COMBINED PROJECT INFORMATION DOCUMENTS / INTEGRATED SAFEGUARDS DATA SHEET (PID/ISDS)

Appraisal Stage

Report No.: 113180

Date Prepared/Updated: 07-Jan-2017

I. BASIC INFORMATION

A. Basic Project Data

Country:	Rwanda	**Project ID:**	P158411
		Parent Project ID :	
Project Name:	Rwanda Improved Cookstoves Project (P158411)		
Region:	AFRICA		
Estimated Appraisal Date:		**Estimated Board Date:**	17-Feb-2017
Practice Area (Lead):	Environment & Natural Resources	**Lending Instrument:**	
Borrower(s)	Inyenyeri and DelAgua Health Rwanda		
Implementing Agency	Inyenyeri, DelAgua		

Financing (in USD Million)

Financing Source	Amount
Borrower	20.00
Carbon Fund	7.65
Financing Gap	0.00
Total Project Cost	27.65

Environmental Category	B-Partial Assessment
Appraisal Review Decision (from Decision Note)	
Other Decision	
Is this a Repeater project?	No
Is this a Transferred project? (Will not be disclosed)	Yes

B. Introduction and Context

Country Context

Rwanda has a strong record of robust GDP growth, with a GNI per capita of US$700 (2015), but the country

still ranks amongst the poorest in the world with high levels of vulnerability. It is a small land-locked country of 26,338 km2 in area and a population of 11.7 million people (national census, 2012). It is densely populated in comparison to other African countries: at 480 people per km2, population density is similar to the Netherlands and South Korea (World Bank statistics). Even though population growth has come down substantially over the past fifteen years, with a projected 2.5% annual growth rate according to the United Nations, Rwanda will need to accommodate roughly 7.8 million additional people by 2030, underscoring the importance of introducing environmentally friendly technologies.

Strong policies have helped Rwanda achieve outstanding economic progress and introduce progressive reforms in various sectors. Prudent fiscal and monetary policies geared towards maintaining macroeconomic stability, coupled with an emphasis on building institutional capacity, promoting good governance, and creating a business-friendly environment, contributed to low inflation and average annual economic growth above 8% over the last decade. Rwanda's macroeconomic performance has generally outperformed its regional peers and earned the country a spot on the list of the 10 fastest-growing economies in the world, and has recently been ranked the seventh most efficient government globally (Global Competitive Report, 2014-2015). The country has also made important strides in poverty reduction and is introducing reforms to strengthen its social protection system by expanding coverage and improving efficiency to reach more vulnerable groups. The country-defined poverty rate fell from 59 to 45%during the previous decade and extreme poverty dropped from 40 to 24%.

Population and economic growth is leading to rapidly increasing demand for energy. Energy demand growth is particularly being felt in the biomass sector (the dominant energy source for the country), where sustainable production of wood fuel has been assessed to fall short of consumption. Reducing environmental damage and ensuring access to affordable and modern sources of energy are essential to achieve the country's development objectives. Providing well targeted assistance to the poorest households is in line with the country's flagship Vision Umurenge Program which reaches a growing number of poor and vulnerable households through cash transfers, public works and microcredit loans.

Rwanda's Economic Development and Poverty Reduction Strategy (EDPRS) 2013–2018 specifically includes the aim of "rural households using more efficient cooking methods". The EDPRS notes that over 85% of Rwanda's primary cooking energy source is biomass (wood and agricultural residue), the most economic option for rural households. Noting that biomass needs to be used in a sustainable, safe and efficient way, "use of improved energy efficient cooking stoves will be promoted…working with the private sector." (EDPRS paragraph 3.78). Many improved cookstoves both reduce the amount of biomass fuel needed, and also greatly expand the range of biomass that can be used for fuel – they are able to use crop waste and other biomass that burns far too quickly in a traditional three-stone fire to be used as fuel other than in desperate fuel scarcity circumstances.

Sectoral and Institutional Context

More than 700 million Africans (82%) use solid fuels for their primary cooking needs, a number that is expected to reach 850-950 million by the end of the decade. This high level of solid fuel use combined with household reliance on inefficient and unsafe traditional cookstoves cause a first order public health crisis: Household air pollution (HAP) from solid fuel cooking emissions kill nearly 600,000 Africans annually and is now recognized as the second largest risk factor for death and disability in the region. Solid fuel cooking also imposes significant costs on African households and economies, with a mid-range estimated opportunity cost of 3% of regional annual GDP – including avoidable spending on solid fuels, productivity losses due to firewood collection, economic costs of increased mortality and morbidity, and the environmental and climate costs of deforestation and carbon emissions. While the negative health impact of solid fuel based cooking is well understood with clear evidences, methodologies for evaluating the positive health impacts of cleaner cooking interventions, especially interventions focusing on improved cookstoves

are still evolving.

Africa has a significantly lower rate of access to clean and improved cooking solutions (about 25%) than any other region globally. The clean and improved cooking sector in Sub-Saharan Africa (SSA) has evolved significantly but is still highly underdeveloped. Only 11% of Africans use "clean" stoves that run on modern fuels like LPG (5%), or electric stoves (6%). Stoves that run on renewable fuels like biogas, ethanol and solar are uncommon (less than 1%) and the penetration of advanced biomass gasifier cookstoves (less than 0.1%) that approximate desirable Tier 4 emission performance as defined by an ISO Working Group is still at the pilot stage . A growing number of SSA households (about 3.5%) use intermediate Improved cook stoves (ICS, e.g. rocket stoves) which are more fuel efficient than traditional 3-stone stoves, and contribute to PM 2.5 emissions reductions needed to realize health benefits. Another 9-10% of SSA households have access to both basic ICS and legacy cookstoves that offer only moderate improvements in fuel efficiency and emissions reductions over traditional cooking technologies. Although no biomass cookstove technology eliminates or even addresses the majority of the burden of disease from biomass smoke exposure, many ICS can reduce the burden of disease cost-effectively, achieving a discernible improvement over the traditional 3 stone stoves widely used by the rural poor.

Wood (biomass) is the dominant household fuel in Rwanda, accounting for 93% of fuel use in rural areas and 45% in urban zones, with charcoal accounting for another 51%. This huge dependence on wood fuels mainly for cooking causes major health issues and deforestation. Rwanda lost 37% of its forest cover (around 117,000 ha) between 1990 and 2010 . Recent efforts by the Government to save and restore forests have yielded positive results. Over 80% of the country's firewood and charcoal, mainly for urban areas, is currently believed to come from Eucalyptus trees in artificial and dedicated plantations and agro forestry programs. However, estimates of sustainable harvest of biomass vary considerably. According to a 2012 report by the Global Alliance, the annual demand for woody biomass in Rwanda is estimated at 2.9 Mt, which is more than double the available sustainable production of 1.1 Mt . A World Bank report cites the estimated sustainable wood-fuel supply as between 1.5 and 2.5 million ton/year or 55 to 95% of demand. The UNFCCC , estimates the nonrenewable fraction of the biomass at 98%, pointing to very high unsustainable harvest of biomass. Although estimates of sustainable biomass supply are increasing (with higher resolution remote-sensing imagery, and perhaps with increased silviculture), the high dependence on wood, rapidly growing population and limited land resources undoubtedly mean that the sustainability of wood fuel production remains a serious concern. Prices of charcoal in Rwanda have also increased rapidly, generating negative spillover effects on the urban economy, and suggesting that all wood fuel production may be more costly.

The Five Year Strategic Plan for the Environment and Natural resources Sector (2014-2018), developed by the Rwanda Ministry of Natural Resources, recognizes that forestry resources can contribute to economic growth and poverty reduction if Rwanda can increase forest cover and tree density in agricultural landscapes across the nation and achieve more sustainable management of agricultural ecosystems and forestry resources. Rwanda's Economic Development and Poverty Reduction Strategy-II (EDPRS-II) 2013-2018 retains forestry as a main concern in recognition of its prime contribution to the GDP. It aims to reduce the use of biomass energy through the use of improved stoves and improved kilns. EDPRS II 2013-2018 reaffirmed the previous target of increasing forest cover to 23.5% by 2012 and set a new goal of 30% by 2018. EDPRS II 2013-2018 also recommends sustainable management of forest biodiversity and critical ecosystems through protection and maintenance of 10.25% of the land area, and reduction of wood energy consumption to 50% by 2020 as reflected in the 2020 Vision targets.

The Government of Rwanda (GoR) Energy Sector Strategic Plan (2013-2018) identifies dissemination of improved cookstoves (ICS) as one way to reduce fuel wood consumption. The long term goal of the Government is to reduce fuel wood consumption from current 94% to 50% of total energy use. Cooking

efficiency is low in rural households mainly due to lack of adequate technologies. The Rwanda Energy Group (REG) is targeting 80% of households to have access to improved cookstoves by 2017 and 100% of households by 2020. Improved cookstoves can reduce fuel consumption by 30-70% compared to traditional stoves and open fires. They also effectively increase the supply of fuel by being able to use crop residues and small-diameter shrub and plant materials that burn too quickly to be used as fuel in traditional "three-stone" cooking fires. The potential market for improved cookstoves in Rwanda is estimated at about 2.4 million households. In the past, the Rwandan Army installed basic cookstoves in many rural households. More recently, ceramics cooperatives in several parts of the country have been trained to produce an improved wood-burning stove, locally referred to as canarumwe. Despite being sold for only a few dollars, the market for canarumwe stoves remains modest. Although it is claimed that about 50% of households have adopted some form of improved cookstoves (ICS), the actual performance of these ICS in energy savings and other benefits vary considerably and most are only marginally better, if at all, than traditional three stone open fires and traditional metal charcoal stoves . However, more recent designs of ICS have better efficiency, durability and usability, and there is huge potential to achieve reduced fuel wood consumption and health benefits. The Government is supportive of private sector efforts to promote and distribute more advanced ICS, and has agreed to waive import duties and VAT on cookstoves that are performance-rated at tier 2 or above, in recognition of the social benefits they bring.

From the health perspective, evidence is robust and compelling: exposure to household air pollution is responsible for a staggering number of preventable illnesses and deaths each year. Epidemiological studies have established exposure-response relationships between inhalation of particulate matter, carbon monoxide, and other harmful products of incomplete combustion of bio-fuel cooking, and diseases including acute lower respiratory illness and pneumonia, chronic obstructive pulmonary disease and lung cancer, and ischemic heart disease. Particulate matter of 2.5u is the primary cause of household air pollution, followed by carbon monoxide in an increasing number of studies. Evidence is also growing on the relationship between biomass smoke exposure and cerebrovascular disease, premature and underweight births, cataracts, deteriorated eyesight, asthma, tuberculosis, adverse pregnancy outcomes, pediatric sleep disorders, bacterial meningitis, depression and headaches. Physical injuries, substantial time and additional nutritional demands associated with firewood collection, and burns from open fires add to the negative health impact of traditional cooking practices. The World Health Organization (WHO) estimates that exposure to smoke from cooking fires is the fourth leading risk factor for disease in developing countries, and causes 4.3 million premature deaths per year – exceeding deaths attributable to malaria or tuberculosis. In addition, tens of millions more fall sick with illnesses that could be prevented with improved adoption of clean and efficient cookstoves and fuels. Cleaner burning more efficient cookstoves can help alleviate some of this huge burden, and the associated costs of health care, productivity loss, and reduced quality of life.

With more than 95% of the total population using biomass fuel for cooking, HAP exposure is the leading behavioral health risk factor in Rwanda and accounts for nearly 6% of the total burden of illness (Figure 1). Rwanda has one of the highest incidence of HAP-related morbidity in Sub-Saharan Africa, at 63 HAP-associated Disability Adjusted Life Years (DALYs) per 1000 people. The risk to health damage from widespread use of harmful cooking technologies and fuel types is intensified by cooking behavior – notably, a relatively higher tendency than in many other SSA countries to cook indoors in unventilated kitchens. Each year in Rwanda, there are 5,680 deaths a year related to household air pollution, 94% of which are children. Another estimate is that around 12,500 deaths and 493,000 DALYs are attributable to solid fuel use in Rwanda. Respiratory and other illnesses caused by HAP reduce productivity and quality of life, generate costs for health system, and result in additional demands on health personnel. The relatively high number of DALYs and deaths attributable to HAP present a strong case for cleaner cookstove interventions in Rwanda.

Rwanda's Third Health Sector Strategic Plan (July 2012-June 2018) recognizes the importance of indoor air pollution and the need to put in place appropriate environmental health strategies and interventions (i.e.

national behavioral change communications strategy; national plan for surveillance of health and the environment; peer to peer group sensitization through existing community networks; tapping the network of community health workers and building their capacity to promote behavior change). A multi-sectoral environmental health policy and strategy has been designed and is being implemented through strong coordination mechanisms involving all sectors at the national, district and community levels. The Environmental Health Desk of the MOH leads the technical working subgroup handling issues related to household sanitation, and hygiene promotion. The Environmental Health Program consists of a variety of interventions, including drinking water quality surveillance, indoor air pollution, and climate change.

Exposure to toxic pollutants and other health and welfare impacts from use of biomass stoves is highest amongst women and young children, as they spend a disproportionate amount of time cooking and collecting biomass. Efficient cookstoves also support better nutrition both by enabling more food to be cooked in circumstances of dire combustible biomass shortages, and because gathering firewood can consume 10-15% of minimum daily food calorie intake --a meaningful amount in times of food stress. When cookstoves are introduced by community health and agricultural workers this offers an opportunity to combine awareness raising and nutritional support to promote behavior change and support sustained use. Finally, women and girl children spending two or more hours a day gathering wood suffer from chronic muscle and spinal strain from the burden of carrying wood over long distances, and may be subject to physical abuse and other risks while walking alone. Reduced risks, as well as productivity gains for women and time freed up to attend school for girl children are important outcomes of fuel-efficient cookstoves, both by reducing biomass fuel needs by half to three quarters, and because the range of biomass that can be burnt efficiently in many improved stoves expands the pool of available biomass making crop residues and small twigs usable fuels, all of which are available closer to village communities.

C. Proposed Development Objective(s)

Development Objective(s)

The project development objective is to reduce the use of woody biomass for cooking in targeted households.

Key Results

Progress toward achieving the PDO will be measured by the following indicators:

(i) Reduction in use of woody biomass;

(ii) Net greenhouse gas reductions; and

(ii) Number of direct project beneficiaries (both customer household members and people benefiting from additional employment), and percentage of female beneficiaries.

D. Project Description

Two Rwanda-based private companies – Inyenyeri and DelAgua –approached the World Bank, in response to a Call for Proposals, for funding from the Carbon Initiative for Development (Ci-Dev) Trust Fund, a carbon facility that supports innovative business models through purchase of certified emission reductions. Their two proposals were selected as the most promising and innovative of 25 cookstove projects submissions received by Ci-Dev internationally. The proposals are based on contrasting business models, largely targeting different market segments and making use of different stove technologies, and are both associated with sophisticated studies of the reduction of HAP and the potential health benefits in beneficiary households. The two companies would expand the improved cookstove sector in Rwanda in quite different ways.

Ci-Dev will purchase carbon credits up to 0.60 million CER from Inyenyeri and up to 0.32 million CER from DelAgua, and with an option for an additional purchase of 0.50 million CERs from each company. Both projects rely on carbon finance to achieve the scale and demonstration effects that will establish viable businesses.

Component 1: Introduce Advanced Cook Stove Technology and standardized fuel to replace inefficient charcoal and wood stoves (up to $5.65 m Ci-Dev, $8.5 m loan, $5.0 equity, $0.5 m EEP Africa grant). Under this component the Bank would support Inyenyeri, a local energy utility company in Rwanda, to scale up an innovative business model through purchase of emission reductions. The business model consists of the (effectively) free lease to customers of an advanced fan-driven forced-draft biomass gasifier stove (considered the cleanest & most efficient type of solid biomass stove), on the condition that they may only use it with Inyenyeri's Biomass Fuel Pellets (BFPs: produced from compressed woody biomass). Urban (previously charcoal-using) customers purchase BFPs through Inyenyeri's BFP delivery network. Rural (or peri-urban) customers receive BFPs in exchange for supplying raw biomass (mostly small eucalyptus branches, although reeds and sawdust are also accepted) through a network of collection points. The combination of standardized BFPs and the high efficiency fan-driven gasifier stove allows Inyenyeri to serve 3 or more urban households (HHs) from every rural biomass-suppling customer, which still requiring those HHs to collect less biomass than they otherwise would have needed. The high efficiency of the system and the price of charcoal mean that Inyenyeri can charge a sufficiently high price to recover the cost of the leased stoves in a reasonable time period, whilst urban HHs still pay less for BFPs than they otherwise would for the same amount of charcoal-based cooking (around $9 a month instead of $15). Overall, the amount of woody biomass required across customer households is expected to decrease by around 90% once they are using the stove and pellets.

Inyenyeri's business model appears complex, but has evolved through trial and error during a multi-year pilot phase in Gisenyi. The program has been well received, and not that they are switching to a new stove model with even higher efficiency and lower emissions, they are confident of their ability to grow rapidly in further urban markets, particularly Kigali, given sufficient capital. Their model is dependent on the willingness of existing charcoal users to purchase BFPs, which appears to be the case as long as BFPs remain functionally cheaper, given the additional benefits of cleaner and faster cooking from adoption of their stoves. Peri-urban customers have also shown a high level of willingness to exchange biomass for BFPs, although the company may explore alternate sources of biomass (e.g. professionally managed plantations) as their operations expand. Inyenyeri have support from the Ministry of Infrastructure for their program.

Ci-Dev will support the scale up of the business by purchasing 0.6 million certified emission reductions (CERs) with option to buy additional 0.5 million if this subcomponent is able to scale up and deliver more CERs.

Component 2: Scaling up Intermediate Cookstove Technologies in Rural area (up to $2.0 m Ci-Dev, $4.0 m equity, $2.0 m commercial loans): Under this component the Bank would support DelAgua to build rural demand and markets for cost-effective, intermediate-technology improved cookstoves (Tier 2 and above in thermal efficiency) , through purchase of emission reductions. DelAgua has already distributed around 100,000 EcoZoom stoves to ubudehe category 1 & 2 HHs in western Rwanda through a partnership scheme with the Ministry of Health (MoH), using the Ministry's network of community health workers to support training and follow-up, as well as additional logistical support from government. Going forward, DelAgua will gradually follow comm ercial principles to disseminate a range of ICS models in a phased manner through retail sales.

DelAgua proposes to leverage the demand-creation and market-understanding derived from its free/concessional distribution phase to develop a retail operation, ultimately offering a range of ICS models. DelAgua will initiate an ICB process to procure different stoves with minimum Tier 2 thermal efficiency. Establishing commercial rural ICS markets is likely to be more challenging, but research commissioned by DelAgua on the basis of their pilot scheme in Western Rwanda concluded that close to 50% of rural HHs could be potential customers for retail sales. DelAgua will explore locally appropriate financing options and retail models through partnerships with savings and credit cooperative (SACCOs).

DelAgua will support awareness raising campaigns, behavioral change education and advocacy (particularly focused on the health benefits of shifting to outdoor cooking), training, repair and maintenance. In order to assist DelAgua in its effort to gradually transition to a retail business, Ci-Dev would consider to purchase up to a total of 0.32 million emission reductions from stoves that it will sell through retail channels.

The DelAgua project has already registered its intervention in Rwanda as a Clean Development Mechanism (CDM) Program of Activities (PoA) with UNFCCC to claim the carbon credits, whereas the Inyenyeri project plans to claim the carbon credits through another CDM PoA that is registered and managed by a third party company Atmosfair. The legal agreement between Atmosfair and Inyenyeri will deal with the terms of engagement and issuance as well as transfer of carbon credits to Inyenyeri who can then transfer them to Ci-Dev.

Evaluation of health and gender outcomes is expected to complement the project and to promote sustainability and replicability. Both companies are already involved in sophisticated randomized clinical trials (RCTs) to determine the health outcomes of their at-scale pilot interventions. The health outcome evaluation of Delagua's program is being implemented by the London School of Hygiene and Tropical Medicine (LSHTM), Emory University, Oregon Health Science University, and Portland State University, with funding from private donors to LSHTM ($1.9m). The health outcome evaluation of Inyenyeri's program is being implemented by the University of North Carolina, with funding from a National Institute of Health (NIH) research grant and the Global Alliance for Clean Cookstoves ($2.9m). Both studies measure HAP levels, personal exposure to pollutants and disease incidence in program and control HHs. The study of Inyenyeri's will also look at impacts on household time/energy budgets for cooking-related tasks (i.e. cooking, cleaning pots, fuel collection, etc.). Both studies will provide gender-disaggregated estimates of these impacts. Initial results are encouraging; the DelAgua study found greater than 70% reduction in PM 2.5 exposure levels when families cooked outdoors on their improved stoves.

Subject to confirmation of the funding, the Bank team will mobilize some additional Bank-executed funds to enhance the assessment of health and gender impacts to promote the sustainability and replicability of the project:
i. A modest amount of additional resources from the Ci-Dev readiness trust fund and ESMAP's Efficient and Clean Cooking and Heating (ECCH) initiative would be used to (a) complete the assessment of the health impacts of DelAgua's pre-project distribution programs (the researchers are facing a funding shortfall to complete the analysis of survey data and local health centers records in target districts), and (b) estimate the potential for averted Disability Adjusted Life Years (aDALYs) markets to contribute to the long-term financial sustainability of both programs based on the estimated health impacts.
ii. The AFREA Gender and Energy program will support a gender assessment of the business model of Inyenyeri and DelAgua to both capture best practice and assess what opportunities exist in the current approach to close gaps in job opportunities for both men and women in the areas of marketing, production, sales and after sales services for improved cookstoves and customized fuels. This overall assessment will also include looking at consumer finance issues e.g. with SACCOs and the supply chain for raw biomass to ensure equitable benefit sharing around decision making, skills and attainment of BFP's at the community level through Inyenyeri business approach. Based on the overall assessment of Inyenyeri and DelAgua,

additional training and capacity building activities will be designed in order to strengthen the firms ability to deliver equitable development outcomes.

Component Name:
Introduce Advanced Cook Stove Technology and standardized fuel to replace inefficient charcoal and wood stoves.
Comments (optional)

Component Name:
Scaling up Intermediate Cookstove Technologies in Rural areas.
Comments (optional)

E. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

The project will target Rwanda's Eastern Province and three districts across the Western Province, namely Rubavu, Nyabihu and Musanze, and potentially Kigali City.

F. Environmental and Social Safeguards Specialists

Svetlana Khvostova(GEN01)

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II. IMPLEMENTATION

Component 1 of the project will be implemented by Inyenyeri, a for-profit social enterprise registered in Rwanda in 2011. It has roughly 60 staff, all but one of which are locally based in Rwanda. The company has spent the last 3-4 years developing and refining their business model in their Rubavu pilot site.

All components of the Inyenyeri operation, except the Clean Development Mechanism (CDM) processing, will be directly implemented by Inyenyeri. These include: marketing and promotion, procurement and dissemination of stoves, production and sale of Biomass Fuel Pellets (BFPs), collection and pre-processing of biomass at biomass collection centers, repair and maintenance as well as replacement of stoves.

The carbon aspects including verification and issuance of carbon credits from the project will be managed by Atmosfair GmbH as the Coordinating and Managing Entity (C/ME) of their registered Program of Activity (PoA). Atmosfair GmbH has already demonstrated its capacity to manage the carbon process by successfully completing several verification and issuances for both Gold Standard and CDM.

All key contracts have been signed or are in the final stages of negotiation with key suppliers including Buskirk (for the pelletizing equipment) and Mini Moto for the provision of stoves. Full Financial closure is expected to occur concurrently with the signing of an ERPA with Ci-Dev. Inyenyeri is in advanced stage of discussions with financiers and claims to achieve full closure by December, 2016 (to be further evaluated).

Component-2 of the project will be implemented by DHRI, which is registered to operate in Rwanda

and a wholly owned subsidiary of DelAgua Health Rwanda (DHR), which is itself a wholly owned subsidiary of DelAgua Health (DH).

The group has prior experience in dealing with health related products. The group's business started with portable water quality monitoring kits in 1985 and the group is committed to providing services and products to enable the provision of clean drinking water for everyone around the world. To this end, the group bought Manna Energy Limited (MEL) in 2012 and formulated DelAgua Health.

DelAgua Group is owned: 68% Neil McDougall – UK National; 32% James Beaumont – UK National. These 2 shareholders are also the only two statutory directors for the group. DelAgua Group, DelAgua Health, DelAgua Health Rwanda, and DelAgua Health Rwanda Implementation (DHRI) were all incorporated at Freeport in the Commonwealth of the Bahamas on 17 May 2012, apart from DHRI, which was incorporated on 12 June 2012. DHRI is also registered to operate and pay tax in Rwanda.All components of the DelAgua operation including the CDM aspects will be directly implemented by DelAgua itself.

III. SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	The project is expected to have significant positive impacts by directly reducing exposure to household air pollution (HAP), reducing time spent on cooking and related activities, and reducing demand for woody biomass, through the introduction and promotion of a range of improved and advanced cookstoves. Given the nature of the interventions, negative environmental impacts likely to be caused by the project are minimal. There is an existing small scale pellet producing plant, which utilizes a set of health and safety practices (as described in the company ESMP). There is a possibility that construction of small storage and fuel pellet manufacturing facilities may be required as the companies expand their operations. In this case an EMP will be produced for each facility identified. Disposal of quantities of damaged or obsolete cookstoves may also be required. Import of internationally manufactured stoves into the country may lead to some perceived negative social impacts in form of displacing small local entrepreneurs and artisan stove manufacturers. However, the market share of such players is small, the potential for direct competition is limited and the potential for beneficial effects through piggybacking on market develop is real. The project produced ESMPs for both DelAgua and Inyenyeri, based on the health and safety information on the operation of

		the cookstoves and share it with the stakeholders and publicly disclose these materials on DelAgua and Inyenyeri websites. The project will also provide continued sharing of these materials directly with the cookstove users.
Natural Habitats OP/BP 4.04	No	
Forests OP/BP 4.36	Yes	The project will have beneficial indirect effect on trees and forests by reducing the volume of woody biomass consumed by participating households. The source of biomass for pellets in Inyenyeri stoves, based on the target customer base (urban/per-urban areas), predominantly consists of small eucalyptus branches (non-indigenous species and one of the most common trees), reeds and sawdust. There is a possibility during the life of the project, that Inyenyeri may move from their current model of crowd-sourcing minor biomass to sourcing from commercial plantations to support fuel pellet production. Therefore the Forests Policy has been triggered as a precautionary measure, and a TOR developed in the event that further due diligence on the sourcing of biomass is needed.
Pest Management OP 4.09	No	
Physical Cultural Resources OP/BP 4.11	No	
Indigenous Peoples OP/BP 4.10	No	
Involuntary Resettlement OP/BP 4.12	No	The project is not planning land acquisition and there is no involuntary resettlement anticipated under the proposed activities, therefore OP4.12 is not triggered.
Safety of Dams OP/BP 4.37	No	
Projects on International Waterways OP/BP 7.50	No	
Projects in Disputed Areas OP/BP 7.60	No	

IV. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:
The project is expected to have significant positive impacts and very minimal negative impacts related to health and safety aspects of using the cookstoves. The positive impacts are envisioned to be achieved by directly reducing exposure to household air pollution (HAP), reducing time spent on

cooking and related activities, and reducing demand for woody biomass, through the introduction and promotion of a range of improved and advanced cookstoves. Reduction in biomass demand will in turn contribute to countrywide efforts to reduce deforestation, while benefitting the global community through its contribution to climate mitigation. Given the nature of the interventions, negative environmental impacts likely to be caused by the project are minimal. There is a possibility that construction of small storage and fuel pellet manufacturing facilities may be required as the companies expand their operations. Disposal of quantities of damaged or obsolete cookstoves may also be required. Import of internationally manufactured stoves into the country may lead to some perceived negative social impacts in form of displacing small local entrepreneurs and artisan stove manufacturers. However, the market share of such players is small, the potential for direct competition is limited and the potential for beneficial effects through piggybacking on market develop is real.

There are no large scale or irreversible impacts anticipated.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

In the event that Inyenyeri achieves very high growth, there may be some economic displacement of charcoal production that would impact charcoal producers. However, given the local and regional demand for charcoal, this is unlikely to be a rapid change, and the Bank will also be providing some livelihoods support to charcoal cooperatives close to Gisyenyi through a Nordic Development Fund grant attached to the Landscape Approach to Forest Restoration and Ecosystem Conservation project.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

N/A

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

Each company produced an ESMP, based on the health and safety information on the operation of the cookstoves and share it with the stakeholders and publicly disclose these materials on DelAgua and Inyenyeri websites. The project will also provide continued sharing of these materials directly with the cookstove users.

Neither Inyenyeri nor DelAgua have previously implemented World bank projects, and they are not familiar with the safeguards policies. However, both companies have produced health and safety information which is routinely shared with the recipient households. The project will include capacity building aspects to promote the health and safety compliance with both DelAgua and Inyenyeri operations.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

The program is expected to benefit the households that adopt improved cookstoves by offering reductions in environmental health risk factors and savings in productive time that is otherwise used for collecting fire wood for cooking. The program will also contribute to the enhancement of the cooking/fuel value chain and the creation of job opportunities in the areas of marketing, sales and after sales services for improved cookstoves and customized fuel.

The project stakeholders include participating urban (previously charcoal-using) and rural (or peri-urban) households. Both companies utilize customer level surveys containing questionnaires with baseline socio-economic, gender and other information. Both Inyenyeri and DelAgua have local offices that provide an information channel for customers on a day to day basis (e.g. complaints, service requests, and educational information provision).

B. Disclosure Requirements (N.B. The sections below appear only if corresponding safeguard policy is triggered)

Environmental Assessment/Audit/Management Plan/Other	
Date of receipt by the Bank	03-Jan-2017
Date of submission to InfoShop	10-Jan-2017
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	
"In country" Disclosure	
Rwanda	03-Jan-2017
*Comments:*ESMPs of each of the companies are disclosed on their respective websites.	
If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.	
If in-country disclosure of any of the above documents is not expected, please explain why::	

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting) (N.B. The sections below appear only if corresponding safeguard policy is triggered)

OP/BP/GP 4.01 - Environment Assessment						
Does the project require a stand-alone EA (including EMP) report?	Yes	[X]	No	[]	NA	[]
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?	Yes	[X]	No	[]	NA	[]
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes	[X]	No	[]	NA	[]
OP/BP 4.36 - Forests						
Has the sector-wide analysis of policy and institutional issues and constraints been carried out?	Yes	[]	No	[]	NA	[X]
Does the project design include satisfactory measures to overcome these constraints?	Yes	[]	No	[]	NA	[X]

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?	Yes	[]	No	[]	NA	[X]
The World Bank Policy on Disclosure of Information						
Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	Yes	[X]	No	[]	NA	[]
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	Yes	[X]	No	[]	NA	[]
All Safeguard Policies						
Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes	[X]	No	[]	NA	[]
Have costs related to safeguard policy measures been included in the project cost?	Yes	[X]	No	[]	NA	[]
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes	[X]	No	[]	NA	[]
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes	[X]	No	[]	NA	[]

V. Contact point

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VII. Approval

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Safeguards Advisor:	Name: N/A	Date:
Practice Manager:	Name: Nevena Ilieva	Date: Jan 31, 2017
Country Director:	Name: Yasser El-Gammal	Date: Feb 21, 2017