ghana Ltd**	**€ 431,000**
Component 3: Market entry of bio-fertiliser and electricity	€ 71,600	**Total**	**€ 1,515,500**
Component 4: Project management and Knowledge management	€ 465,150		
Contingencies (5%)	€ 72,175		

EXECUTIVE SUMMARY

The sanitation situation in Ghana is currently dire, with approximately 15% access to improved sanitation and with almost 20% of the total population with no toilets at all (Ministry of Local Government and Rural Development, MLGRD, 2011). There is lack of adequate home latrines in many low income communities and the majority of the poor population use communal and public toilets thus contributing to fast generation of faecal waste that is currently discharged untreated to drains, water courses and streams. Less than 15% of the faecal waste generated in Accra (and Kumasi) is effectively treated (Environmental Sanitation Policy, 2010). Other challenges such as inadequate enforcement of laws and regulations and lack of an effective waste collection and management services and weak institutional capacities are contributing to the current '*sanitation crisis'* in Ghana (Municipal Environmental Strategy and Action Plan, MESAP).

Improving environmental sanitation is one of the key considerations of the Medium-Term Development Policy Framework (MTDPF, 2010-2013). The MTDPF identifies the strategies for improving environmental sanitation which include acquisition of land for final treatment and disposal in major cities and supporting public-private partnerships in waste management and building capacities (Environmental Sanitation Policy, 2010).

The proposed project, which is supported by the African Water Facility (AWF), is in line with one of the AWF objectives – to contribute to strategic investments in the water supply and sanitation sector and prepare investment projects – and is also in line with the Ashaiman Municipal Sanitation Strategy and Action Plan. It provides a business-driven model concept that brings sustainable gains to the target beneficiaries through the utilisation of waste as a resource.

The project target location, Ashaiman Municipal Assembly (ASHMA), has non-functioning faecal waste treatment stabilisation ponds, abandoned over 15 years ago – hence no faecal waste treatment is undertaken in ASHMA. The overarching goal of the project is to improve sanitation and waste management services in ASHMA to catalyse improved hygiene, health and quality of life for urban slum communities in Ghana through demonstrated and replicable business models for improved sanitation services and waste management. The output of the project is an up-scaled faecal and solid waste treatment plant with a treatment capacity of 9,000 tons of waste per year. The project will set-up a production and sales organisation for bio-fertiliser (capacity 500 tons/per year) and electricity generated from biogas to be fed into the local grid (capacity 580,000 kWh/year). The Project will also undertake the rehabilitation of three (3) existing public toilet facilities and the construction of 1 new one while also setting up organic waste collection points.

The project will directly benefit 125,000 people with improved environmental sanitation. The benefits from the project include access to improved sanitation at competitive prices (improved price-quality ratio); reduction of hygiene related diseases through improved toilet and waste management; access to green and stable energy supply; increased bio-fertiliser use in urban agriculture with higher crop yields and improved soil fertility; job creation through construction works and improved expertise; and job opportunities for men and women in safe sanitation, waste transport, treatment and re-

use. Replication in two other targeted areas within the Greater Accra Region is anticipated using leveraged resources, during the period of 2015-2016, thus increasing total number of potential beneficiaries to about 300,000.

It is recommended that an AWF grant not exceeding **1,084,500 €** be approved to TREND for the purpose of executing this project. The African Water Facility (AWF) will provide grant financing covering 68% of the project costs (**1,515,500 €**) while the Executing Agency – Safi Sana Ghana Limited (SSGL) – through the partners (Aqua For All and the Safi Sana Foundation), will co-finance the remaining **431,000 €** (32%) of the total project costs). The execution of this project will be done over a period of 36 months after signing of the Grant Agreement.

1. BACKGROUND

1.1. Origin of the Project

1.1.1. Ashaiman Municipal Assembly (ASHMA) is one of the 16 Districts in the Greater Accra Region of Ghana. ASHMA in collaboration with TREND and SSGL have identified a project to develop and demonstrate a sustainable and replicable business model which will improve the sanitation, waste disposal and management through production and sale of bio-fertiliser and renewable energy from a mix of faecal and organic waste.

1.1.2. This project was identified through a Call for Proposals under the AWF's portfolio of projects benefitting the urban poor without access to sewers, intended to improve service delivery through affordable and sustainable sanitation services and technologies, with possibilities of leveraging investment funds for sanitation, governance strengthening and knowledge generation.

1.1.3. For this business model project, the Executing Agency, SSGL, further utilises the results of an existing anaerobic co-composting pilot project which started in 2010 in Ashaiman Municipality, and which is funded locally (Energy Commission Ghana) and by Dutch donors (AQUA for All, Shell, DGIS) . This pilot phase acts as an inception phase of this proposed project. The project also builds on the AWF-funded TPP project which focuses on improving WASH services in 3 municipalities including Ashaiman in which TREND and SSGL have cooperated.

1.1.4. This intervention will facilitate the development of a business model with drivers leading to improved and better access to sanitation in un-sewered urban poor areas in Ashaiman Municipal Assembly (ASHMA), with potential for leveraging resources from the private sector for further scaling up to other areas of the Greater Accra Region. Ghana is not on course to achieve MDG 7 in full. Even though Ghana is on track to achieve the water target, critical challenges exist in achieving the sanitation targets of reversing the loss of environmental resources, reducing the proportion of people without access to improved sanitation, and achieving significant improvement in the lives of people living in slum areas. The project additionally has a knowledge generation component, which will involve research (with BNARI and with Masters students from the University of Ghana and KNUST) and institutional capacity strengthening.

1.2. Sector Status and Priorities

1.2.1. The project is in line with the following key national policy and strategic frameworks:

i) Medium-Term Development Policy Framework (MTDPF, 2010 – 2013);
ii) National Environmental Sanitation Policy, 2010;
iii) Ghana Shared Growth and Development Agenda (GSGDA) costing Framework (2010-2013);
iv) The National Environmental Sanitation Strategy and Action Plan (NESSAP, 2010);
v) The 'Renewable Energy Bill', 2011.

1.2.2. Environmental Sanitation is one of the key priorities of the Medium-Term Development Policy Framework (MTDPF, 2010–2013) and a pillar of MTDPF's Expanded Development of Production Infrastructure.

1.2.3. During the last decade, the Ghana Government Reforms delegated the responsibility of urban sanitation to the local governments – Metropolitan, Municipal and District Assemblies (MMDAs) – who ensure collection and final disposal of solid waste through their Waste Management Departments (WMDs) and Environmental Health and Sanitation Departments. The Ministry of Local Government and Rural Development (MLGRD) and Ministry of Water Resources Works and Housing (MWRWH) are responsible for setting sanitation policies and coordinating funding for the subsectors.

1.2.4. The Ghana Government recognises that Environmental Sanitation is a powerful driver of human development in terms of improving health and increasing wealth. All MMDAs have developed waste management and environmental health plans while the Environmental Protection Agency (EPA) examines the impact of sanitation development activities on the environment. At the level of regulation, *The Expanded Sanitary Inspections, Compliance Management and Enforcement (ESICOME)* programme, initiated in 1999 addresses inspection, environmental hygiene education, dissemination of sanitary information, and enforcement of sanitary regulations.

1.2.5. The project responds to the policy and strategic focus of the Ministry of Energy, in particular the recent '*Renewable Energy Bill'* which makes provision for the *'development, management and utilisation of heat and power in an efficient and environmentally sustainable manner'.* This reinforces the current NESSAP central philosophy - *Materials in Transition* (MINT) – which views waste as a material resource. It further contributes to the implementation of the National Environmental Sanitation Strategy and Action Plan (NESSAP, 2010) and offers the Ashaiman Municipal Assembly and the relevant government counterparts an immediate opportunity to leverage further private sector investment in renewable energy sources and in promoting green economy in Ghana and has potential for large scale application.

1.3. Problem Definition and Opportunities

1.3.1. This project has been designed with recognition of the current sanitation crisis which has resulted in serious waste pollution resulting in health, environmental and developmental problems. According to the JMP report (2010), only 13% of the Ghana population have access to improved toilets; 54% use shared toilets; 13% use unimproved toilets, 3% use pan-latrines in houses (banned a decade back) and 20% practice open defecation. Close to 5.2 million people will have to be provided with improved household sanitation facilities from 2010 till 2015, (NESSAP, 2010). More than 20,000 households – of which 5,200 are in Accra alone – rely on banned pan latrines. Open defecation costs Ghana US$79 million per year with additional social costs (including loss of dignity, lack of privacy and exposure to other security risks) while US$19 million are lost each year in access time.[1] The use of public toilets is still

[1] Recent WSP (March 2012) study

prevalent with 30% of households relying on various public toilets – WCs, KVIPs and Aqua Privies. Faecal contamination of the environment is the root cause of an annual average of 1,800 cases of cholera affecting Ghana.

1.3.2. From the baseline environmental sanitation data gathered in 2008 by MMDAs, about 76% of households still rely on improper waste collection and disposal methods. Most of the solid waste management and disposal is undertaken by the private sector to address the increasing amount of waste generated and the inadequacy of waste disposal and treatment facilities. In total, up to 85% of all refuse generated is currently not collected and disposed of in a proper manner.

1.3.3. Accra has no engineered landfill site and refuse is disposed in abandoned quarries in adjoining districts of Ga West and Weija. According to the GPRS II, in terms of economic costs about 5.5% of GDP (GHS 475 million per annum) is lost annually due to degrading environmental resources. Human waste from public toilets and organic waste (e.g. from local food processing industries), pose huge health and environmental risks resulting in huge sanitation costs for households and the government[2].

1.3.4. Current *sanitation investment* in Ghana is less than 0.1% GDP which is much lower than what is required. Increased investments in sanitation and hygiene promotion are required not only to realise health and welfare benefits of sanitation but also to avert large economic losses. The 2nd AMCOW Country Status Overview (CSO2) urban sanitation and hygiene scorecard for Ghana (which assesses the transformation of inputs – finance - into services) identifies *budget and use* as the specific bottlenecks in the pathway and planning for urban sanitation[3]. The cost of the necessary WASH response is estimated to be US$1.2 million each year[4]. Additionally, there is a heavy reliance on open drains for sullage and 'grey' water conveyance. Poor Solid Waste Management makes the maintenance of these drains more difficult (NESSAP, 2010).

1.3.5. According to the Netherlands Development Organisation (SNV) (2007), Ghana has the potential of realising about 280 000 domestic plants capable of producing about 6000 m^3 of liquid fertiliser daily, this biogas effluent is estimated to increase agricultural production by 25% (cited in the Design for Re-use project, MA Thesis, July, 2012). This study confirms that in Ghana, different small-scale biogas technologies have been proven to be a cost effective alternate source of energy that can treat the waste and produce energy which can be used to offset the operations and maintenance of the plants.

1.3.6. There is little *treatment of faecal sludge* in Ghana and there is no existing waste treatment plant in Ashaiman Municipal District. The MTDPF (2010-2013) and the Environmental Sanitation Policy (Revised, 2009) emphasise improvements in disposal

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2) A recent study published by the MLGRD reveals a total cost of US$290 million per year, related to poor sanitation in Ghana. Open defecation contributes US$79 million and premature death from poor water, sanitation and hygiene contributes a total of US$215 million (Environmental Health and Sanitation Directorate – MLGRD, February 2012)

3 In-country e-Thekwini Monitoring, 2011

4 WHO Global Health Atlas, Cholera cases 2005-2009

sites and R&D that will lead to more information on all waste streams and have recommended the provision of improved disposal for wastes as a key strategy for improving services. Wastewater is used in urban agriculture and depending on the season, supports 47-162 ha of vegetable production and up to 800 ha of maize in Accra. In this Project, waste will be the raw material for the production of bio-fertiliser and energy, with direct benefits to the target community, the environmental sectors and the Ghana economy.

1.3.7. The responsible government institutions have weak resource, management and regulatory capacities; this has huge impacts on the state of sanitation in the target area and in the country in general. The current NESSAP (2010), therefore, advocates for institutional strengthening and capacity enhancement.

1.3.8 Being a relatively young municipality which was carved out the Tema Metropolitan Assembly in 2008, detailed statistical figures and sanitation and related records are almost non-existent for ASHMA, however, the deplorable sanitation within the municipality is a common sight. Most households in Ashaiman do not have domestic toilet facilities in their houses thus putting pressure on the limited public toilet facilities. This has led to the indiscriminate/open defecation in the area. Also, indiscriminate disposal of refuse is common even though the town benefits from an organised system of refuse collection by the municipality. The sanitation problem has been compounded by the fact that most residents prefer littering the town to paying for the disposal of the refuse they generate.

1.4. Justification for AWF Involvement

1.4.1. The project is in line with the country's Growth, Poverty Reduction Strategy Paper II; the Bank's Country Strategy for Ghana; and is closely aligned with the AWF's strategic plan 2012-16. The project promotes the role of the private sector in sustainable development thus corresponding with the AWF's Facility's strategic priorities[5] and areas of intervention under the Urban Sanitation Portfolio (USP) of projects meant to lead to affordable and financially and environmentally sustainable sanitation services for un-sewered urban poor communities.

1.4.2. This project will complement existing African Development Bank's support to the Ghana water and sanitation sector: i) a partnership project including TREND and the ASHMA (2009), implemented through a *Tri-partite partnership (TPP)* arrangement, which focuses on improving WASH services in Ashaiman; ii) the *Legon Sewerage Treatment Plant* built under the Accra Sewerage Improvement Project (ASIP) to undertake aerobic waste treatment for both black and grey-water and iii) the *Design for*

5 AWF's 3 key strategic priorities for 2012-2016 are identified as follows: i) Prepare investment projects to mobilise investment funds; ii) Enhance water governance to create conducive environment for effective and sustainable investments; and iii) Promote water knowledge for the preparation of viable projects and informed governance leading to effective and sustainable investments, (See AWF Strategic Plan 2012-2016, pp.32, http://www.africanwaterfacility.org/en/publications-reports/).

Re-use pilot project which introduces a market- and end-user oriented planning approach and institutional capacity building.[6]

1.4.3. As part of AWF's focus to support African countries to meet their development goals, including delivery of infrastructure for improved basic service delivery, the project is an integrated approach which is highly relevant in supporting the implementation of the Ashaiman Municipal Sanitation Strategy and Action Plan. In addition, it will offer a demonstration of how an integrated solution with the elements of sanitation and waste collection can convert damaging waste into valuable products within a Sanitation Value Chain Approach thus closing the loop.

1.4.4. The African Water Facility acknowledges the importance of the project outcomes in contributing to its mandate to support the African Ministers' Council on Water (AMCOW) in its implementation of the Africa Water Vision and its 2011-2013 work plan that puts emphasis on increasing the sanitation and hygiene profile, with a focus on delivery of infrastructure and on sanitation-related governance issues. The knowledge management component of the project will inform AMCOW's members as they plan for better sanitation.

1.5. Objectives of the Project

1.5.1. The main objective of the project is to catalyse improved hygiene, health and quality of life for urban slum communities in Greater Accra through demonstrated and replicable business models for improved sanitation services and waste management.

1.6. Beneficiaries and Stakeholders

1.6.1. The Project will benefit approximately 125,000 people by 2015 approximately 50% of the total population in the target municipality. This total number of beneficiaries has taken into account the people benefitting from improved environmental sanitation: access to improved sanitation at competitive prices (improved price-quality ratio); reduction of hygiene related diseases through improved public toilets and waste management; access to green and stable energy supply; increased bio-fertiliser use in urban agriculture with higher crop yields and improved soil fertility; job creation through construction works and improved expertise; and job opportunities for men and women in sanitation, transport, waste treatment and agriculture resulting from this Project. The private sector will benefit from the project through participation in contracts for goods, works and services.

1.6.2. *Target area:* The Ashaiman Municipal Assembly is one out of 10 Districts in the Greater Accra Region. The Ashaiman Municipality has an estimated 240,000 inhabitants with an annual growth of 5%. The choice of the project area was based on the low improved sanitation coverage and the fact that there is currently no faecal waste treatment taking place in the area despite the fact that part of the population is networked to the municipal sewerage system. Additionally the few solid waste

6 Some of the results of the Design for Re-use project on biogas production have been considered in the design of this project.

dumpsites in the area are abandoned hence both faecal and solid wastes are neither treated nor properly disposed of.

Partnerships

1.6.3. In view of the inter-sectoral nature of this intervention, this project has been designed using a collaborative tri-partite effort between SSGL, TREND, and ASHMA, and has an active multi-stakeholder participation of both public-private sector actors and civil society. TREND will be the Grant Recipient undertaking the financial administration, knowledge management and reporting functions. SAFI SANA Ghana Limited (SSGL) is the Executing Agency and will work in close collaboration with the Ashaiman Municipal Assembly (ASHMA) to implement the four project components defined under this project. TREND's role will be of supplementary value to SSGL and is a continuing collaboration in Ashaiman in the AWF TPP project.

1.6.4. The key partners involved in the execution of the project are defined confirmed as follows:

- *Ashaiman Municipal Assembly (ASHMA)* – Will be involved as a key partner in facilitating and making available the sanitary site for the operation of the waste treatment plant, ensure access road to the site is provided and facilitate the utilisation of selected public toilet service blocks for the removal of faecal waste and access to organic waste needed for the project. Monitoring and necessary oversight to ensure regulation will be the responsibility of MLGRD and EPA.
- The *Ministry of Food and Agriculture (MOFA)* which supports private sector participation in improving soils and crop production will inspect the production units to ensure conformity with required soil nutrients and ensure safety in re-use before providing necessary certification of the bio-fertiliser application. MOFA will offer the services of its Extension Officers to support advocacy (information sharing, demonstrations and training of farmers).
- *BNARI:* SSGL has an on-going collaboration with BNARI in the testing of the co-compositing fertilisers under the SSGL pilot project. It is anticipated that this support will be sustained to undertake production staff trainings; process development; and documentation of laboratory tests at comparable costs.
- The *Ministry of Energy (MOE):* In accordance with the mandatory requirement of the *Electricity Commission (EC)* to buy renewable energy (Renewable Energy Bill, 2011), MoE through its institutions, the EC and PURC, will be responsible for providing the 'Preferential tariff' to enable the sale of the bio-energy to operate under the de-regulated markets and the necessary government regulation regarding installation and supply.

1.6.5. Community associations (e.g. cesspit emptiers) and civil society will be involved in the hygiene promotion, behavior change and targeted education campaigns and demonstrations. Through the stakeholder representation in the project steering committee, beneficiaries and project partners will engage in the quarterly assessment of the implementation, offer strategic guidance resulting in local ownership. A detailed list of the roles and responsibilities of all the partners and stakeholders involved in the project is provided in Annex 6.

2. THE PROJECT

2.1. Project Objective and Sector Goal

2.1.1. The overall goal of this project is to catalyse improved hygiene, health and quality of life for urban slum communities in Ghana through demonstrated and replicable business models for improved sanitation services and waste management. The project will thereby contribute to the sector goal of providing 90% of the population with a domestic toilet by 2020 and the remaining 10% with access to hygienic public facilities.

2.2. Impacts

2.2.1. The expected long-term impact of the project will be “Improved health conditions and welfare for the urban slum communities through improved environmental sanitation, food security and access to clean energy in Ghana”.

2.3. Outcomes

2.3.1. The Outcomes of this project will be two-fold: i) direct outcomes from this AWF funded component; and ii) subsequent outcomes relating to the scaling up projects in the target area based on the lessons learnt and from being part of the business planning of the SSGL.

2.3.2. Four (4) key outcomes are anticipated:
Direct outcomes:

i. Increased access to improved sanitation
ii. Increased private sector investment in affordable municipal-level anaerobic waste treatment approach

Subsequent outcomes:

iii. Apply new regulatory framework for accelerated national access to bio-fertilisers and energy
iv. Improved knowledge on sustainable and replicable business models for combined sludge/organic waste re-use

2.4. Outputs and Activities

2.4.1. The main Output of the Project is the establishment of the anaerobic (co-compost) Waste Treatment plant (2500 m^3) and a full waste resourcing, production and sales organisation for the sale of bio-fertiliser (capacity 500 tons/year) and electricity to the local grid (estimated at 580,000 kWh/year).

2.4.2. The project has 4 key components. The activities that will help realise the key outputs of these components are as detailed below:

Component 1: Sustainable waste collection and storage
Component 2: Waste treatment & Safe Re-use

Component 3: Market entry of bio-fertiliser and electricity
Component 4: Project management and Knowledge management

Component 1: Sustainable waste collection and storage

Outputs
1.1. Improved public toilets and services operational
1.2. Male and female public toilet/ organic waste collection operators trained and hygiene behaviour change campaigns undertaken
1.3. Organic waste collection points established
1.4. Defined incentive scheme for waste collection and disposal

Activities
1) *Construction and rehabilitation of public toilets: 1 new public toilet will be constructed near the waste treatment site and 3 existing public toilets facilities will be rehabilitated undertaken through local contractors.*
2) *Recruitment and training of public toilet operators*: Male and female toilet operators will be identified and trained to ensure the toilets provide the quality required for transport to the co-composting waste treatment plant.
3) Preparation and implementation of hygiene promotion campaigns: This will be achieved through a stakeholder-based education programme using multi-media IEC materials and workshops for hygiene awareness and management know-how with a special focus on increasing the capacity of women. Emphasis shall be placed on environmental health and hygiene education for purposes of maintaining acceptable sanitary conditions in the rehabilitated and new public toilets.
4) Establishment and operationalization of organic waste collection points: Collection of organic waste will be organised through signed supplier contracts and collection points will be defined within ASHMA with the support of the municipality.
5) Preparation and implementation of incentive scheme for waste management; The collection of 'high quality' waste is one of the critical success factors of the model and requires an incentive scheme for emptying fees for the public toilet operators (up to 15% discount) and dump fees for the waste transport companies who are responsible for the supply of quality waste. The current rates for de-sludging are approximately 150 cedis (7 m^3 truck) up to 200 cedis (10 m^3 truck).

Component 2: Waste Treatment and Safe Re-use

Outputs
2.1. Operational anaerobic co-composting waste treatment plant
2.2. Established bio-fertiliser and biogas production units
2.3. Trained staff for production
2.4. Functional waste management ICT system

Activities
1) Preparation of land for the treatment plant: The land preparation will involve physical work including clearing the site and preparing the access road to be undertaken by ASHMA as stipulated in the signed MOU. The community will as much as possible be utilised in providing any required paid labour to the contractors. The anaerobic waste

treatment plant will be built on the land of the defunct sewage treatment ponds owned by ASHMA. SSGL and TREND in collaboration with ASHMA and MLGRD will finalise the land surveys and secure the land title related documentation.
2) Construction and installation of waste treatment units (bio-fertiliser and biogas: The installation of works involves the setting up of an anaerobic digester made from reinforced PVC membrane (for faecal sludge and solid waste) with a volume of approx. 2500 m^3 and including the gas motor and generator to produce between 1600 to 2400 kWh/day i.e. approximately 580,000 kWh/year (electric) to feed into the grid[7] - will enable the establishment of two production units: for bio-fertiliser and biogas energy.
3) Recruitment and training of management, production and sales staff: The operations and management manual for this plant will be prepared by the supplier. An operations office complete with a functional waste management ICT system and at least 16 full-time staff will be hired by SSGL and trained for the effective management of the production and sales of the products.

Component 3: Market entry of bio-fertiliser and electricity

Outputs
3.1. Waste-based fertiliser sold
3.2. Renewable energy connected to grid
3.3. Operational sales structure established

Activities
1). Market preparation of bio–fertiliser and electricity: The project implementation team shall undertake series of innovative seminars, advertisements and workshops aimed at sensitising the targeted market to create awareness and acceptability of the bio-fertiliser. MoFA is committed to providing inputs of its extension services to promote the bio-fertiliser following its certification. TREND shall prepare communication materials and multi-media products to enhance this process. SSGL shall also carry out sensitisation programmes to highlight the positive aspects of green energy among relevant stakeholders. This is consistent with government's objective to promote green/renewable energy in Ghana.
2). Promotion of bio-fertiliser and renewable energy: SSGL will identify appropriate farmers within the Greater Accra region and sign purchase agreements with them to facilitate sales and utilisation of the bio-fertiliser. Similarly, SSGL shall sign a power purchase agreement (PPA) with the Electricity Company of Ghana for the sale of the energy generated from the biogas. All long term activities of quality control and support will be financed from a revolving fund financed with revenues from sales of bio-fertiliser, electricity and discounted dump fees.
3) Preparation and signing of supplier contracts for bio-fertiliser and electricity. The sale of bio-fertiliser will take into account the fact that on both the eastern and northern sides of ASHMA there is a lot of agricultural activity and the actual waste treatment plant will

[7] This anaerobic digester is proposed to be sole sourced (design, supply, installation). It has been ascertained that this size of reactor is not available on the market in Ghana and that international completion would be feasible for more expensive conventional digesters (concrete, steel) but not for the envisaged low cost (reinforced PVC bag) type of digester.

be situated within the Ghana Irrigation Development Authority (GIDA) lands where farming is already taking place. Other markets including hotel gardens, city beautification and private land application will be explored through advocacy. The generated green energy will be plugged on to the local electricity grid.

Component 4: Project Management and Knowledge Management

Outputs

4.1.Project inception
4.2. Project implementation
4.2.Monitoring, reporting and evaluation
4.3.Knowledge generation & dissemination
4.4.Project Promotion Event & Preparation of new follow-up investment projects

Activities

1) *Mobilisation, Work-plan (initial 18 months) and budgets prepared.* During the *inception* phase SSGL and TREND will mobilise the multiple partners (public and private), initiate processes of required certification and engage through a project launch/inception workshop to give all major stakeholders orientation of the project and to define the steering committee composition, roles and responsibilities and gain consensus on the work-plan. SSGL will obtain the required environmental permits in line with the Environmental Protection Agency (EPA) regulations and procedures in the designs, before start-up of project activities.
2) *Project Implementation* will be undertaken in line with the agreed work-plan and the implementation schedule of all the project components 1-4. SSGL and TREND will work collaboratively to ensure the required procurement of goods, works and services detailed under Annex 1 is undertaken in accordance with the defined schedule and in line with both the Bank procurement procedures and the national procurement rules. This activity will include securing consultancy services for the following: i) preparation and signing of supplier and service contracts for public toilets and waste operators; Preparation of training manuals and workshops; Design of bio-fertiliser branding; Product certification; Preparation of bio-fertiliser promotion materials and facilitation of workshops; bio-fertiliser product development and field testing; and energy grid design and purchase agreement. In addition, the activities will be implemented with support from the supply and installation of an Aecobag PVC reinforced anaerobic digester (for faecal sludge and solid waste) with a volume of approx. 2500 m^3 and including the gas motor and generator (100 kW capacity).
3) *Monitoring, Evaluation and reporting*: effectiveness and efficiency, monitoring and evaluation will be enhanced at 2 levels; internally by the steering committee; and externally by the AWF in accordance with the procedures of the Bank and as will be detailed in Grant Agreement.
4) Production of marketing products, tools and knowledge plan: Knowledge generation and transfer will be achieved through research and collaboration with the University of Ghana and KNUST which will involve 2 Masters of Science (MSc) theses on biogas/bio-fertiliser production; and through diverse multi-media activities (e.g. website and local media), generation of IEC materials – 2 case studies, 4 fact sheets, 2 briefing notes. ASHMA, the steering committee, project team and the local entrepreneurs in the

operation will undergo capacity strengthening and education through targeted training programs. TREND will design and manage a dedicated website for information sharing.
5) *Workshop on final project results organised*: It is expected that project progress reports, monitoring and evaluation reports (including annual audits) and a final workshop and project report will be generated in line with reporting requirements detailed under section 3.6.5.
6) *Follow-up investment projects defined*. This will be based on the outcomes of the project and the needs defined from the workshops.

2.5. Risks and Assumptions

2.5.1. The following may pose potential project risks which would cause delays in project implementation:

Risk 1: Inadequate funding to support scaling up of the business model to other parts of Ghana

The successful implementation of the project will lead to leveraging of further financial support and improved local technical capacities. There is, for instance, interest already shown in the project by the Dutch Ministry of Foreign Affairs (DGIS), which in March 2013, by means of the 'Sustainable Water Fund' (FDW), has approved the Safi Sana application for follow-up investments to replicate the project in two other Districts in the Greater Accra Region.

Risk 2: Delayed availability of land for the sanitary facilities and production plant could delay project start up

The project site is an official demarcated sanitary site for ASHMA municipality waste treatment surrounded by the MLGRD/municipality-assigned Ghana Development Irrigation authority farming land. Discussions with TREND, SSGL, ASHMA and MLGRD have resulted in a firm commitment from the government counterparts through a signed MoU confirming immediate availability of this site to the project and facilitation of the recovery of the access road from the farmers.
It is assumed that SSGL and TREND's on-going inter-sectoral collaboration with ASHMA, MLGRD and other line ministries will be utilised during the execution of this project. The project has additionally consulted and sought the collaboration with the relevant stakeholders and beneficiaries for buy-in. It is further assumed that representation in the Project Steering Committee will bring added value in fast-tracking the project processes.

Risk 3: Bio-fertiliser is not accepted by the farmers and sales are lower than expected

The criteria and tests on the quality of bio-fertilisers were done with end-users involvement during the pilot phase. It is further assumed that through MOFA certification there will be public confidence in the quality and effect of using the bio-fertilisers beyond the farmer market. It is assumed that MOFA's commitment to provide advocacy through its extension services will enhance market entry and sales.

It is assumed that the design specifications for the construction and installation of the large size low-cost reactor suitable for co-digestion of faecal sludge and solid organic

waste will be supplied with at least 3-year warranty and spare parts for 10-year operation. Additional warranty, spare-parts and services to ensure smooth operations and sustainability of the bio-fertiliser and biogas production should be quoted.

Risk 4: Diverse government stakeholders involved in the implementation of the project may potentially complicate the management of the project and slow implementation.

The key government stakeholders have been consulted and shown their commitment and will be represented in the project steering committee. Memoranda of Understanding with clear terms of reference will be prepared and signed with the stakeholders before the commencement of the project.

2.6. Costs and Financing Plan

2.6.1. The estimated total cost of the project excluding taxes is **€ 1,515,500** which includes price escalation and contingencies. The AWF grant financing amounts to **€ 1,084,500** covering 68% of the project costs. This amount will cover costs related to the hardware investment related to the waste treatment (WT) plant; market entry preparation costs; and associated consultancy services. The SSGL partners - Aqua For All and the Safi Sana Foundation- will co-finance the remaining **€ 431,000** that will cover cost related to the following: construction of one public toilet, rehabilitation of 3 existing toilets, hygiene promotion activities, project management cost, product development cost (market proof), knowledge dissemination toolkits and activities, and consultancy cost for technical support.

Table 1: Project Summary Cost and Financing Plan
(in Euro, exclusive taxes, Exchange rate 1 GHS=0.42 Euro)

Component	*AWF*	*SSGL & Partners*	*Total Costs*
1 Sustainable waste collection & storage	62,000	89,250	151,250
2 Waste treatment & Safe Re-use	749,525	5,800	755,325
3 Market entry bio-fertiliser and electricity	35,350	36,250	71,600
4 Project & knowledge management	185,975	279,175	465,150
Sub-total	*1,032,850*	*410,475*	*1,443,325*
Contingencies (5%)	*51,650*	*20,525*	*72,175*
Total	***1,084,500***	***431,000***	***1,515,500***

2.6.2. The grant recipient/executing agency will meet the costs of the staff and facilities required by consultants during the execution of the project and will work with national and local governments to ensure tax and duty exemption. ASHMA community and government ministries contribution (e.g. land, human resources, office, vehicles, IEC materials, trainings and other in-kind contributions) to the project is detailed in Annex 6.

3. PROJECT IMPLEMENTATION

3.1. Recipient

3.1.1. The Training, Research and Networking for Development (TREND) Group will be the Grant Recipient. TREND is a local NGO with 14 years of experience in WASH and a long history of collaboration with Sector agencies. TREND is already executing AWF funded TPP project and has demonstrated its capacities for implementing the AWF grants including procurement and financial management requirements for a project of the given size and complexity.

3.1.2. SAFI SANA Ghana Limited (SSGL) is the Executing Agency and will work in close collaboration with the Ashaiman Municipal Assembly. SSGL is a social business established in 2009 by the Dutch Safi Sana Foundation, an initiative of Aqua for All Foundation, Rabobank, DHV and Shell and has strong alliances in the sector for sanitation and waste management both in Ghana and the Netherlands. SSGL started a pilot (in 2010) of the project concept of waste as valuable source for competitive products in the energy and agro market and as driver for high quality sanitary services in Accra. The pilot has necessitated testing technical processes, undertaking of market studies and the development of a local network of important stakeholders in all parts of the value chain.

3.1.3. Although SSGL is the applicant, the Appraisal mission found it a relatively young organisation in its set-up in Ghana irrespective of its strong team of successful research and commercial professionals in Ghana and in the Netherlands. Based on this assessment, TREND was identified as the preferred Recipient and this capacity will be complement the technical skills of SSGL by utilising already existing beneficiaries under the on-going AWF funded TPP project in Ghana. In view of this experience TREND will provide the necessary financial administration, procurement, knowledge management and reporting aspects of the project. SSGL has worked in collaboration with TREND in the initial stages of setting up the TPP project and both have established a good working relationship with ASHMA which will enhance coordination during execution of the project.

3.2. Project Organisation

3.2.1. The Project will be executed by SSGL through a *project team* with overall strategic planning and guidance provided by a Project *Steering Committee* comprising of SSGL, TREND, MLGRD, MoE; Energy Commission, MOFA, ASHMA, the community (CBOs, COC-RWDP) and other key stakeholders. A Project team leader/Manager in SSGL has been appointed for this project and a WASH Expert, Administrative Officer and two managers to oversee the Production Units to be hired as part of the project team. A summary of the roles and responsibilities of the project team (in an organogram) and the key stakeholders involved in the steering committee is provided under Annex 6.

3.2.2. The duration of the project implementation is 36 months from the date of the grant approval. As part of effectiveness an implementation plan has been provided under Annex 1.

3.3. Procurement Arrangements

3.3.1. Goods and works under NCB and Shopping will be procured in accordance with Ghana national procedures acceptable to the Bank, pending amendment of provisions under the national procurement act and national standard bidding documents identified in the Bank's assessment report as minor deviations from the Bank's fiduciary requirements. All procurement for consultancy services will be in accordance with Bank's rules and procedures for use of consultants (Edition of May 2008, revised in July 2012).

3.3.2. Procurement will be mainly undertaken by SSGL, in particular providing specifications and Terms of Reference for goods, works and services. TREND will assist and supervise, mainly on the correct use of rules and procedures. The Memorandum of Understanding (MoU) between both parties will define further details and modalities. TREND will be responsible for submitting the annually updated Procurement Plan (provided under Annex 2) to provide details on the particular contracts for goods, works and consulting services during the life of the project.

3.3.3. *Works:* The procurement of Works related to Components 1 and 2 – upgrading 3 existing public toilets, construction of 1 new public toilet blocks; and auxiliary works at the treatment site – amounting to **€ 228,525** will use National Competitive Bidding (NCB) procedures.

3.3.4. *Goods:* The procurement of Goods related to Component 2 of the anaerobic digester (for faecal sludge and solid waste) with a volume of approx. 2500 m^3 and including the gas motor and generator to produce 100 kW (electric) to feed into the national grid – including installation works – is estimated at **€ 465,500** will be procured using Limited International Bidding (LIB) including detailed design, supply, installation and commissioning. It has been ascertained that this size of reactor is not available on the market in Ghana. A preliminary selection of a low cost (reinforced PVC bag) type of digester is included in Annex 5 and gives sufficient specifications, functional and performance attributes. The procurement of accessories and hardware for waste treatment valued at **€ 74,000** will be carried out through shopping procedures. The procurement of Computers and office Equipment valued at **€ 10,000**, Pick-up vehicle valued at **€ 19,500** and Packaging Materials and Tools for training valued at **€ 6,895** will be procured using shopping procedures.

3.3.5. *Consultancy Services:* Procurement of Consulting Services for implementation of activities under components 1-4 during the first 18 months amounting to **€ 81,305** will be undertaken through competition on the basis of a short-list of Individual Consultants and selection based on their qualifications. Based on the on-going collaboration between Safi Sana and the Bio-Nuclear Agriculture Research Institute (BNARI) in bio-fertiliser product testing and development, and field testing during the pilot phase, this

government entity will be retained on a direct negotiation basis for this service estimated to cost **€ 38,850**.

Table 2: Procurement Arrangements (in Euros)

Description	*Shortlist **	*NCB*	*Other ***	*Non-AWF Funded*	*Total*
Consultancy Services					
Individual Consultants (Legal, workshops, design)	42,455				42,455
Bio-fertiliser & energy product development, field testing branding, certification, marketing, sales			38,850		38,850
Non AWF funded				131,300	
Goods					
Anaerobic digester, gas motor and generator to feed 100 kW/h (electric) into the grid (incl. installation of digester, gas motor, grid connection)			465,500		465,500
Accessories and hardware for waste treatment			74,000		74,000
Computers and office Equipment			10,000		10,000
Pick-up vehicle			19,500		19,500
Packaging Materials and Tools			6,895		6,895
Works					
upgrading 10 existing public toilets; construction of 2 new public toilet blocks		48,000			48,000
Treatment plant auxiliary works: Site preparation, fencing and lighting; Waste intake, drying beds, treatment pond; Fertiliser plant and office		180,525			180,525
Project and Knowledge Management					
Monitoring, Financial, Project Management, Reporting			83,435		83,435
Knowledge Management			63,690		63,690
Non AWF funded				279,175	
Sub-Total	*42,455*	*228,525*	*761,870*	*410,475*	*1,443,325*
	1,032,850				
Contingencies	*51,650*			*20,525*	*72,175*
Total	***1,084,500***			***431,000***	***1,515,500***

* includes Individual Consultants

** includes Limited International Bidding (LIB), Shopping and Direct Contracting

3.3.6. Contracts for Goods and Works of value less than € 30,000 will be subject to post review by the AWF after satisfactory prior review of the first contracts. Procurement

documents including SPNs, tender/bid documents or request for proposals, tender/bid evaluation reports as well as signed contracts will be kept by TREND and SSGL for periodic review by the supervision missions or special audits.

3.3.7. The Procurement Plan shall be updated by TREND and SSGL, annually or as needed, throughout the duration of the project. However, any revision to the Procurement Plan will be subject to prior approval by the AWF.

3.4. Disbursement Arrangements and Expenditure Schedule

3.4.1. Direct Payment will be used for the biogas digester (with CHP unit) contract, while a segregated Euro denominated Special Account (SA) will be opened specifically for the project at a commercial bank acceptable to AWF, to handle all other project related payments. The SA will be managed by TREND. TREND is currently managing the SA of the AWF TPP project and is familiar with Bank rules and procedures. A local currency (Ghana Cedi) Project Account will also be opened at the same bank to support operation of the SA and facilitate payments in local currency. Separate Euro and Ghana Cedi accounts will be opened to receive the funding from SSGL Partners. All disbursements will follow the procedures outlined in the Bank's *Disbursement Handbook.*

Table 3: Disbursement Schedule (in Euros)

Category of Expenditures	*Direct Payment*	*Tranche 1*	*Tranche 2*	*Total*
Goods	465,500	60,000	50,395	495,895
Works		120,800	107,725	308,525
Services		34,800	46,505	81,305
Operating costs		70,000	77,125	147,125
Contingencies			*51,650*	*51,650*
Total	***465,500***	***235,600***	***282,400***	***1,084,500***
Percentage	*46.3%*	*28.4%*	*25.2%*	*100%*

3.4.2. The disbursement of the AWF grant will be in two tranches according to Table 3 to be defined in the Grant Agreement. The first tranche will be disbursed when the conditions for Grant Effectiveness are met, estimated to be within three months of grant signature. The Project Management (SSGL), procurement and financial management staff (from SSGL and TREND) will have the opportunity to be trained on the Rules and Procedures of the Bank during the project inception phase.

3.4.3. Obligations of the AWF to make the first disbursement of the Grant shall be conditional upon the opening of a Special Account, the setting up of a project team acceptable to the AWF, the preparation of an implementation plan (including a procurement plan) and the presentation of memoranda of understanding with the ASHMA municipality and the concerned local governments/institutions.

3.4.4. The supporting documentation for the replenishment of the Special Account will include a statement of receipts and expenditure of funds supported by bank statements, justifying that at least up to 50% of previous disbursement has been utilised.

3.4.5. TREND and SSGL shall submit to AWF a signed MoU establishing the relationship and modality for their collaboration in this project with a revised implementation schedule. TREND shall make payments to the contractors/consultants of the Project, upon submission of relevant documentation for request for payments by SSGL. It is also proposed that up to € 10,000 be advanced by TREND to SSGL and periodically replenished for operating costs of the Project. The total amount of operating costs by SSGL to be funded by AWF is **€ 63,750** while SSGL will contribute an amount estimated at **€ 334,425** out of its own resources.

3.5. Financial Management and Audit Arrangements

3.5.1. *Financial management and accounting*: TREND and SSGL will maintain an accounting system and books of account specifically for the AWF project component, and will prepare quarterly financial statements in accordance with AWF procedures. TREND will use its financial management system for the AWF Project which will be implemented by SSGL and TREND. The same financial management arrangement is currently being used to discharge the accounting and fiduciary requirements of the AWF/AfDB TPP project. TREND has an experienced MD and a Business & Finance manager (head of the accounts unit) who are both familiar with the Bank procedures and rules. The head of accounts unit has over 20 years of experience of accounting with donor funded projects and holds a BSc (Accounting) Degree and MBA in Finance. He is supported by an Administrative Officer. TREND will use its accounting software (Quickbooks) for recording, processing and financial reporting. There are plans of hiring a qualified accountant (already pending board's approval) to strengthen the capacity of the FM department. Neither TREND nor SSGL have an internal audit function. The mission recommended that TREND hires or outsources an internal audit function to strengthen the internal control environment of the project. SSGL also plans to hire an accounts officer who will be seconded to TREND to build capacity and prepare basic reports of SSGL for review by TREND and inclusion into the overall project reports.

3.5.2. TREND will report to the Project Steering Committee (PSC) (to be constituted) who will provide oversight guidance to Financial Management (FM) and the entire project. The mission recommended that the PSC should include representatives from all key stakeholders to promote national ownership. The mission further recommended that a Project Implementation Committee (PIC) be constituted at the implementation (ASHMA) level to deal with project implementation and day-to-day community issues that come up. The mission concludes that TREND will have sufficient capacity to meet the accounting and fiduciary requirements of the proposed AWF Project subject to subject to addressing the gaps noted above *(and detailed in the assessment report in Annex 4).*

3.5.3. *Audit:* AWF will appoint an External Auditor to perform 2 audits - mid-term and final audits - of the project required in line with the Bank rules.

3.5.4. It is the overall conclusion of the FM capacity assessment that TREND has adequate systems to manage the FM, disbursement and audit activities of the proposed AWF/ AfDB project, subject to satisfactorily addressing the issues indicated in the FM Action Plan (in annex 4). The residual FM Risk will be moderate.

3.6. Supervision, Monitoring and Reporting Arrangements

3.6.1. The AWF's supervision of the project will include regular communication and correspondence with SSGL and TREND, as well as the review of the Quarterly Progress Reports and other project documents. Two annual supervision missions are anticipated but AWF may undertake a field supervision mission at any time, as may be needed.

3.6.2. The on-going monitoring of the project will be done by the SSGL Project Team and the partners. In addition, the Steering Committee shall review progress during its regular meetings and provide strategic guidance.

3.6.3. The key indicators for monitoring project implementation progress and overall performance as identified in the LFAs will be further elaborated through participatory workshops during preparation of the Implementation Plan. A project-wide monitoring system will thus be developed before project start-up for the results based assessment for achieving project outputs and will be aligned with the existing sector monitoring systems of ASHMA.

3.6.4. Given the inter-sectoral nature of this project, and the active participation of national/local government partners and the private sector, institutional capacity strengthening through the knowledge generation and sharing component will emphasised through tools development, training and workshops.

Table 4: AWF Reporting Requirements

Documents to be Submitted to the AWF	*Reporting Schedule*	*AWF Action*
Implementation and Procurement Plans	Upon completion of preparation	Review and approval
Procurement Documents as noted in Section 3.3	As noted in Procurement Section	Review and "no objection"
Quarterly Progress Report in AWF format (with report on expenditures)	Within two weeks of end of quarter	Review and comments
Annual Report including audited accounts	End of 1st quarter of following year	Review and comments
Project Completion Report in AWF format	3 months before end of project	Review and acceptance
Minutes of Steering Committee Meetings	Within 7 days of meeting	Review and comments
Minutes of any other project meeting or workshop	Within 7 days of meeting	For information

3.6.5. The Recipient shall submit to the AWF the reports/documents stated under Table 4 above. The project completion report shall include details on project activities and a comprehensive expenditure report on the utilisation of the Grant. All documents shall be transmitted to the AWF by email, and through subsequent submission of hard copies.

4. PROJECT BENEFITS

4.1. Effectiveness and Efficiency

4.1.1. TREND and SSGL will actively promote this model in new markets and further expand the social enterprise. It will be a showcase to entrepreneurs, NGOs and Municipalities, to innovate, promote or make a living from the sanitation value chain. The financial drivers in the project's business model will promote service quality, efficiency, innovation of management and technology, eventually leading to improved living conditions for the local community in many ways. Once the economic viability of this Project has been proven, further replication of the concept is possible on the basis of common financing methods. All revenues from bio-fertiliser and biogas energy are intended to cover direct sales cost and overhead of the production unit and office costs.

4.1.2. The Project will strengthen the effectiveness and sustainability of sector institutions since it cuts across many sectors of the Ghana economy: Given that there is both political and policy support to facilitate this collaboration between the government, the private sector and the local communities, the impact of this intervention will lead to sustainable improvements in environmental sanitation among the urban poor. The model is designed to promote strengthened institutional and operational capacities in faecal and solid waste management to improve environmental sanitation and promote knowledge on business and technical management which will benefit both the policy-makers and the community.

4.2. Sustainability

4.2.1. As a business model, this project has considered the Ghana market prices for fertilisers which are growing rapidly and farmers' preference for animal manure is evident. The price increase for chemical fertiliser was close to 15% during 2011 and the trend is envisaged to continue given the scarcity of phosphate resources and increase in oil prices. The new government subsidy prices of about 45% highlight a growing cost factor. The price of chemical fertiliser without subsidy is GHS 71/50 kg while this project's business model has a consumer price that competes with subsidised chemical fertilisers – GHS 39/50 kg. There is commitment from MOFA to support this project through its Extension services to enhance the market entry and sustain the applicability of the bio-fertilisers once certification processes are done. Financial analysis of this model is one of the outputs under knowledge generation which will form part of the research that will be undertaken under Component 4.

4.2.2. The hygiene promotion activities will provide the necessary knowledge and capacity strengthening of the key stakeholders; enhance the understanding of waste as a resource and for long-term sustainability of this approach. The co-composting using the anaerobic digester to produce bio-fertilisers and biogas energy will further serve as a community learning centre to enhance learning and for leveraging resources for scaling up within and outside of the target location.

4.2.3. The sustainability of this project is based on its business model approach which lays emphasis on active multi-stakeholder engagement allowing ownership of the project and further development of the concept. In the start-up phase of the project, all relevant stakeholders have a responsibility to ensure operational and economic viability. It is foreseen that the project will be fully operational within the timeframe of this project (36 months). After that period, all operational costs will be covered by the revenue generated by this project. SSGL will sign a Build-Own-Operate and Transfer (BOOT) contract with ASHMA. That BOOT contract will enable SSGL to operate the plant for a period of 18 years and train the future operator. When the BOOT arrangement expires, the plant will be handed over to the Municipality.

4.2.4. As a demonstration project and blueprint for similar settings in Ghana and other countries, this project has already started showing evidence of the potential for follow-up investments from other interested donors: In March 2013, the Dutch Government (DGIS), by means of the 'Sustainable Water Fund' (FDW), has approved the Safi Sana application for follow-up investments to replicate the AWF in two other Districts in the Greater Accra Region. The approval is conditional and based on success of the project and future commitment of private sector investors that have interest in scaling this project to other markets. It is also anticipated that follow-up investment projects will be defined towards the end of the project for continuity and to widen the scope of this intervention in Ghana.

4.3. Climate Change

4.3.1. The *risks posed by climate change* will not apply in this project given that both faecal and organic waste will be co-composted to produce bio-fertilisers and bio-energy will lead to reductions in existing waste per ton per day by almost 80%. The project intends to close the loop through re-use of waste: what is now seen as waste (and cost) will be converted into value (energy, valuable nutrients, and improved sanitation). The project will introduce and organise waste collection and processing as well as reuse of energy and fertilisers materials.

4.3.2. This project will contribute to increased resilience and offers both adaptation and mitigation to climate change impacts that would otherwise arise from environmental pollution. By capturing the biogas produced from the anaerobic digestion of both faecal and solid waste, substantial CO_2 emissions are reduced.

4.3.3. Both the design of the WWTP and installation of the sanitation infrastructure have taken into consideration associated climate change risks and are being undertaken in

line with the National Environmental Sanitation Policy, 2010. The WWTP is utilising an existing government designated waste treatment site.

4.4. Environmental & Social Impact

4.4.1. The project is has no negative impact on the environment. It will rather improve it in several ways. The sanitary site is dysfunctional waste treatment stabilisation ponds. No resettlement is anticipated as this is a farming area, no residents are on site and municipality has committed to compensate farmers whose crops may be affected during land preparation and due to the physical works on the access road. The project will comply with Environmental Protection Agency (EPA) regulations and procedures and secure necessary environmental permits related to the application of the technology. Pollution prevention and abatement which is at the core of the project is included in the current and future designs and operations instructions.

4.4.2. The expected key positive environmental and social impacts of this project are significant. The project is specifically focused at improving public sanitation services, better organised waste collection and treatment, improved living and health conditions, and production of bio-fertiliser and green energy.

4.4.3. The project will not result in any involuntary resettlement since the project site is owned and shall be provided by Ashaiman municipality.

4.5. Gender

4.5.1. The project will not have any negative impacts on gender. The existing 39 public toilets in Ashaiman are already gender segregated and 3 of these will be rehabilitated. The training and hygiene campaigns will target men, women and children as beneficiaries of improved environmental sanitation. The urban poor will undeniable be the major beneficiaries among the inhabitants of Ashaiman, since they, in particular, are deprived of easy access to proper sanitary facilities. 51% of the Ashaiman's population consists of women who are direct beneficiaries of this project. The organic fertiliser will be beneficial in urban farming and special attention will be given to women in its promotion given their crucial role in urban agriculture (food security and additional income and improved livelihoods).

4.5.2. The risks and assumptions that would threaten the sustainability of the interventions of the business driven model for improving sanitation through waste re-use including technical, institutional factors and the mitigation measures are addressed under Section 2.5. However none of these are found to pose unacceptable risks.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

5.1.1. The project is well aligned with the sector policies, strategies and current sector development plans of the relevant line ministries dealing with environmental sanitation. The project therefore contributes to multi-sector development plans of MLGRD, MOE and MOFA leading to improved health conditions and welfare for urban slum communities through improved environmental sanitation, food security and access to clean energy in Ghana. It complements the current NESSAP central philosophy - *Materials in Transition* (MINT) – which views waste as a material resource with value added on at various stages in transition within the production and consumption cycle. The project is equally well aligned with the objectives and priority areas of the AWF Strategic plan 2012-2016 and supports the Bank Group's strategy which aims to promote economic growth and poverty alleviation of RMCs.

5.1.2. The contextual framework and justification are clear; the objectives, outputs and activities are logically laid out and proposed implementation arrangements are considered adequate and sustainable. The project will offer an integrated approach addressing problems related to sanitation, waste, agriculture and energy.

5.1.3. The positive aspects of this project include:

- *Response to the sanitation crisis* in Ghana and in Ashaiman in particular given the non-existence of faecal and solid waste treatment facilities;
- *Inter-sectoral collaboration*: The project goal and collaboration with the different government actors (Sanitation, Energy, and Agriculture) reinforces one of the Environmental Sanitation Policy (Revised, 2009) requirements on institutional strengthening and capacity enhancement of sector institutions and staff.
- *Capacity strengthening and business opportunities*: Promotes sector engagement with government counterparts in establishing a decentralised business and market oriented model approach that addresses the whole sanitation chain targeting local markets while establishing possible economies of scale through leveraging and scaling up.
- *Policy and strategy support:* Builds on the on-going AWF and Bank funded interventions (TPP and ASIP respectively) and is highly relevant in supporting the implementation of the Ashaiman Municipal Sanitation Strategy and Action Plan.

5.1.4. The project will facilitate the development of a business model with drivers leading to improved and better access to sanitation in un-sewered urban poor areas in Ashaiman Municipal Assembly (ASHMA), with potential for leveraging resources from the private sector for further scaling up to other areas of the Greater Accra Region.

5.1.5. The Recipient and the executing agencies have good working relationships with the line ministry MLGRD and the target municipality ASHMA (draft MoU already in place) and have secured political will, interest and commitment from the relevant line ministries including the Ministry of Energy and the Ministry of Food and Agriculture.

5.1.6. The PAR addresses a number of risks related to the execution of this project and the associated measures to mitigate the risks. These are mainly related to the timeliness of the availability of the proposed sanitation site for the WT plant and the possible delays in establishing the legal and policy requirements for marketing the by-products from the anaerobic production units.

5.1.7. The project will be implemented over a period of 36 months at a total amount of **€ 1,515,500** for the purpose of executing the components under this project. The AWF contribution of **€ 1,084,500** (68% of total project cost) will be used for investments in rehabilitation and construction of public toilets; construction and installation of anaerobic digestion of faecal and solid waste to produce and market bio-fertilisers and biogas energy, and institutional capacity strengthening with knowledge generation. SSGL and its partners will contribute **€ 431,000** (32% of total project cost).

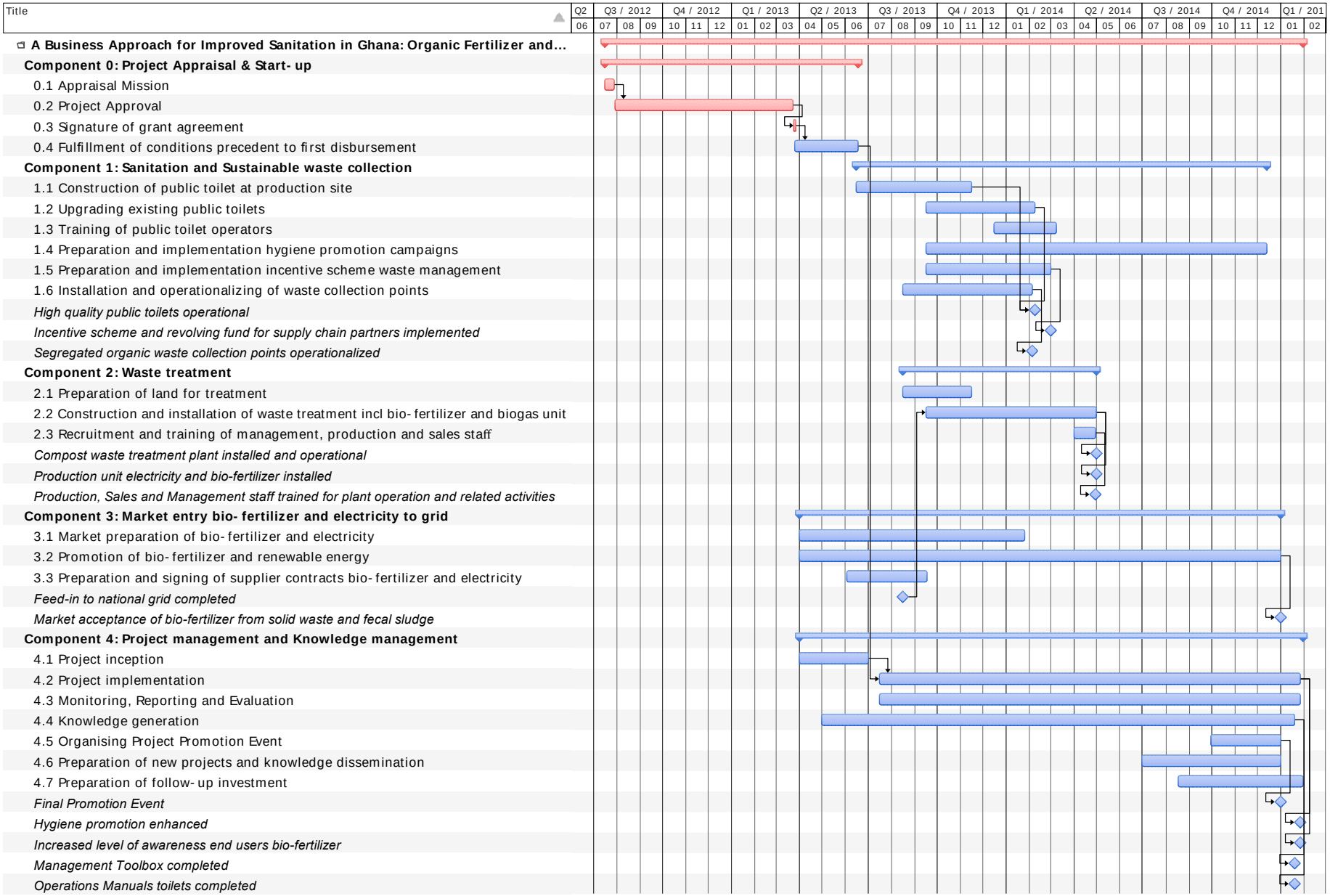
5.2. Recommendations

5.2.1. It is recommended that a grant not exceeding **€ 1,084,500** from the African Water Facility resources be extended to the TREND Group of Ghana 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 the following:

a. opening of a Special Account in a commercial bank acceptable to the AWF;
b. presentation of memoranda of understanding between TREND and SSGL and with the concerned local governments;
c. presentation of the designs and terms of reference for the Works; and
d. presentation of updated Implementation and Procurement plans.

ANNEX 1: IMPLEMENTATION SCHEDULE



ANNEX 2: BUDGET AND COST ESTIMATE

DETAILED BUDGET 'A BUSINESS APPROACH FOR IMPROVED SANITATION IN GHANA: ORGANIC FERTILISER AND ENERGY AS DRIVERS' (in Euro)

Description	Cost type	Responsi-bility	Country	Allocation of Cost					2013		2014		2015			Total per compo-nent
				unit cost	unit	2013	2014	2015	AWF	SSGL	AWF	SSGL	AWF	SSGL		
Component 1: Sustainable waste collection & storage																
1.1 Construction of public toilet at production site									30 000	3 900	-	-	-	-	33 900	
1.1.1 Design of toilet	*SSGL*	*Consultant*	*Ghana*	*3 000*	*block*	*1*	*0*	*0*		*3 000*		-	-	-		
1.1.2 Construction	*Works*	*Contractor*	*Ghana*	*30 000*	*block*	*1*	*0*	*0*	*30 000*		-		-			
1.1.3 Training staff	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*10*	*0*	*0*		*750*		-		-		
1.1.4 Opening and finetune operations	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*2*	*0*	*0*		*150*		-		-		
1.2 Upgrading existing public toilets									21 000	2 625	-	-	-	-	23 625	
1.2.1 Inventarisation of public toilets operational	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*10*	*0*	*0*		*750*		-		-		
1.2.2 Selection of preferred public toilet units (7 total)	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*2*	*0*	*0*		*150*		-		-		
1.2.3 Contracting of selected public toilets for project	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*3*	*0*	*0*		*225*		-		-		
1.2.4 Expenses: construction cost upgrading toilets																
Design of toilet upgrades	*Services*	*Consultant*	*Ghana*	*500*	*block*	*3*	*0*	*0*		*1 500*		-		-		
Construction works upgrade	*Works*	*Contractor*	*Ghana*	*6 000*	*block*	*3*	*0*	*0*	*18 000*		-		-			
1.2.5 Expenses: legal cost contracts	*Services*	*Consultant*	*Ghana*	*300*	*contract*	*10*	*0*	*0*	*3 000*		-		-			
1.3 Training of public toilet operators									7 000	9 000	-	4 125	-	-	20 125	
1.3.1 Preparation of Operation Manuals and Training program	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*45*	*15*	*0*		*3 375*		*1 125*		-		
1.3.2 Implementation of Training and Support program	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*75*	*40*	*0*		*5 625*		*3 000*		-		
1.3.3 Expenses: print work, transportation, misc																
Printwork manuals	*Services (O.C.)*	*Suppliers*	*Ghana*	*2 000*	*lump sum*				*2 000*		-		-			
Tools for training	*Goods*	*Suppliers*	*Ghana*	*2 500*	*lump sum*				*2 500*		-		-			
Facilitation workshops	*Services*	*Consultant*	*Ghana*	*2 500*	*lump sum*				*2 500*		-		-			158 813
1.4 Preparation and implementation of hygiene promotion campaigns										10 275		8 400		4 200	22 875	
1.4.1 Setting of terms of reference for hygiene promotion campaign	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*5*	*0*	*0*		*375*		-		-		
1.4.2 Selection process of local NGO for hygiene promotion campaign	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*10*	*0*	*0*		*750*		-		-		
1.4.3 Inception and design phase	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*10*	*0*	*0*		*750*		-		-		
1.4.4 Execution of hygiene promotion campaign	*Services*	*NGO*	*Ghana*	*210*	*day*	*40*	*40*	*20*		*8 400*		*8 400*		*4 200*		
1.5 Preparation and implementation of incentive scheme waste management										5 475		8 625		-	14 100	
1.5.1 Implementation and coordination of waste supply and quality control	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*73*	*115*	*0*		*5 475*		*8 625*		-		
1.6 Installation and operationalizing of waste collection points									-	16 125	4 000	14 250	-	2 250	36 625	
1.6.1 Description of terms of reference for waste collection partners	*SSGL*	*WC*	*Ghana*	*75*	*day*	*5*	*0*	*0*		*375*		-		-		
1.6.2 Selection partners fecal waste collection	*SSGL*	*WC*	*Ghana*	*75*	*day*	*20*	*10*	*0*		*1 500*		*750*		-		
1.6.3 Selection partner solid waste collection	*SSGL*	*WC*	*Ghana*	*75*	*day*	*20*	*10*	*0*		*1 500*		*750*		-		
1.6.4 Execution of waste collection and transport	*Services*	*Operators*	*Ghana*	*-*	*-*	*0*	*0*	*0*		*-*		-		-		
1.6.5 Implementation and coordination of waste supply and quality control	*SSGL*	*WC*	*Ghana*	*75*	*day*	*170*	*170*	*30*		*12 750*		*12 750*		*2 250*		
1.6.6 Legal expenses contract waste collection and transport	*Services (O.C.)*	*Consultant*	*Ghana*	*400*	*day*	*10*	*0*	*0*	*-*		*4 000*		-			
Contingencies									*2 900*	*2 370*	*200*	*1 770*	-	*323*	*7 563*	
OPERATIONAL COST (O.C.)				*6 000*												

Component 2:Waste treatment & Safe Reuse																	
2.1 Preparation of land for treatment										45 000		-		-		45 000	
2.1.1 Land preperation	*Works*	*Contractor*	*Ghana*	*30 000*	*lump sum*	*1*	*0*	*0*	*30 000*		*-*		*-*			
2.1.2 Access road	*Works*	*Contractor*	*Ghana*	*-*		*1*	*0*	*0*	*-*		*-*		*-*			
2.1.3 Fencing and lights	*Works*	*Contractor*	*Ghana*	*15 000*	*lump sum*	*1*	*0*	*0*	*15 000*		*-*		*-*			
2.2 Construction and installation of waste treatment (incl bio-fertiliser and biogas unit)										584 320		120 205		-		704 525	
2.2.1 Construction concrete works treatment plant																	
Waste intake chambre	*Works*	*Contractor*	*Ghana*	*25 000*	*lump sum*	*80%*	*20%*	*-*	*20 000*		*5 000*					
Drying beds	*Works*	*Contractor*	*Ghana*	*20 000*	*lump sum*	*80%*	*20%*	*-*	*16 000*		*4 000*					
Wastewater treatment pond	*Works*	*Contractor*	*Ghana*	*10 525*	*lump sum*	*80%*	*20%*	*-*	*8 420*		*2 105*					
2.2.2 Hardware supply and installation for waste treatment and biogas production																	
Ecobag digester and CHP unit																	
Mixers for reactors																	
Waste pump																	
Reactor heating system																	
Desulphurization air blower and distributors	*Goods*	*Supplier (LIB)*	*Foreign*	*385500*	*lump sum*	*80%*	*20%*		*308 400*		*77 100*					
Gas piping and biogas treatment																	
Measurement devices ann plant control																	
CHP unit on biogas																	
Engineering, Transport, Supervisor and Installation works																	793 091
Gas meter	*Goods*	*Suppliers*	*Foreign*	*5 000*	*piece*	*1*	*0*	*0*	*5 000*		*-*					
Switch board	*Goods*	*Suppliers*	*Foreign*	*7 000*	*piece*	*1*	*0*	*0*	*7 000*		*-*					
Lab equipment (Gas analyser, DM test kit, accessories)	*Goods*	*Suppliers*	*Foreign*	*12 000*	*lump sum*	*1*	*0*	*0*	*12 000*		*-*					
Waste pre-shredder	*Goods*	*Suppliers*	*Foreign*	*30 000*	*piece*	*1*	*0*	*0*	*30 000*		*-*					
Waste cleaning equipment	*Goods*	*Suppliers*	*Foreign*	*20 000*	*lump sum*	*1*	*0*	*0*	*20 000*		*-*					
2.2.3 Construction fertiliser plant and office																	
Compost plant	*Works*	*Contractor*	*Ghana*	*55 000*	*lump sum*	*80%*	*20%*	*0*	*44 000*		*11 000*					
Packaging and storage	*Works*	*Contractor*	*Ghana*	*10 000*	*lump sum*	*80%*	*20%*	*0*	*8 000*		*2 000*					
Office	*Works*	*Contractor*	*Ghana*	*15 000*	*lump sum*	*80%*	*20%*	*0*	*12 000*		*3 000*					
2.2.4 Installation and hardware grid connection	*Works*	*Contractor*	*Ghana*	*80 000*	*lump sum*	*80%*	*20%*	*0*	*64 000*		*16 000*					
2.2.5 Hardware production general																	
Car for transport	*Goods*	*Suppliers*	*Ghana*	*19 500*	*piece*	*1*	*0*	*0*	*19 500*		*-*					
Office and storage inventory:																	
Computers+, Phones and internet installations	*Goods*	*Suppliers*	*Ghana*	*3 500*	*lump sum*	*1*	*0*	*0*	*3 500*		*-*					
Office inventory	*Goods*	*Suppliers*	*Ghana*	*3 500*	*lump sum*	*1*	*0*	*0*	*3 500*		*-*					
Storage inventory	*Goods*	*Suppliers*	*Ghana*	*3 000*	*lump sum*	*1*	*0*	*0*	*3 000*		*-*					
2.3 Recruitment and training of management, production and sales staff											725		5 075		-	5 800	
2.3.1 Training of management and sales staff	*SSGL*	*PM*	*Ghana*	*145*	*day*	*5*	*20*	*0*		*725*		*2 900*		*-*		
2.3.2 Training of production staff	*SSGL*	*PM*	*Ghana*	*145*	*day*	*0*	*15*	*0*		*-*		*2 175*		*-*		
Contingencies									*31 466*	*36*	*6 010*	*254*	*-*	*-*	37 766	

Component 3: Market entry bio-fertiliser and electricity to grid																	
3.1 Market preparation of bio-fertiliser and electricity										10 895	3 800	-	4 450	-	-	19 145	
3.1.1 Market definition, PMCs and marketing plan for bio-fertiliser	*SSGL*	*PMF*	*Ghana*	*75*	*day*	*20*	*10*	*0*		*1 500*		*750*		-		
3.1.2 Execution marketing plan for bio-fertiliser, including packaging, certification	*SSGL*	*PMF*	*Ghana*	*75*	*day*	*21*	*30*	*0*		*1 575*		*2 250*		-		
3.1.3 Business support execution business plan bio-fertiliser and electricity to grid	*SSGL*	*PM*	*Ghana*	*145*	*day*	*5*	*10*	*0*		*725*		*1 450*		-		
3.1.4 Expenses:																
Design bio-fertiliser branding	*Services (O.C.)*	*Consultant*	*Ghana*	*2 000*	*lump sum*	*1*	*0*	*0*	*2 000*		-		-			
Packaging materials bio-fertiliser	*Goods*	*Suppliers*	*Foreign*	*4 395*	*lump sum*	*1*	*0*	*0*	*4 395*		-		-			
Product certification	*Services*	*MOFA*	*Ghana*	*4 500*	*lump sum*	*1*	*0*	*0*	*4 500*		-		-			
3.2 Promotion of bio-fertiliser and renewable energy										3 542	5 950	5 313	5 225	-	1 125	21 155	
3.2.1 Organisation of workshops for end-users and supply chain bio-fertiliser	SSGL	*PMF*	*Ghana*	*75*	*day*	*60*	*60*	*15*		*4 500*		*4 500*		*1 125*		
3.2.2 Business support execution business plan bio-fertiliser and renewable energy	SSGL	*PM*	*Ghana*	*145*	*day*	*10*	*5*	*0*		*1 450*		*725*		-		75 180
3.2.3 Expenses (eg workshops, promotion materials)																
Facilitation workshops	*Services*	*Consultant*	*Ghana*	*6 355*	*lump sum*	*40%*	*60%*	*0%*	*2 542*		*3 813*		-			
Promotion material	*Services (O.C.)*	*Consultant*	*Ghana*	*2 500*	*lump sum*	*40%*	*60%*	*0%*	*1 000*		*1 500*		-			
3.3 Preparation and signing of supplier contracts bio-fertiliser and electricity										13 600	7 825	2 000	6 750	-	1 125	31 300	
3.3.1 Sales activities and lead generation bio-fertiliser	*SSGL*	*PMF*	*Ghana*	*75*	*day*	*75*	*75*	*10*		*5 625*		*5 625*		*750*		
3.3.2 Signing of supplier contracts with preferred customers bio-fertiliser	*SSGL*	*PMF*	*Ghana*	*75*	*day*	*10*	*15*	*5*		*750*		*1 125*		*375*		
3.3.3 Production license and Signing of Power Purchase Agreement with ECG	*SSGL*	*PM*	*Ghana*	*145*	*day*	*10*	*0*	*0*		*1 450*		-		-		
3.3.4 Energy consultant for preparation contracts and overall design	*Services*	*Consultant*	*Ghana*	*400*	*day*	*25*	*5*	*0*	*10 000*		*2 000*		-			
3.3.5 Legal consultant preparation contracts	*Services*	*Consultant*	*Ghana*	*400*	*day*	*9*	*0*	*0*	*3 600*		-		-			
Contingencies									*1 402*	*879*	*366*	*821*	-	*113*	*3 580*	
OPERATIONAL COST (O.C.)				*4 500*												

Component 4: Project management & knowledge management																	
4.1 Project Inception										-	16 375	-	17 075	-	4 350	37 800	
4.1.1 Stakeholder involvement and project coordination	*SSGL*	*PM*	*Ghana*	*145*	*day*	*15*	*10*	*5*		*2 175*		*1 450*		*725*			
4.1.2 Inception of steering committee group	*SSGL*	*PM*	*Ghana*	*145*	*day*	*10*	*0*	*0*		*1 450*		-		-			
4.1.3 Project finance structures, reporting and procurement of goods and services	*SSGL*	*PC*	*Ghana*	*75*	*day*	*10*	*48*	*48*		*750*		*3 625*		*3 625*			
4.1.4 Project coordination and business preparation	*SSGL*	*MM*	*Ghana*	*400*	*day*	*15*	*10*	*0*		*6 000*		*4 000*		-			
4.1.5 Travel and lodging cost Amsterdam (NL) - Accra (Ghana)	*SSGL*	*expenses*	*Ghana*	*2 000*	*per trip*	*3*	*4*	*0*		*6 000*		*8 000*		-			
4.2 Project Implementation									13 650	52 600	22 050	89 850	3 150	26 175	207 475		
4.2.1 Project coordination general	*SSGL*	*PM*	*Ghana*	*145*	*day*	*130*	*130*	*15*		*18 850*		*18 850*		*2 175*			
4.2.2 Product and process fine tuning for upscaling at test plant	*SSGL*	*PS-RD*	*Ghana*	*150*	*day*	*220*	*220*	*55*		*33 000*		*33 000*		*8 250*			
4.2.3 Bio-fertiliser development (portfolio), including lab & field testing and product fine tuning	*Services (O.C.)*	*BNARI*	*Ghana*	*210*	*day*	*65*	*105*	*15*	*13 650*		*22 050*		*3 150*				
4.2.4 Operation of the waste treatment, compost and biogas plant	*SSGL*	*OS*	*Ghana*							-		*35 000*		*15 000*			
4.2.5 Sales support to bio-fertiliser customers and feedback development team	*SSGL*	*PMF*	*Ghana*	*75*	*day*	*10*	*40*	*10*		*750*		*3 000*		*750*			
4.3 Monitoring, Reporting and Evaluation									51 494	5 875	73 563	8 075	22 069	2 575	163 650		
4.3.1 Project monitoring, Reporting and Evaluation general	*SSGL*	*PM*	*Ghana*	*145*	*day*	*15*	*25*	*5*		*2 175*		*3 625*		*725*			488 407
4.3.2 Financial management, monitoring and reporting	*TREND*	*TREND*	*Ghana*	*83 435*	*lump sum*	*35%*	*50%*	*15%*	*29 202*		*41 718*		*12 515*				
4.3.3 Knowledge sharing and capacity building	*TREND*	*TREND*	*Ghana*	*63 690*	*lump sum*	*35%*	*50%*	*15%*	*22 292*		*31 845*		*9 554*				
4.3.4 Project monitoring and Reporting WASH	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*20*	*30*	*10*		*1 500*		*2 250*		*750*			
4.3.5 Project monitoring and Reporting bio-fertiliser	*SSGL*	*PMF*	*Ghana*	*75*	*day*	*10*	*10*	*5*		*750*		*750*		*375*			
4.3.6 Project monitoring and Reporting electricity	*SSGL*	*PM*	*Ghana*	*145*	*day*	*10*	*10*	*5*		*1 450*		*1 450*		*725*			
4.4 Knowledge generation										21 450		24 750		8 375	54 575		
4.4.1 Management Toolbox	*SSGL*	*PM*	*Ghana*	*145*	*day*	*10*	*25*	*0*		*1 450*		*3 625*		-			
	SSGL	*MM*	*Ghana*	*400*	*day*	*50*	*50*	*20*		*20 000*		*20 000*		*8 000*			
4.4.2 Operations Manual public toilet finalisation	*SSGL*	*SHC*	*Ghana*	*75*	*day*	*0*	*15*	*5*		-		*1 125*		*375*			
4.5 Organising Project Promotion Event										-		-		1 650	1 650		
4.5.1 Project promotion event for project project stakeholders	*SSGL*	*PM*	*Ghana*	*145*	*day*	*0*	*0*	*5*		-		-		*725*			
4.5.2 Expenses	*SSGL*	*expenses*	*Ghana*							-		-		*925*			
4.6 Preparation of new projects and knowledge dissemination																	
Contingencies									3 257	4 815	4 781	6 987	1 261	2 156	23 257		
OPERATIONAL COST (O.C.)				4 200													
Totals									**819 526**	**170 100**	**238 487**	**206 482**	**26 480**	**54 416**			**1 515 491**

ANNEX 3: MAPS


Production plant 1
Ashaiman
Kpong
Somanya
Adidome
Sogakope
Akropong
Shai Hills
Production
Reserve
Shai Hills
Resource
Reserve
Mampon
Tutu
Dodowa
Sege
Greater Accra Region
Songor Lagoon
Protected Area
Big Ada
Nsawam
Adaiso
Oyibi
Afienya
Dawhwenya
New Ningo
Adenta
Municipality
Amasaman
Madina
Tema
Dome
Podoku
Gbawe
Okai Koi
Kpeshie
Accra
Ngleshi
Amanfro
Densu Delta
Protected Area
Burkina
Faso
Benin
Togo
Ghana
Nigeria
Lagos
Abidjan
Accra
Gulf of
Guinea

ANNEX 4: FINANCIAL MANAGEMENT, DISBURSEMENT & AUDIT ARRANGEMENTS

A review of the proposed FM arrangements for the project was carried out with the following conclusions:

1.1 Financial Management Capacity Assessment

TREND will use its financial management system for the AWF Project which will be implemented by SSGL and TREND. The same financial management arrangement is currently being used to discharge the accounting and fiduciary requirements of the AWF TPP project. TREND has an experienced MD and a Business & Finance manager (head of the accounts unit) who are both familiar with the Bank procedures and rules. The head of accounts unit has over 20 years of experience of accounting with donor funded projects and holds a BSc (Accounting) Degree and MBA in Finance. He is supported by an Administrative Officer. TREND will use its accounting software (Quickbooks) for recording, processing and financial reporting. There are plans of hiring a qualified accountant (already pending board's approval) to strengthen the capacity of the FM department. Neither TREND nor SSGL has an internal audit function. The mission recommended that TREND hires or outsources an internal audit function to strengthen the internal control environment of the project. SSGL also plans to hire an accounts officer who will be seconded to TREND to build capacity and prepare basic reports of SSGL for review by TREND and inclusion into the overall project reports.

TREND will report to the Project Steering Committee (PSC) (to be constituted) who will provide oversight guidance to FM and the entire project. The mission recommended that the PSC should include representatives from all key stakeholders to promote national ownership. The mission further recommended that a Project Implementation Committee (PIC) be constituted at the implementation (ASHMA) level to deal with project implementation and day-to-day community issues that come up.

The assessment of the TREND FM system concluded that there is sufficient capacity to meet the accounting and fiduciary requirements of the proposed AWF Project subject to the hiring of an additional qualified accountant and the hiring or outsourcing of internal audit services by TREND, as well as the hiring of an accounts officer by SSGL, as noted above and detailed in this assessment report (Annex 4).

1.2 Disbursement

Direct Disbursement will be used for the larger payments on contracts, while a segregated Euro denominated Special Account will be opened (specifically for the project) at a commercial bank acceptable to AfDB, to handle all other project related payments. The Special Account will be managed by TREND. TREND is currently managing the SA of the AWF TPP and is familiar with Bank disbursement procedures and rules. A local currency (Ghana Cedi) Project Account will also be opened at the same bank to support operation of the SA and facilitate payments in local currency. All disbursements will follow the procedures outlined in the Bank's *Disbursement Handbook.*

1.3 Audit

AWF will appoint an External Auditor to perform the audit of the project – mid-term and final audits - in line with the AWF procedures.

1.4 Overall Conclusion

It is the overall conclusion of the FM capacity assessment that TREND has adequate systems to manage the FM, disbursement and audit activities of the proposed AWF project, subject to satisfactorily addressing the issues indicated in the FM Action Plan below. The residual FM Risk, as noted in the risk determination table below, is medium.

2. FM CAPACITY ASSESSMENT

2.1 Summary Project Description

The main goal of the African Water Facility (AWF) project is to improve sanitation and waste management services in the Ashaiman Municipal Assembly to catalyse improved hygiene, health and quality of life for urban slum communities in Ghana. The project's outputs will include the construction of an up-scaled fecal and solid waste treatment plant with a treatment capacity of 9,000 tons of waste per year, production and sales organisation of the sale of bio-fertiliser (capacity 500 tons/per year) and electricity to the local grid (capacity 580,000 kWh/year). It shall also undertake the rehabilitation of existing public toilet facilities, construction of new ones and setting up organic waste collection points. A total grant of €1,515,491 will be provided for executing the project. AWF will provide grant financing of €1,084,493 (68%) and SSGL, through its partners (Aqua For All and the Safi Sana Foundation), will co-finance the remaining €430,999 (32%). The project will be executed over a 36 months period.

The project comprises four components as follows:

Component 1: Sustainable waste collection and storage - This component will involve the construction and rehabilitation of public toilets, recruitment and training of public toilet operators, preparation and implementation of hygiene promotion campaigns, establishment and operationalizing of organic waste collection points and preparation and implementation of incentive scheme waste management.

Component 2: Waste treatment and safe re-use- The second component will focus on preparation of land for the treatment plant, construction and installation of waste treatment units (bio-fertiliser and bio-gas) and recruitment and training of management, production and sales staff.

Component 3: Market entry of bio-fertiliser and electricity- The third component will concentrate on market preparation of bio-fertiliser and electricity, promotion of bio-fertiliser and renewable energy and preparation and signing of supplier contracts for bio-fertiliser and electricity.

Component 4: Project management and knowledge management. This component will involve mobilisation and preparation of work plan (initial 18 months) and budget, implementation of all activities of the project components, M&E and reporting, production of marketing products, tools and knowledge plan and dissemination of final project results in an organized workshop.

2.2 Country FM Issues, Background and Implementing Entity

The Bank has not yet conducted a country Fiduciary Risk Assessment for Ghana, although plans are underway to complete this based on the results of the on-going 2012 Public

Expenditure and Financial Accountability (PEFA). Current country knowledge of FM issues is therefore still based on the last (2010) PEFA.

This latest available national level PEFA assessment conducted by the development partners in 2009 and issued in 2010 highlighted some insights in the country's public financial accountability including:

- The Financial Administration Act (FAA), 2003 and the Financial Administration Regulations (FAR), 2004 and published Accounting Manual which defines the accounting standards and legal and regulatory framework for public accounting in Ghana. The Public Procurement Act 653 of 2003, which regulates public procurement practices.
- The exclusion of 'donor' funding from the Consolidated Fund reporting was noted.
- Expenditure management issues including issuance of purchase orders (commitment control), invoice verification, and payment vouchers remained manual.
- Extensive delays in the receipt of budgetary releases were noted.
- Cash Management was found to be a particular challenge to the PFM systems of the central government.

Although PEFA does not seek to address the weaknesses identified, it helps the authorities in defining the PFM reform strategy.

Government of Ghana has recently rolled out the Ghana Integrated Financial and Management Information system (GIFMIS) which will eventually be deployed to all ministries and departments all well as government projects. It has also adopted International Public Sector Accounting Standards (IPSAS) cash basis for public sector accounting.

The proposed AWF project is not expected to be implemented by the public sector. Arrangements have been concluded for the project to be implemented by Safi Sana Ghana Limited (SSGL) and Training, Research and Networking for Development (TREND) both of which are registered under Ghana's Companies Code 1963 (Act 179), as limited liability companies.

Under the Companies Code, all registered companies are required to file their audited financial statements with the Registrar General's Office and the Ghana Revenue Authority (GRA) on an annual basis. The companies' boards of directors are responsible for the preparation and fair presentation of the financial statements in accordance with acceptable accounting standards. The board shall cause proper books of account to be kept and an income and expenditure account and balance sheet be prepared, audited and circulated in accordance with sections 123 to 133 of the Code. Qualified Auditors in accordance with Section 296 of the Code shall be appointed and their duties regulated in accordance with Section 134 to 136 of the Code.

SSGL and TREND have appointed HTML & Associates and Osei Wusu-Ansah & Associates (respectively) as independent auditors who have audited the entities statutory accounts up 2011 for which unqualified opinions have been expressed. However, both auditors are not among the Auditor General's recommended list of Auditors for Ghana that are acceptable to the Bank for the audit of Bank financed projects. As a result, AWF will appoint an external auditor from the recommended list to carry out the audit of the project in line with the Bank rules.

2.3 Executing Agency

The project will be executed by SSGL and TREND, with FM services provided by TREND. Both entities have expertise in WASH and have an already existing relationship. TREND is currently managing the AWF TPP Project of the Bank and has also implemented similar projects (either solely or jointly) funded by other DPs including the World Bank and EU. The same financial management arrangements of the AWF TPP Project will be used for the proposed project. TREND will report to the Project Steering Committee (PSC), which will provide oversight guidance to the FM and the entire project. It is recommended that the PSC be constituted of representatives from all key stakeholders including SSGL, TREND, ASHMA, Ministry of Local and Rural Development (MLGRD), Ministry of Water Resources, Works and Housing (MWRWH), Ministry of Energy, Ministry of Food and Agriculture, Environmental Protection Agency (EPA) and Representatives of NGOs to promote national ownership of the project. The PSC could be chaired by the Minister or the Chief Director of MLGRD. The assessment also recommended that a Project Implementation Committee (PIC) be constituted at the implementation (ASHMA) level to deal with project implementation and community day-to-day project related issues that come up within the community.

Implementing agency: SSGL shall implement the project in conjunction with ASHMA, while TREND will take charge of the FM system of the project. An MOU will be signed between TREND and SSGL to guide the services required. The mission also recommended that an additional MOU also be signed between SSGL and MLGRD/ASHMA. These MOUs will constitute the framework for the implementation of the project by the parties involved.

2.4 Fiduciary Risk Analysis

Type of Risk	Initial Risk Rating	Mitigation Measures incorporated into Project Design	Conditio-nality Yes/No (Y/N)	Residual Risk Rating
I-INHERENT RISK				
Country Risk associated with low overall FM capacity on the continent in general.	High	Use of TREND FM system which is already managing AWF TPP project.	N.	Moderate
Executing Agency Risk that TREND might not meet reporting requirement due to other projects requirements.	Substantial	Using Quickbooks for financial reporting and an experienced accountant capable of handling the reporting requirements of multiple projects.	N.	Moderate
Implementing Agencies Risk that SSGL might use project funds to pay for ineligible activities.	High	TREND will review all project expenses submitted by SSGL and ensure that the expenses meet the eligibility criteria of the Bank.	N.	Substantial
Project Risk of incorrect use of the Special Account to be opened specifically for the project.	Substantial	Opening the Special Account that will be co-managed by both SSGL and TREND. TREND already has an experience in managing the Special Account of the AWF TPP Project.	N.	Moderate

Type of Risk	Initial Risk Rating	Mitigation Measures incorporated into Project Design	Conditio-nality Yes/No (Y/N)	Residual Risk Rating
Overall Inherent Risk				Moderate
II-CONTROL RISK				
Budgeting Risk of incorrectly formulated budgets, not covering all project activities.	Substantial	Involvement of all project coordinators and SSGL in the budgeting process to ensure that all project activities are included in the budget.	N.	Moderate
Accounting Risk of errors in the financial statements	Substantial	Use of TREND FM system to manage and prepare financial reports of the project. Its Quickbooks (accounting software) will be used in preparing the financial reports.t	N	Moderate
Internal control Risk that funds may not be used for the purposes intended due to the failure of agreed controls to operate effectively throughout the year.	Substantial	Use of TREND's established procedures (which is used for the AWF TPP) for approving payments within the project. TREND will also review all expenses submitted by SSGL to ensure that the expenses meet the eligibility criteria of the Bank.	N.	Moderate
Funds Flow Risk that funds may not be available as and when required.	Moderate	Use of direct disbursement when applicable, and the provision of a Special Account.	Y. Opening of the Special Account is a requirement prior to first disburseme nt.	Low
Reporting Risk that regular reports will not be submitted on time due to multiple projects requirements.	High	TREND accounting unit is headed by an experienced accountant who is familiar with the Bank's reporting requirements. Quickbooks will be used to ensure that the reports are prepared and submitted on time.	N.	Moderate
External Audit Risk that submitted audits may not be performed in accordance with International Standards on Auditing (ISA), and not submitted within the timeframe required by the Bank.	Moderate	AWF will appoint the external auditors when required in line with the Bank rules.	N.	Low
RESIDUAL FINANCIAL MANAGEMENT RISK				Moderate

Strengths

The major strengths identified include:

- Use of TREND's FM system which has an experienced accountant (head of accounts unit) who is familiar with the financial reporting and monitoring donor funded projects including AfDB, IDA, EU, DANIDA, JICA, and DFID.
- TREND is currently managing the AWF TPP project and the FM team is familiar with the Bank rules and procedures.
- TREND is hiring a qualified accountant and also hiring an internal audit service to increase the capacity of the accounts unit and strengthen the internal environment respectively.
- It has an automated FM system which had reliably produced reports in line with multiple donor requirements.
- Has an effective Board that provides good oversight control over its operations.

It is expected that the above strengths will mitigate the risks inherent and weaknesses noted below.

Weaknesses

The project might bring with it extra FM requirements and control issues of also monitoring SSGL in accounting for project expenses. The mitigation strategy is that TREND intends to augment this by hiring a qualified accountant which is already pending Board's approval and hiring the services of an internal auditor to minimise the risk involved.

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2.5 Review of the current TREND Financial Management Arrangements

This covers the following related elements:

i) Budgeting;
ii) Accounting System;
iii) Internal Controls and Procedures;
iv) Disbursement and Funds Flow;
v) Financial Reporting and Monitoring;
vi) External Oversight arrangements.

The review considered each of the elements in turn as follows.

i) **Budgeting**: This is participatory involving all project coordinators and other stakeholders. In the last quarter of every year a budget review meeting is held to review the performance of the year and make projections for the following year. During this meeting, project management examines the level of completion of on-going projects and work to be done, as well as proposals and expression of interests (EOIs) submitted to outline the jobs to be performed in the following year. The figures of the financial proposals (FPs) are drawn and formulated as the budget for the following year after having reviewed the amounts against the previous year's performance. The MD then presents the draft budget to the Board of TREND for review and approval. Critical in the Board's review process is the comparison against the prior year's performance and diversified funding sources (to minimise the risk of the budget being overly dependent on one funding source). When the budget is approved, profitability reports and work plans are prepared by the head of accounts and the project coordinators based on the budget. The guiding principle for profitability is a 30% margin on contracts won by TREND. For others including outsourced

contracts, fixed charges are negotiated based on the TORs of the services to be provided.
The mission recommended that a representative of SSGL be involved in the budgeting processes to ensure that all the project activities are included in the budget.

ii) **Accounting system**: TREND will use IPSAS cash basis for reporting on the Project. It uses Quickbooks 2010 Premier edition in recording, processing and financial reporting for various donor funded projects including the AWF Tripartite Partnership Project (TPP). The accounting unit of TREND is manned by an experienced Business & Finance manager (head of the accounts unit) who is currently managing the AWF TPP project. This head of the accounts unit has over 20 years of experience of accounting with donor funded projects and holds a BSc (Accounting) Degree (Legon, Ghana) and MBA in Finance (William Paterson, USA). He is supported by an Administrative Officer. TREND will be hiring a qualified accountant (already pending Board's approval) to strengthen the capacity of accounts unit. SSGL also plans to hire an accounts officer who will be seconded to TREND to build capacity and also prepare basic reports of SSGL for review by TREND and inclusion into the overall project reports. The head of accounts is an experienced accountant who is quite familiar with both the software and the reporting requirements of the Bank. TREND will use its Accounting Policies and Procedures Manual (currently being used for the AWF TPP project) in guiding the financial reporting. The manual shall be reviewed and approved for adoption by the Bank by project negotiation. This arrangement is acceptable to the Bank.

iii) **Internal control and procedures**: TREND has in place an Administrative Manual and an Accounting Policies and Procedures Manual which will provide guidelines for the fiduciary functions of the project. These manuals are used in the TPP project funded by AWF. The accounting procedures manual will need to be updated to include Bank specific procedures to be agreed in the Disbursement Letter. The assessment recommended that SSGL and TREND develops a Project Implementation Manual (PIM) which will guide the implementation of the project.

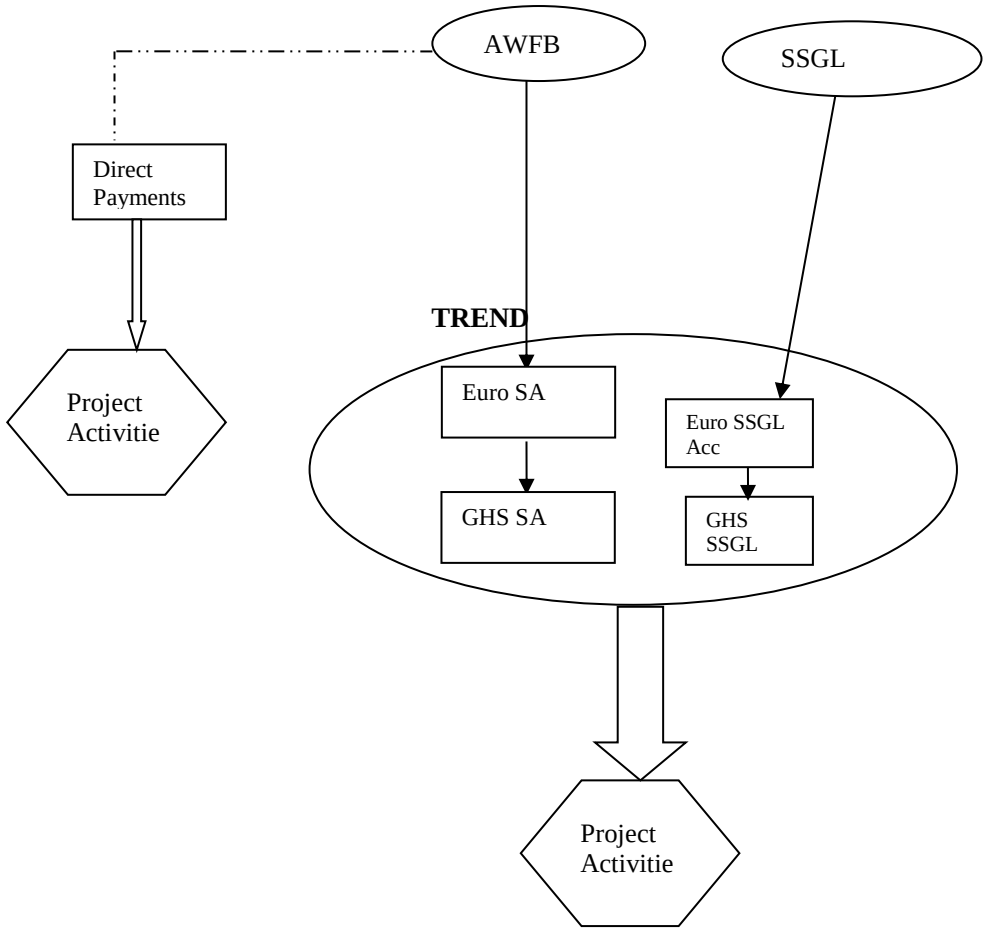
Payments from the SA shall be co-signed by a panel with the MD of TREND, Business Development and Research Manager (SSGL Rep. in Ghana) and Head of Safi Sana Foundation (Netherlands) or nominated representative as panel A, and the Trend Head of Accounts and the newly recruited professionally qualified accountant forming panel B. All payments will require an A and a B signatory. All supporting documents of activities carried out by SSGL must be submitted to TREND for accounting purposes. The current structures of both TREND and SSGL have no internal audit function. The assessment recommended that an internal auditor be hired or the function outsourced to help strengthen the internal control environment of the project.

These proposed arrangements are acceptable to the Bank subject the hiring of an internal audit service.

iv) **Disbursement and funds flow**: Total financing for the project is a grant of €1,515,491 consisting of €1,084,493 (68%) from AWF and €430,999 (32%) from SSGL (through its partners Aqua For All and Safi Sana Foundation). The funds flow chart shown overleaf summarises the flow of funds within the project. In line with existing Bank practices, the project will have access to both the direct disbursement modality and use of the Special

Account (SA). The SA will be a segregated Euro denominated account at a commercial bank acceptable to the Bank, and will house the AWF's contribution. An advance will be made to the SA, to be accounted for in accordance with the procedures outlined in the Bank's Disbursement Handbook. In addition, a Ghana Cedi Project Account will be opened to facilitate the operation of the SA by TREND. A second bank account will need to be opened to house the SSGL contribution, under the same account management arrangements as SA. The Bank will not pay taxes. TREND/SSGL needs to consider the issue of deduction and payment of withholding taxes from payments for goods, services and works in accordance with the country's tax laws while ensuring compliance with Bank rules. The proposed arrangement is acceptable to the Bank.

AWF Project Funds Flow Diagram



Key

Inflows

Outflows

v) **Reporting**: Using Quickbooks, Trend will produce quarterly reports to monitor programme financial performance. The reports will include:

a. A columnar Sources and Uses Summary Statement;
b. A detailed Statement of Expenditures classified by Project Components and or Disbursement Category, showing comparisons with budgets for the reporting quarter and cumulatively for the project life;
c. A Cash Flow Forecast;

d. Explanatory notes capturing especially significant reasons for deviations from expected;
e. Special Account Activity Statement supported by a copy of the Bank statement, as well as a Statement showing movements on the SSGL foreign currency account;
f. A schedule of direct payments made by the Bank.

These quarterly reports will be prepared and submitted to the Bank within 30 days after the end of each calendar quarter. Annually, a consolidation of the quarterly reports is used to produce the annual Programme Financial Statements. Midway through implementation, a set of financials is produced and audited by auditors appointed by AWF. An additional schedule showing all assets purchased using project funds for the year and to date needs to be appended to the annual financial statements, as well as a reconciliation of Funds disbursed by the Bank for the year, with funds confirmed as received for that year by the project. A similar reconciliation needs to be prepared for the SSGL financing. TREND will apply IPSAS cash basis in the preparation of the project financial reports.

The proposed arrangement is satisfactory.

vi) **External oversight**: AWF will appoint an External Auditor to perform the audit of the project when required in line with the Bank rules and taking note of audit firms that are currently approved to audit Bank financed projects in Ghana.

3. FM ACTION PLAN

In order to operationalize the agreed mitigation measures, the following FM related actions need to be carried out:

Action	***Responsible Person***	***Completion Date***
1. Opening of the Special Account.	TREND and SSGL	Within 1 week upon approval of the grant agreement
2. Hire 1 Qualified Accountant within TREND.	TREND	1 February 2013
2. Hire an Accounts Officer within SSGL.	SSGL	15 January 2013
3. Hire or outsource the service of an internal audit.	TREND	31 March 2013
4. Constitute a PSC at the National level and also Project Implementation Committee (PIC) at the project implementation level.	SSGL, TREND & ASHMA	30 December 2012
5. Develop and maintain a project implementation manual (PIM) or project implementation tool kit.	SSGL and TREND	30 June 2013

4. GRANT CONDITIONS:

There are no FM related conditions but:

- The opening of a Euro denominated Special Account in a Commercial Bank acceptable to the Bank will be a condition precedent to first disbursement.

5. FINANCIAL COVENANTS:

Standard/general conditions apply. The primary FM commitment of the grantee is that of maintaining for the project, a financial management system acceptable to the Bank, over the life of the project.

6. SUPERVISION PLAN:

FM supervision for the project will initially be based on two field visits per year, with frequency of supervision reduced or increased depending on the evolving assessed project FM risk during implementation. FM supervision will include some physical verification of assets acquired/constructed using project funds.

7. Appendix – On Proposed FM Reports (to be attached in Excel)

7.1 Quarterly

a. Sources and Uses Summary Statement;
b. Detailed Statement of Expenditures classified by Project Components and or Disbursement Category, showing comparisons with budgets for the reporting quarter and cumulatively for the project life;
c. A Cash Flow Forecast;
d. Explanatory notes capturing especially significant reasons for deviations from expected;
e. Special Account Activity Statement supported by a copy of the Commercial Bank statement, plus SSGL Bank Account Statement supported by a copy of the bank Statement;
f. A schedule of direct payments made by the Bank for the quarter.

7.2 Annual

g. Sources and Uses Summary Statement;
h. Detailed Statement of Expenditures classified by Project Components and or Disbursement Category, showing comparisons with budgets for the reporting quarter and cumulatively for the project life;
i. A Cash Flow Forecast;
j. Special Account Activity Statement, plus SSGL Bank Account Statement;
k. A schedule of direct payments made by the Bank for the year;
l. Reconciliation of amounts disbursed by the bank to amounts received by project;
m. Schedule of assets purchased using project funds.

ANNEX 5: PROCUREMENT ARRANGEMENTS

Description	*Shortlist **	*NCB*	*Other ***	*Non-AWF Funded*	*Total*
Consultancy Services					
Individual Consultants (Legal, workshops, design)	42,455				42,455
Bio-fertiliser & energy product development, field testing branding, certification, marketing, sales			38,850	36,250	75,100
Design new and upgraded toilets				4,500	4,500
Inventarisation, contracting and training public toilets and operators				15,150	15,150
Preparation and implementation hygiene promotion campaign				22,875	22,875
Installation and operationalizing waste collection points				46,725	46,725
Training of management, production and sales staff				5,800	5,800
Goods					
Anaerobic digester, gas motor and generator to feed 100 kW/h (electric) into the grid Installation and grid connection			385,500 80,000		465,500
Accessories and hardware for waste treatment			74,000		74,000
Computers and office Equipment			10,000		10,000
Pick-up vehicle			19,500		19,500
Packaging Materials and Tools			6,895		6,895
Works					
upgrading 3 existing public toilets; construction of 1 new public toilet block		48,000			48,000
Site preparation, fencing and lighting Waste intake, drying beds, treatment pond Fertiliser plant and office		45,000 55,525 80,000			180,525
Operating Costs					
Project Inception and Implementation				206,425	206,425
Monitoring, Financial, Project Management, Reporting			83,435	16,525	99,960
Knowledge Sharing and Capacity building			63,690		63,690
Knowledge generation, dissemination and new projects				56,225	56,225
Sub-Total	42,455	228,525	761,870	410,475	1,443,325
Contingencies		51,650		20,525	72,175
Total				431,000	1,515,500
Total AWF funded		1,084,500			

* includes Individual Consultants

** includes Limited International Bidding (LIB), Shopping and Direct Contracting

5.1 Goods and works under NCB and Shopping will be procured in accordance with Ghana national procedures acceptable to the Bank, pending amendment of provisions under the national procurement act and national standard bidding documents identified in the Bank's assessment report as minor deviations from the Bank's fiduciary requirements. All procurement for consultancy services will be in accordance with Bank's rules and procedures for use of consultants (Edition of May 2008, revised in July 2012).

5.2 Procurement of Goods related to Component 2 of the anaerobic digester (for faecal sludge and solid waste) with a volume of approx. 2500 m^3 and including the gas motor and generator to produce 100 kW/h (electric) to feed into the grid is estimated at **€ 465,500** will be awarded on a Limited International Bidding (LIB) basis, including design, supply, installation, and commissioning.

It has been ascertained that: (i) biogas reactors on the market in Ghana are limited to fixed dome type and volumes of 50 m^3 or less; (ii) international competition would be feasible for more expensive conventional digesters (concrete, coated steel); (iii) but not for the envisaged low cost (reinforced PVC bag) type of digester which is a critical contibution to the replicable business model of the project. A preliminary selection of a low cost (reinforced PVC bag) type of digester is included below in this Annex gives preliminary specifications, functional and performance attributes.It has been ascertained that: (i) small bag type biogas digesters have been used in tropical conditions for a decade; (ii) There are providers with documented references for large scale biogas digesters of the quality bag type in tropical climate as well as turnkey solution for biogas and electricity to grid solutions; and that (iii) this will be the first biogas generated electricity to be fed into the grid in Ghana.

In line with the Bank's procurement rules, it has therefore been established that LIB is justified by the specifications, functional and performance attributes of the large scale and low cost biogas digester with electricity generation and feeding into the national grid due to the limited expertise of available providers.

The procurement of Accessories and hardware for waste treatment valued at **€ 74,000** will be carried out through shopping procedures. The procurement of Computers and office Equipment valued at **€ 10,000**, Pick-up vehicle valued at **€ 19,500** and Packaging Materials Tools for training valued at € 6,895 will be procured using shopping procedures.

5.3 **Works***:* The procurement of Works related to Components 1 and 2, amounting to **€ 228,525** (upgrading of 3 existing public toilets; construction of 1 new public toilet block and preparation; auxiliary for the waste treatment plant and resource generation) will follow National Competitive Bidding (NCB) procedures.

5.4 **Consultancy Services***:* Procurement of Consulting Services for implementation of activities under components 1-4 during the first 18 months amounting to **€ 81,305** will be undertaken through competition on the basis of a short-list utilising the Quality Based Selection process (QBS) and Individual Consultants. Based on the on-going collaboration between SafiSana and the Bio-Nuclear Agriculture Research Institute (BNARI) in bio-fertiliser product testing and development and field testing during the pilot phase, this government entity will be retained on a direct negotiation basis for this service estimated to cost **€ 38,850**.

5.5 **General Procurement Notice**: The text of a General Procurement Notice (GPN) will be agreed with the SPU and it will be issued for publication in UN Development Business Journal and the Bank's website, upon approval by the Board of Directors of the Grant Proposal.

Review Procedures

5.6 The following documents are subject to review and approval by the Bank before promulgation: (i) Specific Procurement Notices, (ii) Tender Documents or Requests for Proposals from Consultants, (iii) Bid Evaluation Reports or Reports on Evaluation of Consultants' Proposals, including recommendations for Contract Award, (iv) Draft contracts, if these have been amended from the drafts included in the tender invitation documents

5.7 Contracts for Goods and Works of value less than € 30 000 will be subject to post review by the AWF after satisfactory prior review of the first contracts. Procurement documents, including solicitations of price quotations, evaluation sheets and contract awards will be kept at the SPU for periodic review by AWF supervision missions. The procurement post-review audits on the correctness of the procurement activities will be carried out before submission of the disbursement application or during the first supervision mission after the procurement activities are completed. However, the AWF reserves the right to conduct its procurement audit at any time during project implementation. This review will determine the need for modifications and improvement of the procurement arrangements. Information on procurement processing will be collected by Trend and SSGL quarterly and shall be included in detail in the Project Quarterly Progress Report to be submitted to AWF.

National Procedures and Regulation

5.8 Ghana's national procurement laws and regulations have been assessed and determined to be acceptable for NCB contracts provided the identified deviations, including the modalities will be carried out through a side letter (Annex 3) to the financing agreements of this project, including amendment of the SBDs to make them conform to the Rules of the Bank.

Executing Agency

5.9 Procurement will be undertaken collaboratively between Trend and SSGL. Trend and SSGL will agree on which procurement can be undertaken by either party in a signed memorandum of understanding (MOU). Both institutions will be responsible for preparing and submitting to the AWF, as a condition of grant effectiveness, a procurement plan acceptable to the AWF and setting forth the particular contracts for goods, works and consulting services during the life of the project along with the proposed modes of procurement. The procurement plan (provided below shall be revised annually to provide details on the particular contracts for goods, works and consulting services during the life of the project; along with the proposed modes of procurement, and the related AWF review procedures (prior and post review).

Procurement Plan

5.10 The Bank shall review the procurement arrangements proposed by the TREND and SSGL in the Procurement Plan for its conformity with the Grant Protocol of Agreement and its Rules. The Procurement Plan shall cover an initial period of at least 18 months. TREND and SSGL shall update the Procurement Plan on an annual basis or as needed always covering the next 18 months period of project implementation. Any revisions proposed to the Procurement Plan shall be furnished to the AWF for its prior approval.

PROCUREMENT PLAN — **GOODS**

1 General

Country/Organisation:	SAFI SANA GHANA LTD
Project/Programme Name:	A Business Approach for Improved Sanitation in Ghana: Organic Fertilizer and Energy as Drivers
Project/Programme SAP Identification #:	
Loan Number:	
Executing Agency:	SAFI SANA GHANA LTD
Approval Date of Procurement Plan :	
Date of General Procurement Notice:	
Period Covered by this Procurement Plan:	

2 Goods and Non-Consulting Services: Prior/Post review Thresholds

Procurement Method	Prior review Threshold (EURO)	Post review Threshold (EURO)	Frequency of Review
1.		30,000	
2.			
3.			
4.			
5.			
6.			

3. Procurement Packages Methods and Time Schedule for 18 months

Package description	Lot Number	Lot Description	Estimated Amount in €	Procurement Method	Pre-or Post-Qualification	Dom. or Regional Preference	Prior or Post Review	SPN Publication Date	Contract Start Date	Comments
Ecobag digester and CHP unit			385,500	Sole Supply	post	N/A	Prior	January 2013	April 2013	
			385,500							
Accessories hardware waste treatment			74,000	Shopping	post	N/A	prior	January 2013	April 2013	
			74,000							
Pick-up car for small transport			19,500	Shopping	post	N/A		January 2013	April 2013	
			19,500							
Office inventory	1	Computers+ and Internet installations	3,000	Shopping	post	N/A	post	January 2013	April 2013	
	2	Phones	0,500	Shopping	post	N/A	post	January 2013		
	3	Office furniture	3,500	Shopping	post	N/A	post	January 2013		
	4	Storage inventory	3,000	Shopping	post	N/A	post	January 2013		
			10,000							
Operational inventory	1	Packaging material bio-fertilizer (working stock	4,395	Shopping	post	N/A	post	January 2013	April 2013	
	2	Tools for traning	2,500	Shopping	post	N/A	post	January 2013	May 2013	Operating Cost
			6,895							
Total Cost			**495,895**							

PROCUREMENT PLAN **WORKS**

1 General

Country/Organisation:	SAFI SANA GHANA LTD
Project/Programme Name:	A Business Approach for Improved Sanitation in Ghana: Organic Fertilizer and Energy as Drivers
Project/Programme SAP Identification #:	
Loan Number:	
Executing Agency:	SAFI SANA GHANA LTD
Approval Date of Procurement Plan:	
Date of General Procurement Notice:	
Period Covered by this Proc. Plan:	

2 Works: Prior/Post review Threshold

Procurement Method	Prior review Threshold (EURO)	Post review Threshold (EURO)	Frequency of Review
1.		30,000	
2.			
3.			
4.			
5.			
6.			

3. Procurement Packages: Methods and Time Schedule for 18 months

Package Description	Lot Number	Lot Description	Estimated Amount in €	Lump sum or Unit rate	Procurement Method	Pre- or Post-Qualification	Dom. or Regional Preference	Prior or Post Review	SPN Publication Date	Contract Start Date	Comments
Construction and upgrading of public toilets at production site	1	Construction public toilet at treatme	30,000	Lump sum	NCB	post	N/A	prior	January 2013	April 013	
	2	Upgrading existing public toilets (3)	18,000	Lump sum	NCB	post	N/A	post	January 2013	April 013	
			48,000								
Preparation of land for treatment	1	Land preperation	30,000	Lump sum	NCB	post	N/A	prior	January 2013	April 013	
	2	Fencing and lights	15,000	Lump sum	NCB	post	N/A	post	January 2013	April 013	
			45,000								
Construction concrete works treatment plant	1	Waste intake chambre	25,000	Lump sum	NCB	post	N/A	post	January 2013	May 2013	
	2	Drying beds	20,000	Lump sum	NCB	post	N/A	post	January 2013	May 2013	
	3	Waste water treatment pond	10,525	Lump sum	NCB	post	N/A	post	January 2013	May 2013	
			55,525								
Construction fertilizer plant and office	1	Compost plant	55,000	Lump sum	NCB	post	N/A	prior	January 2013	May 2013	
	2	Packing and storage	10,000	Lump sum	NCB	post	N/A	post	January 2013	February 2013	
	3	Office	15,000	Lump sum	NCB	post	N/A	post	January 2013	February 2013	
			80,000								
Installation and hardware grid connection			80,000	Lump sum	NCB	po	N/A	prior	January 2013	June 2012	
			80,000								
Total Cost			**308,525**								

PROCUREMENT PLAN | **CONSULTANTS**

1 General

Country/Organisation:	SAFI SANA GHANA LTD
Project/Programme Name:	A Business Approach for Improved Sanitation in Ghana: Organic Fertilizer and Energy as Drivers
Project/Programme SAP Identification #:	
Loan Number:	
Executing Agency:	SAFI SANA GHANA LTD
Approval Date of Procurement Plan:	
Date of General Procurement Notice:	
Period Covered by these Proc. Plans:	

2 Consulting Services: Prior/Post review Threshold

Selection Method	Post review Threshold (EURO)	Post review Threshold (EURO)	Frequency of Review
1.	30,000		
2.			

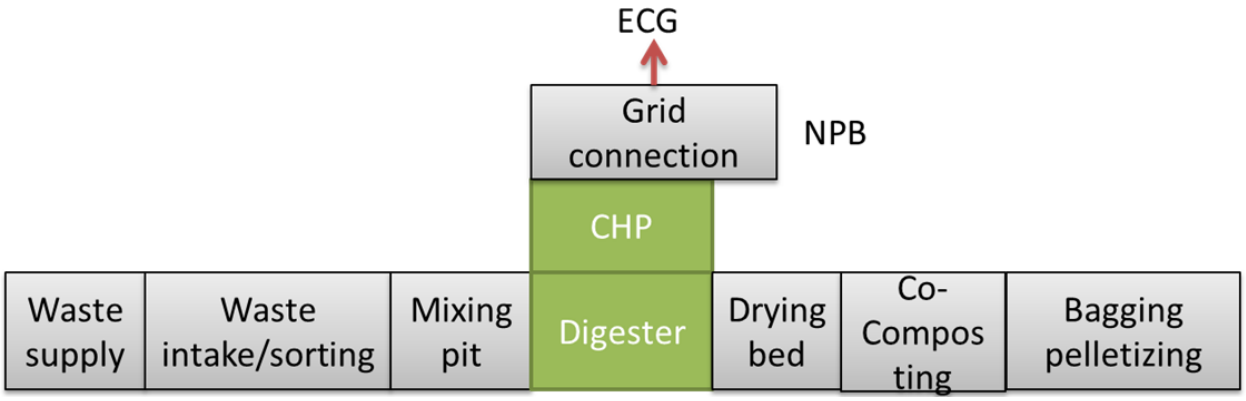
3 Consulting Services: Selection

Description	Selection Method	Lump sum or Time-Based	Estimated Amount in €	Prior/Post Review	EOI Publication Date	Contract Start Date	Comments
Legal cost:							
Preparation and signing of supplier and service contracts public toilets,	Individual Consultant	Lump sum	3,000	post	February 2013	April 2013	
Supplier contract waste operators	Individual Consultant	Lump sum	4,000	post	January 2013	January 2013	Operating Cost
Signing of Purchase agreements for bio-fertilizer and energy	Individual Consultant	Lump sum	3,600	post		January 2013	
			10,600				
Printwork manuals (training)	Individual Consultant	Lump sum	2,000	post	January 2013	February 2013	Operating Cost
Facilitation of workshops (training)	Individual Consultant	Lump sum	2,500	post	February 2013	April 2013	
			4,500				
Design bio-fertilizer branding	Individual Consultant	Lump sum	2,000	post	January 2013	February 2013	Operating Cost
			2,000				
Product certification by MOFA	Individual Consultant	Lump sum	4,500	post	February 2013	March 2013	
			4,500				
Development of promotion material (bio-fertilizer)	Individual Consultant	Lump sum	2,500	post	April 2013	May 2013	Operating Cost
Facilitation of workshops (bio-fertilizer)	Individual Consultant	Lump sum	6,355	post	April 2013	May 2013	
			8,855				
Cost of Energy consultant for grid design and purchase agreement	Individual Consultant	Lump sum	12,000	post	February 2013	March 2013	
			12,000				
Bio-fertilizer product development and field testing	Direct Negotiation	Lump sum	38,850	post	January 2013	February 2013	Operating Cost: €4,200 first tranche
			38,850				
Total Cost			**81,305**				

SELECTION AND PRELIMINARY SPECIFICATION OF TECHNOLOGY

The anaerobic anaeroic digester and CHP unit form the "kernel" of the process. An early involvement of supplier and robust uniform system is essential for the rest of the chain (picture 1). The digester will be used for the safe treatment of our dual-waste mix: faecal and organic waste streams to enable production of biogas that will be used to generate electricity for the national grid. In addition to the hardware, the supplier will provide the core technical accessories for the anaerobic digestion process and the CHP unit.

The waste intake, the mixing pit and the connection to the grid, will be provided by other suppliers through National Competitive Bidding (NCB). The Electricity Company of Ghana (ECG) will be the buyer of the electricity.



Picture 1: Process components of waste treatment, biogas and fertiliser production chain

This Selection of the supplier will include three steps:

1. Terms of reference for technology and support;
2. Selection appropriate system technology for Safi Sana project;
3. Selection of supplier for hardware and services.

1 Terms of reference for required technology and support

For the selection process of technology and support, summarised below are some specific terms of reference related to:

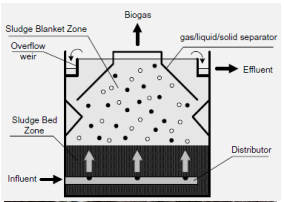
a. Investment cost and product life cycle;
b. Operational cost of system should fit the business model;
c. The ability to treat waste type and composition;
d. Integrated solution for biogas treatment and energy production;
e. A 'low-technology' system to guarantee stable treatment and operations with local staff;
f. Quality and reliability in operations and maintenance;
g. Support in training and maintenance from supplier including access to spare parts.

Based on these pre-set criteria a preliminary comparison of available technologies is provided below:

2 Selection of appropriate system technology

There are many anaerobic digester technologies available for treatment of organic waste. We will compare the most common (tested) systems available:

a. Upflow Anaerobic Sludge Blanket digester (UASB). This system is used for wastewater treatment and cannot handle solids.



b. Chinese dome or floating drum digesters. Often used in smaller designs (4-12m3) and very common in rural settings for individual farmers or households. Construction materials are brick and cement. There are some plastic prefabricated products in the market (up to 10 m^3).

c. Concrete/steel tank digester. Common systems for large-scale treatment (>1,500 m^3) of mixed waste streams and designed with concrete or steel wall and flexible cover.

d. Bag digester. A digester system made of flexible plastic (e.g. PVC, EPDM). Bag digesters are most common in small volumes (up to 200 m^3). The bigger treatment volumes are rare.

The table below will compare these systems based on some key categories: e.g. waste type, investment cost, treatment capacity and operational cost. For each technology a score per category is provided. Higher scores stand for more appropriate technology for the application in this project.

System type	Liquid	Solids/ Mix	Costs per m3	Retention time	System volume	Stability/ Sensitivity	Complexity: maintenance	Total
	1 = bad 5 = good		*1 = high 5 = low*	*1= low 5 = high*	*1= small 5 = large*	*1 = sensible 5= robust*	*Complex= 1 Easy= 5*	
A. Upflow Anaerobic Sludge Blanket (UASB) digester	**5**	1	2	1	3	2	1	15
B. Chinese dome or floating drum digester	2	4	2	3	1	3	**5**	20
C. Concrete/steel digester	3	**5**	3	4	4	4	3	26
D. Bag digester	4	3	**4**	**5**	**5**	4	4	**29**

The table shows that a bag and concrete digester are both interesting systems to use for this project from a technological perspective. However for a number of reasons listed below the bag digester system is preferred:

a) Investment cost for **concrete works** is too high for this project. In theory, the product life cycle of a concrete system is higher compared to bag digester but quality of concrete work is often unreliable. Secondly, the cost of cement is under huge price inflation in Ghana. Thirdly, the quality control on construction works for concrete digester should be a lot higher compared to bag digester (visible quality inspection more easy);
b) **Retention time** of bag digester is longer which makes system more robust to waste inflow fluctuations and better treatment of disinfectants from faecal waste;
c) The bag digester has an integrated larger **biogas storage capacity** compared to concrete digester. Larger concrete digesters have a relatively increased storage capacity, but larger systems become also more complex to construct (e.g. soil stability);
d) Available location in Ashaiman will not allow huge **soil surface pressure**;
e) Main reason why bag digesters are commonly not applied is because most large digesters are placed in colder climates where isolation is important to maintain the proper process temperature. In those circumstances, the concrete digester would be preferred.

3 Selection of supplier

In the preparatory phase of this project, starting in 2009, the project design explored the applicability of various technologies available in the market and those that will respond to the terms of reference for this specific project (area). It has been found that biogas systems often are very low tech and small (and unreliable – home made) or too high tech or using construction material that is too expensive. There is a huge gap in the middle. The selected supplier shall provide strong evidence on the following criteria:

- Confirmed references for similar scale, climate, waste and output.
- Competitive technological solution in terms of quality and cost.
- Large size digester (approximately 2,500 m^3).
- References to have successfully provided support in the preparation phase of the project, during installation, during start-up (including training and manuals) and during operation (with full support by technical team and advise on maintenance packs).
- Proven track record in several tropical countries.
- Supply package including spare parts and after sales service.
- Broad experience in wastewater treatment and waste re-use systems, preferably including:
    - Designing of all elements of organic waste treatment and CHP plants;
    - Manufacturing (custom) modules;
    - Laboratory experience.

- Evidence to be provided for reactor and gas engine materials and components exclusively applying elements that have been under stringent quality control over a reference period (by ISO/OECD standard) of at least 10 years.
- Explosion safety standards and references need to be provided.
- Provisions and operational experience of mixing need to be provided.
- Possibility of emptying to be provided.
- Life expectancy and possible repairs of openings in reactor to be provided.
- Known operational problems and anticipated solutions to be provided.

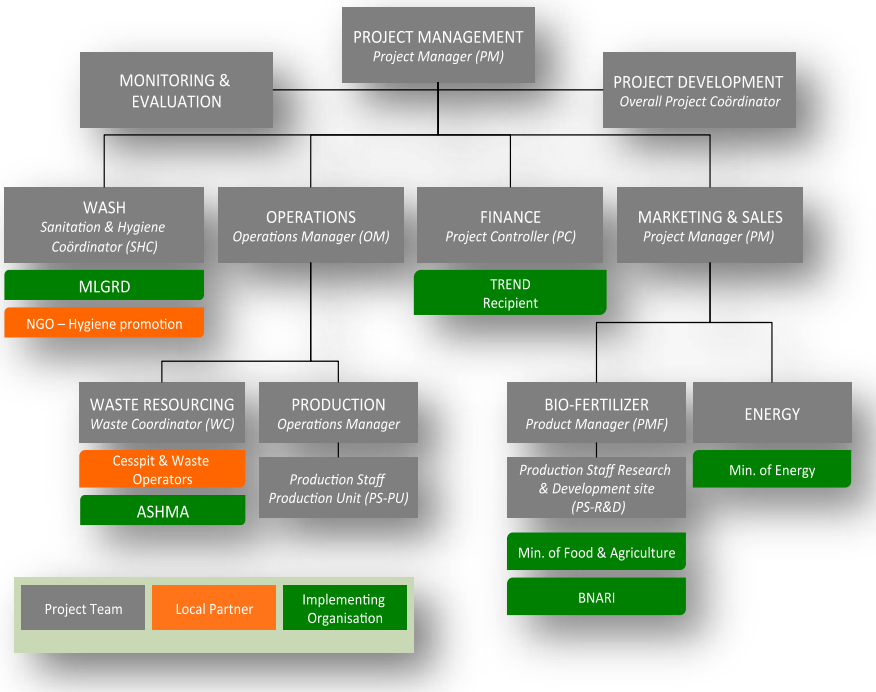
Biogas buffering and pre-treatment prior to combustion in engine:
The biogas shall be filtered, de-sulphurised, cooled first and possibly otherwise conditioned before use in the CHP, according to the specification of the engine manufacturer.

Maintenance and process interruption:
Maintenance or removal of mixing equipment – if required – shall preferably be possible without full interruption of the anaerobic process (e.g. need to empty gas, introduction of oxygen, explosion risk).

Competitive pricing:
It is recommended to work with an independent appraisal institution with related experience to assure appropriate technology and competitive pricing, e.g. SGS or similar with a worldwide coverage.

Customer reference:
Evidence for installation and operation needs to be provided for at least three locations. These shall include customer confirmation concerning functionality and satisfactory operation, duration and issues during operation to be provided from at least two different countries with tropical climate.

ANNEX 6: ROLES & RESPONSIBILITIES OF PARTNERS/STAKEHOLDERS



Role of partners

Partners	Role
TREND	1. Trend shall be the recipient and administrator of the project funds. 2. Additionally Trend shall be in charge of all processes leading knowledge sharing as well as financial reporting. 3. Trend shall have a representation on the Project Implementation committee 4. Shall take in all public bidding and selection of consultants and service providers as the need may arise. However SSGL has the final authority and responsibility to appoint and award contracts. 5. Trend shall be a co signatory to the project account
ASHMA	1. Will be involved as a key partner in facilitating and making available the sanitary site for the operation of the waste treatment plant. 2. Shall make available the site for building one toilet near the project site 3. Shall facilitate the establishment of an access road to the project site 4. Shall facilitate/authorise the collection of faecal and solid waste from the municipality to the site 5. Shall be represented in the Project Implementation committee and shall play an oversight monitoring role to ensure that the operations conform to EPA and MLGRD regulations and guidelines. 6. Shall provide facilitate the processes leading to tax and import tariff

	exemptions and other privileges as the need may arise.
BNARI	SSGL has an on-going collaboration with BNARI in the testing of the co-compositing fertilisers under the SSGL pilot project. It is anticipated that this support will be sustained to undertake production staff trainings; process development; and documentation of laboratory tests at comparable costs
Waste collection companies (to be tendered)	A waste collection company(s) shall be selected through a competitive bidding process. The role of the waste company shall be to supply adequate and quality solid and faecal waste to the project.
Ministry of food and Agriculture (MOFA)	The *Ministry of Food and Agriculture (MOFA)* which supports private sector participation in improving soils and crop production will inspect the production units to ensure conformity with required soil nutrients and ensure safety in re-use before providing necessary certification of the bio-fertiliser application. MOFA will offer the services of its Extension Officers to support advocacy (information sharing, demonstrations and training of farmers).
Ministry of Energy (MoE)	1. In accordance with the mandatory requirement of the Electricity Commission of Ghana (ECG) to buy renewable energy (Renewable Energy Bill, 2011), MoE through its institutions, the ECG and PURC, will be responsible for providing the 'Preferential tariff' to enable it operate under the de-regulated markets and the necessary government regulation regarding installation and supply. 2. The Ministry through the Energy Commission (EC) shall also provide appropriate certification as a renewable energy producer and also play a monitoring role to ensure conformity to the Renewable Energy act

ANNEX 7: MARKET ANALYSIS OF PUBLIC TOILETS IN ASHAIMAN

Situational analysis of type, usage and emptying costs of public toilets in Ashaiman Municipal District, Ghana

S.no	Name of toilet	Name of owner	Location	Type of toilet	Capacity	Frequency of dislodgement	Capacity of truck (g)	Volume collected per month (g)
1	Lorry park main lorry park	Ashma	Main transport terminal	Wc	24	12 times a month	2,000	24000
2	Alhaji	Alhaji osabutey	Sena radio	Wc	28	Monthly 2 trips	4,500	9000
3	Okini	Samuel Okini	Fitter line close to engine filling station	Vip	5	Once in 2 months only one trip	2000	1000
4	Mandela market	Cadre	Mandel market	Vip	18	Twice a month	2,000	4000
5	Puplanpu	Ben Puplanpu	Valco flat	Pour flash	24	Twice weekly one trip each	2,000	16000
6	Ocansey Valco flat PPt	Robert ocansey	Valco flat	Pour flash	11	One trip weekly	2,000	8000
7	Nt5 and 6 tulaku Pt	Ashma	Ashaiman overhead	Aqua privy	24	3 times a month 1 trip at a time	2,000	6000
8	Tulaku PPt Assemblyman	Hajia Asana	Tulaku	Vip	12	Once in a month 3 trips	2000	6000
9	T. 13	Ashma	Fitter line opp. Police station	STL	24	Two times a month three trips each time	4500	27000
10	T.8	Ashma	Zongo laka	STL	12	Twice in a month one trip each	2000	4000
11	Romans Down Pt.1 roman park	Ashma	Roman park	ENVIRON-LOO	14	Once a month	2000	2000
12	Terrazzo toilet	Janet enim	Mandela park	Vip	10	Trice a month 1 trip at a time	4500	13500
13	Night Market PT T.1	Ashma	Night Market	STL	24	Twice a month two trips at a time	4500	18000
14	Night Market PT2 T.10	Ashma	Night Market	STL	12	Once a week 1 trip at a time	2000	8000
15	I shall return PT T.10	Ashma	I shall return	STL	24	Once a week one trip at a time	2000	8000
16	Valco flat PT T.17	Ashama	I shall return	STL	24	Twice in a month one trip each	45000	9000
17	Spider Valco Flat PPT3	Trad council	Valco flat	VIP	20	Trice a month one trip each at a time	4500	13,500
18	Waste container site Valco Flat PPT	Awuku Aboagye	Lebanon bridge	Wc	22	Once in three month two trips	4500	3000
19	Afariwa Lorry Park PT	Ashma	Afariwa lorry park	ENVIRON-LOO	20	Once a month one trip	2000	2000
20	Dam site PT	Ashma	Lebanon zone 2 agric	ENVIRON-LOO	10	Once .only one trip	4500	4500

21	T.15 zongo laka PT1	Ashma	Zongo laka	STL	24	Once in a month two trip	2000	4000
22	NT4 Roman down PT.2	Ashma	Roman down near Solidarity School	Aqua privy	12	Twice a month one trip each	2000	4000
23	ENV.2 Ashaiman NewT	Ashama	Community 2/Ashaiman new town	ENVIRON-LOO	10	Once a month one trip	2000	2000
24	Valco flat PT.2 NT.3	Ashama trad council	Jericho	Aqua privy	12	Twice a month two trip	4,500	9,000
25	Env. 3 Lorry Station PT.2	Ashma	Ashaiman old lorry park or opp. Coconut market	ENVIRON-LOO	16	Twice a month two one trip each	4,500	9,000
26	Big bola PPT3	Alhaji Ayiku	Big bola	Pour flash	18	Twice a week one trip each	1,500	3,000
27	Mexico PT T. 18	Ashma	Mexico obakatse	STL	24	Every two weeks one trip	4,500	9,000
28	Zongo Laka PT2	Ashma	Zongo Laka	STL	24	Two times a month one trip each	2000	4000
29	Asensuba PT T.1	Ashma	Asensuba	STL	24	Three times in a month one trip each	4,500	13,500
30	Asensuba PPT 2010 Toilet	Hon. Simon (MP)	Asensuba	Pour flash	28	Twice a month four trips at a time	4,500	36,000
31	T. 3 Roman Down 3	Ashma	Roman Down	STL	18	One trip a month	4,500	4,500
32	Bukom PT NT7	Ashma	Behind Ashma building	Aqua privy	12	One trip a month	4,500	4,500
33	Zongo Laka PT.4	Ashma	Zongo laka	STL	24	Every two weeks two trips	2,000	8,000
34	Light Blue PPT	Dr. Odonkor	Jericho	Pour flash	32	Twice a month four trips at a time	2,000	16,000
35	T. 11	Ashma	Ashaiman market	Wc	10	4 times a month two trips each	2,000	16,000
36	Big borla PPT2	Nene Odonkor	Big borla	VIP	9	Twice in a month one trip each	4500	9000
37	White House	Ruben Dovi	Taboo line	VIP	8	Twice a month one trip each	2000	4000
38	T.4	Ashma	Zogo laka	STL	24	Once every two weeks	2000	4000
39	Even brids PPT	Even birds	Taboo line	VIP with two pour flash	12	Once in a month two trips	2000	4000

ANNEX 8: THE BUSINESS MODEL COSTS, BENEFITS AND KEY ASSUMPTIONS

	2013	2014	2015	2016	2017	2018
Income						
Electricity	-	56,080	66,595	66,595	66,595	66,595
Fertiliser	-	13,650	35,490	62,108	115,343	141,960
Waste Collection Revenue	-	1,361	1,616	1,616	1,616	1,616
Total income	**-**	**71,091**	**103,701**	**130,318**	**183,553**	**210,171**
Production costs						
Cleaning of Solid waste (10% pollution level)	-	2,633	2,633	2,633	2,633	2,633
Organic feedstock enrichment fertiliser	-	374	749	1,310	2,434	2,995
Mineral NPK enrichment	-	-	-	-	-	-
Fertiliser Packaging costs	-	683	1,365	2,389	4,436	5,460
Fertliser transport	-	956	1,911	3,344	6,211	7,644
Production Staff component	-	30,105	30,848	31,963	34,192	35,307
Maintenance	4,203	25,143	31,437	31,437	31,437	32,107
Office Cost Production Unit	-	10,950	10,950	10,950	10,950	10,950
Total production costs	4,203	70,844	79,894	84,027	92,293	97,097
Margin	**-4,203**	**247**	**23,807**	**46,291**	**91,260**	**113,074**

Assumptions:

1. The cash flow sheet is based on the single Production Unit in Ashaiman;
2. The plant is tested and turn-key by the end of 2013 and sales will start beginning of 2014 depending on official start of the project;
3. The electricity feed-in tariff is expected to be €0.11 per kWh for the project in Ashaiman;
4. The production of electricity (in kWh) is expected to reach a maximum of 80% of its theoretic capacity due to fall out in maintenance and other disruptions;
5. The sales level for electricity (kWh) is expected to reach 95% due to electricity downtime on the national grid;
6. Fertiliser sales will gradually grow from 10% in year 1 to 90% of capacity in year 5;
7. The fertiliser price is set at €0.06/kg;
8. The price of fertiliser will be expected to increase over the three projects due to quality and value improvement and expected inclusion in the fertiliser subsidy program;
9. The waste transport companies pay a fee of € 0.60/ton for dumping faecal waste to Safi Sana. The tariff for dumping of solid/organic waste currently is € 0;
10. The positive cash flow is used to contribute to replacement of hardware (apart from maintenance) and cover future marketing cost. The project in Ashaiman will be replicated in two other Municipalities in Greater Accra Region. These three projects together allow the project to be long term sustainable.

Costs:

1. The organic waste input is expected to have a pollution rate of 10% which will requires cleaning and treatment;
2. Staffing costs have a variable component based on variation in future production levels;
3. Maintenance for the CHP and waste treatment production units has been set at € 0.031 per kWh of electricity which is based on European standards. This includes replacement of component;
4. The CHP and waste treatment equipment is expected to have a useful life of 15 years.

ANNEX 9 – AWF COMMUNICATION AND VISIBILITY GUIDELINES

To AWF, brand visibility and communication greatly matter. Both visibility as well as steady and clear communication help build brand recognition, reputation and credibility through improved understanding of the AWF's mission and accomplishments. For a Special Fund entirely financed by donor contributions, image is key for keeping donors' trust and for attracting new ones. AWF donors and stakeholders expect contributions to be used to catalyze the development of the water sector in Africa through strategic projects expected to prepare investment projects, enable water governance and promote water knowledge, and they want evidence of it.

While AWF engages in reporting activities aimed at communicating its progress in all three areas, it is also important to broaden efforts to show its presence and contribution to the water sector in Africa by being more clearly associated with the projects it supports. The collaboration of AWF Grant Recipients (referred to as Recipient below) is instrumental in achieving this objective.

To that effect, the AWF has established visibility guidelines to help Recipients properly acknowledge AWF's contribution.

NOTE: *These guidelines are subject to negotiation between AWF and the Recipient to adapt to the reality of the Recipient and possible constraints that could prevent the Recipient from complying.*

GENERAL REQUIREMENTS

• At an early stage in the preparation process for communication activities, contact the Communication Officer at AWF Secretariat, copying the AWF Project Manager.

• At a minimum, and wherever possible, the AWF logo should be applied to all outreach materials. The proper use of the logo should be discussed with the AWF Communication Officer.

• 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.

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

• Documents and publications 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".

• 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

VEHICLES, SUPPLIES AND EQUIPMENT

•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.

•This requirement is subject to negotiation between AWF and the Recipient as some supplies and equipment may be exempt.

•The Recipient must provide evidence of compliance with this rule (digital photos sent by email are recommended.)

PRESS RELEASES & MEDIA ADVISORIES

• The AWF encourages and appreciates initiatives to issue joint press releases with its partners. A standard joint press release should be issued at least i) at the launch of the project at a time agreed by the AWF and the Recipient, and if possible ii) at project completion.

• When the 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.

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

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

• 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.

• All press releases must bear the name and contact information of the AWF Communication Officer along with the communication/media representative from the Recipient.

• The AWF boilerplate text ("About the AWF") must be added to the text, including the AWF web site address.

Boiler plate as at May 2013*:

About the African Water Facility (AWF)

The AWF is an initiative of the African Ministers' Council on Water (AMCOW) hosted by the African Development Bank (AfDB), established in 2004 as a Special Water Fund to help African countries achieve the objectives of the Africa Water Vision 2025. The AWF offers grants from €50,000 to €5 million to support projects aligned with its mission and strategy to a wide range of institutions and organizations operating in Africa. Its three strategic priority activities are (1) **preparing investment projects** to mobilise investment funds for projects supported by AWF; (2) **enhancing water governance** to create an environment conducive for effective and sustainable investments; (3) **promoting water knowledge** for the preparation of viable projects and informed governance leading to effective and sustainable investments. Since 2006, AWF has funded 81 national and regional projects in 51 countries, including in Africa's most vulnerable states. It has mobilised more than € 714 million as a result of its project preparation activities, which constitute 70 percent of its portfolio. On average, **each €1 contributed by the AWF has attracted € 20** in additional follow-up investment. The AWF is entirely funded by Algeria, Australia, Austria, the Bill and Melinda Gates Foundation, Burkina Faso, Canada, Denmark, the European Commission, France, Norway, Senegal, Spain, Sweden, the United Kingdom, and the African Development Bank.

For more information, visit www.africanwaterfacility.org

*This text is updated once or twice a year. Please contact AWF Communications Specialist for latest version when needed.

• The rules above also apply to media advisories.

PRESS CONFERENCES

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

• The invitations should bear an AWF logo.

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

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

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

PRESS VISITS

• 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 Recipient.

VISITS BY GOVERNMENT OFFICIALS, AWF DONORS

• 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.

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

LEAFLETS, BROCHURES AND NEWSLETTERS

• 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.

• Leaflets and brochures produced by a Recipient must also incorporate a definition of the AWF (boilerplate text).

• 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.

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

ELECTRONIC COMMUNICATION

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

SIGNAGE

• The 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.

PHOTOGRAPHS AND AUDIOVISUAL PRODUCTIONS

• 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.

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

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

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

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

COMMEMORATIVE PLAQUES OR SIGNAGE

•Whenever relevant, the Recipient should place a permanent plaque or some other type of large, commemorative signage in 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.

•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.

PROMOTIONAL ITEMS

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

• 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.