

**National Climate Change and Environment Fund (FONERWA)  
Full Project Document (PD)  
COVER SHEET**

(Attach this sheet to the front of your submission. *Please do not exceed one A4 side of paper.*)

<b>Project Title</b>	<b>Send a Cow Rwanda – Sustainable Land Management and Environmental Rehabilitation for Poverty Reduction</b>
<b>Project Summary</b> <i>(In 75 words or less please summarise what your project intends to achieve and how)</i>	Working with 600 vulnerable households SACR will build capacity to tackle major environmental challenges; soil erosion, vital nutrient depletion, deforestation and implementation of unsustainable agricultural practices to ensure sustainable land management and environmental rehabilitation. Poor land management results in inadequate agricultural production and as a result poverty and malnutrition. Coupled with expert training households will receive livestock to provide a source of animal protein, income as well as manure for composting and organic fertilizer.
<b>Anticipated Start Date</b> <i>(DD/MM/YYYY)</i>	09/12/13
<b>Project Duration</b>	36
<b>Funding Requested (RWF)</b>	539,792,622
<b>Name of Lead Organisation</b>	Send a Cow Rwanda (SACR)
<b>Type of Organisation, which best describes the Lead Organisation</b> <i>(please select only one box)</i>	<input type="checkbox"/> Government Institution
	<input checked="" type="checkbox"/> Non-Governmental Organisation (NGO)
	<input type="checkbox"/> Private Sector Enterprise
	<input type="checkbox"/> Academic Institution
	<input type="checkbox"/> Other <i>(please specify)</i>
<b>Partner Institutions</b>	
<b>Full Office Address</b>	PO Box 522, Kigali, Rwanda
<b>Website Address</b> <i>(if applicable)</i>	www.sendacow.org.uk
<b>Contact Person</b> <i>(the person who will have ultimate responsibility and be accountable for delivering this project)</i>	<b>Name: James Pimundu or Angelique Barongo (Programme Manager)</b> <b>Position: Country Director</b> <b>Email: james.pimundu@sendacowrwanda.org</b> <b>Tel: +250788387180/ Angelique Barongo +250788535668</b>

**For Internal Purposes Only: To be Completed by the Fund Manager**

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**National Climate Change and Environment Fund (FONERWA)  
Full Project Document (PD)**

(Please provide a complete answer to each question, even if the answer is duplicated elsewhere. This PD should not exceed 35 sides of A4 size paper.)

**SECTION 1: INFORMATION ABOUT THE APPLICANT**

**Q 1.1** **What** is the Lead organisation's total number of full-time employees?

21

**Q 1.2** **What** is your organisation's experience of managing similar projects or activities (*please explain why you think your organisation and partners are capable of managing the project*)?

SACR has 11 years of experience of working on similar projects in Rwanda. SACR country director has over 15 years of management experience in various development organizations focusing on capacity building. SACR program manager is a qualified animal scientist and has been managing SACR projects for 5 years. Technical staff includes a senior sustainable agriculture and natural resource management adviser who will guide development of training and oversee all training of activities related to environmental protection. A senior livestock adviser and veterinarian will work to ensure best practice high quality training on all animal management topics. Our regional coordinators are social development experts and will contribute to planning and implementation of projects with a special focus on social development. These staff provides oversight to extension workers who are trained veterinarians and agronomists and who will provide delivery of training activities in collaboration with senior technical advisers. SACR has reached 6000 families with programmes of poverty and malnutrition reduction, indirectly reaching close to 200'000 Rwandan women, men and children.

Alongside independent projects SACR has implemented a number of government programmes including;

- Support Project for the Agricultural Transformation Plan (PAPSTA)
- Kirehe Community Based Watershed Management Project (KWAMP)
- Dairy Cattle Development Support Project (PADEBL)

SACR has experience in undertaking research having participated in two agricultural development projects run by the Association for Strengthening Agricultural research in East and Central Africa, current research focuses on disease prevention in fodder crops for improved animal health.

SACR also has input and guidance from Send a Cow teams across Africa and the technical team based in the UK, with twenty five years of experience, particularly for coordination and research and development.

**Q 1.3** **List** the name, position, and email of key personnel involved in the project, such as the project executive, project manager, and core technical staff. (Provide a CV for each of the key personnel as an attachment to this PD)

Country Director: James Pimundu Mwangi – [james.pimundu@sendacowrwanda.org](mailto:james.pimundu@sendacowrwanda.org)  
 Programme Manager: Angelique Barongo Malima– [angelique.barongo@sendacowrwanda.org](mailto:angelique.barongo@sendacowrwanda.org)  
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 Sustainable Agriculture Advisor – Valens Kanukaze – [valens.kanukaze@sendacowrwanda.org](mailto:valens.kanukaze@sendacowrwanda.org)

**Q 1.4** **Lead Organisational Finances. Provide a copy of these** from the most recent audited annual accounts (income and expenditure statement & balance sheet in RWF, as well as the main sources of funding) as an attachment to this PD.

Attached

Current sources of funding;

- 1) Public funds from the UK
- 2) Jersey Overseas Aid Commission
- 3) Vitol Foundation
- 4) ASARECA
- 5) Various small trusts and foundations
- 6) ICCO

## SECTION 2: INFORMATION ABOUT THE PROJECT

**Q 2.1** **Why** is the project needed (*clearly state the problem this project will address and the evidence base for its justification. Where possible, refer to international, national and/or sectoral strategies.*) ?

Despite impressive growth over the last five years (8.5% annually) **56% of the population of Rwanda still lives below the poverty line** and **45% of the child population is malnourished or stunted; one of the worst rates in sub-Saharan Africa**. The **agricultural sector** accounted for **45% of GDP in 2011 but agricultural productivity has barely increased in the last five year, partly** due to loss of soil fertility and erosion, poor agricultural practices, lack of knowledge and insecure land tenure.

Agriculture presents an opportunity for development but also one of the country's most serious environmental problems: land degradation. Land degradation in Rwanda is characterized by soil erosion and declining soil fertility and is driven by unsustainable land use practices, namely deforestation, over cultivation including on steep slopes without appropriate soil conservation measures, and overgrazing.

Government plans to increase agricultural productivity through intensification, if not well managed; will likely create environmental risks. Major investment is, therefore, needed to improve land management and promote an integrated sustainable agriculture approach to ensure household food security and achieve pro-poor, environmentally effective poverty reduction.

This project will take place in Rwanda's eastern province; formerly a productive crop and animal production province but now suffering from food insecurity, and the North, where the topography makes farming particularly problematic and soil erosion and landslides a regular occurrence. In line with national averages, the **agricultural sector in these provinces provides employment for 90% of the population**

Specific challenges include;

- Poor farm yields have been exacerbated by unpredictable weather patterns affecting planting and harvests. On consultation farmers were particularly concerned about extended dry periods and heavy rains which they felt had increased over the last 10 years (SACR climate resilience survey 2013). Without the necessary knowledge to prepare for these occurrences, farmers suffer regular seasonal losses or limited crop production.
- Poor agricultural practices and declining soil fertility is contributing to poverty and malnutrition as households are unable to grow sufficient quality and quantity of crops necessary to provide full nourishing meals for their families.
- With insufficient quantity farmers are also unable to sell produce and therefore unable to generate

income with which to pay for basic needs including housing, education and medical insurance, this also means they are not inputting to the economy which then suffers as a result.

- Results of environmental degradation include, stony and shallow soils; affected or prone to soil erosion, soil fertility decline and reduction in crop yields, deforestation, less resilient soils prone to climate and weather variability leading to decline in agricultural productivity, lack of wood fuel.
- There is a poor understanding of the linkages between agricultural productivity and forests. The deficit of wood and continued deforestation in Rwanda is having severe negative environmental consequences and impacting upon agricultural production.
- Wood is the source of fuel for around 99% of the population (GoR Vision 2020) and it is largely combusted on inefficient 'three-stone' stoves. Using solid biomass as fuels depletes forests, a condition that weakens the soil causing mudslides and destroying agricultural land. It jeopardizes human health and household and community air quality through toxic smoke emissions. Impacts in more detail include;
  - **Health Impacts:** Burning biomass or charcoal indoors over open fires or on crude stoves can lead to high concentrations in air of substances harmful to health. The known adverse effects of biomass combustion for household energy use include common respiratory diseases, along with low birth weight and increased infant mortality. In Rwanda, women are traditionally responsible for cooking and have the highest levels of exposure, as well as infants and young children, who are often carried on their mother's back. Consultations with health service providers suggest that respiratory illnesses constitute one of the highest percentages of ailments amongst the rural Rwandan population.
  - **Climate Impacts:** Burning biomass releases approximately the same amount of carbon dioxide as burning fossil fuels. While fossil fuels release carbon dioxide (CO<sub>2</sub>) captured by photosynthesis millions of years ago, biomass releases CO<sub>2</sub> that is largely balanced by the carbon dioxide captured in its own growth (depending upon the amount of energy used to grow, harvest, and process the fuel). Replacing harvested biomass results in a sustainable cycle of carbon dioxide emission and sequestration, unfortunately this is not undertaken and deforestation continues unabated. Additionally, burning biomass also releases pollutants including black carbon and methane, which have short life spans but significant consequences for the climate. Black carbon, which results from incomplete combustion, is estimated to contribute the equivalent of 25 to 50 percent of CO<sub>2</sub> warming globally.
  - **Fuel Efficiency:** Biomass is often burned over open fires or in crude stoves, which yields negative health and climate impacts. Use of clean and efficient biomass cook stoves results in fuel saving, improved fuel efficiency and reduced emissions
  - **Fuel Availability:** Limited and reducing biomass availability, leads to deforestation, desertification, and land degradation.
- Women are responsible for child feeding, but lack knowledge of good feeding practices, resulting in high levels of micronutrient malnutrition, especially in under 5s (Rwanda National Nutrition Policy 2010-2013).
- Where families consume sufficient quantity of food, it is largely roots and tubers (potatoes, cassava) and provides little nutrient value.
- There is severe nutrient loss from poor cooking practices.
- Fruit and vegetables are scarcely cultivated and are more intended for cash than for consumption (National Nutrition Action Plan – NNAP).
- Animal products (meat, eggs and to a lesser extent milk) are rarely consumed (NNAP)
- The GoR's latest National Nutrition Policy recognizes that under-nutrition is considered not just a health sector problem but a complex phenomenon resulting from a number of causes; health,

environment, nurturing and household level food availability. Malnutrition is thus a multi-sectoral challenge that is difficult to extricate from issues related to low agricultural productivity and environmental damage.

When determining project location both logistics and need were taken into consideration, as a result projects are located in provinces where SACR already had a presence, districts were determined based on their needs;

Rulindo (EICV3 District Profile) –

- Second highest % of extremely poor in the Northern Province
- 42.9% of the population lives below the poverty line
- 77% of the population depend on the land for their livelihoods

Bugesera (EICV3 District Profile);

- Ranks in the 40-55% category of poor and extremely poor
- Food security priority area (CFSVA 2009).
- An estimated 60% of the population in Bugesera live on less than \$1.25 a day
- 60% of work aged people (16+) are underemployed
- Low protection of land against soil erosion

Rwamagana (EICV3 District Profile)

- 42% of the population have less than 0.3ha of land which is under great pressure to produce sufficient crops, and suffers from poor agricultural practices
- 30% of households are living in poverty, 12% are considered extremely poor
- Only 30% of the population have improved housing
- Females spend over twice as much time on domestic duties than their male counterparts

Kayonza (EICV3 District profile) –

- 85% of population engaged in agricultural employment (self-employed or waged labourer)
- 40% of population are poor, 19% extremely poor
- Only 12% of the population have improved housing
- 75% of the work aged people (16+) are underemployed (less than 35 hours a week inc. domestic tasks such as wood and water collection)
- Low protection against soil erosion
- Females spend twice as long as their male counterparts on domestic chores.

In both developing and developed countries we need to witness a significant shift in agricultural development - there needs to be “truly ecological intensification” (UNCTAD Report, 2013). This encompasses a shift away from typical, monoculture, high input production towards regenerative production that improves the productivity of small-scale farmers. The approach must be holistic in recognition of the fact that a farmer is not only a producer of food but also manages a complex ecological system including water, soil, landscape and energy.

On a global scale, in an attempt to reduce poverty and malnutrition previous strategies have encouraged

reliance upon international and regional markets for staple foods whilst encouraging specialization in cash crops, however this logic relied on low staple food prices and no shortage in supply. This is no longer the situation faced by developing countries. Specialization has increased the scale of production of a limited number of crops which has aggravated the environmental crisis of agriculture and reduced resilience. The focus needs to move to multi-functionality of agriculture and closed nutrient cycles (the movement and exchange of organic and inorganic matter back into living matter).

Agriculture and climate change are intrinsically linked with one impacting upon another in a never ending cycle, current trends in Rwanda are largely negative but this need not necessarily be the case. The biggest impacts of climate change to agriculture will be felt in sub-Saharan African countries such as Rwanda. Stalled agricultural production and a quickly rising population in a resource constrained and climate change exposed environment will put mounting pressure on food security and access to land and water.

The project will address needs and objectives from local, national and global climate change and development plans;

- The project closely aligns itself with the Government of Rwanda Green Growth and resilience: National Strategy for Climate Change and Low carbon development (2011). It will contribute to achievement of the strategy by mainstreaming climate resilience and low carbon development into key sectors of the economy, namely agriculture. Important, because agriculture is one of the three largest sources of greenhouse gas (GHG) emissions. The agro-forestry element of the project will contribute to achievement of the strategies focus in this area by providing wood for fuel and soil protection whilst avoiding deforestation.
- The project will cover GoR focus on integrated soil management cutting down a significant proportion of Rwanda's GHG emissions that come from fertilisers and manufacture of fertilisers by providing organic sources of compost for soil nutrient replenishment.
- The project contributes to and works within Vision 2020 and the Economic Development and Poverty Reduction Strategy 2. Reducing food insecurity and malnutrition is an EDPRS 2 foundational issue that cross cuts all major thematic areas.
- EDPRS 2 Priority Area 2 is 'Increasing the Productivity of Agriculture'; GoR recognises that the sector has the greatest potential to reduce poverty in Rwanda. The scope to expand cultivable land is limited and as such improving productivity of agriculture land is paramount for income generation and rural transformation. However, that increase in productivity cannot come at the expense of the environment or the benefits will be short lived and detrimental in the mid to long term. The proposed project will contribute to promoting the full contribution of men and women in the national development process. Recognising that a coordinated approach to development best serves the Rwandan people we follow the EDPRS2 for guidance and match our expertise to support its plans. The project matches EDPRS 2 strategy in a number of ways including but not limited to;
  - Improved land husbandry methods, the EDPRS states that; 90% of cropland is on slopes of 5%-55% and land husbandry and terracing are important to increase productivity. The activities in this project match the EDPRS2 suggestions including; progressive and radical terraces, integrated soil fertility management and agro-forestry.
  - Increasing access to quality extension services and building the capacity of current extension workers for implementation of knowledge intensive agriculture
  - Piloting farmer field schools

- Skill training in post harvest management
- Increasing access to efficient cooking methods including use of efficient cooking stoves and promotion of biogas
- Tackling the high rates of stunting amongst the under 5's (47%) – not only does this result in susceptibility to other illnesses and high rates of infant mortality but children who were/are chronically malnourished perform less well in school and are economically less productive as adults. EDPRS2 research estimates that malnourished children risk losing 10% of their lifetime earning potential and for countries a loss of up to 3% of GDP.
- Parental education; malnourishment of children is a complex problem with numerable interlinked causes however it is demonstrated that lack of education among parents and particularly mothers is a significant factor in malnourishment and particularly micro-malnourishment of the under 5s. As the physical and mental damage associated with poor foetal growth and stunting are irreversible after the age of 2, this project intends to contribute to tackling the problem through nutrition and food preparation training and sensitisation. This supports the government's intention to implement community based nutrition programmes.
- Cross cutting issue of the environment and climate change, the livelihoods of both the rural and urban population depend on access, use and management of natural resources. Without sound environmental management development activities could cause significant environmental degradation, ultimately undermining economic growth. According to the EDPRS2, research estimates that climate change could result in additional net economic costs (on top of existing climate variability) for Rwanda that are at least equivalent to a loss of almost 1% of GDP each year by 2030.
- This project falls under the priority areas for environment and climate change, namely (i) mainstreaming environmental sustainability into productive and social sectors and (ii) reducing vulnerability to climate change.
- Mainstreaming disaster management across the agricultural training

Rwanda's Vision 2020 recognises the need for women's economic empowerment in reducing malnutrition, improving agricultural productivity and income and gender and gender monitoring has been taken into account in project planning.

At a global level; one of the United Nations Environmental Programme (UNEP) key focus areas is ecosystem management for sustainable development. Under this focus the UNEP intends to support projects such as this, that build capability to implement and understand nutrient cycling. Elaborated in their strategy, healthy ecosystems have a large capacity to absorb, retain and recycle nutrients. In simplified low-diversity agricultural landscapes this capacity is much reduced.

UN Millenium Development Goals (MDG); aim to improve human well being, across 8 key thematic areas, poverty and hunger (MDG 1), universal access to education(MDG2), tackling gender disparity(MDG3), reduce child mortality (MDG3), improve maternal health (MDG5), control and management of disease, particularly malaria and HIV/AIDS (MDG6), ensuring environmental protection (MDG7) and developing global partnerships for poverty reduction (MDG8). MDGs achievement requires a multidimensional concept of development. This notion has helped guide the holistic approach of this project, linking poverty reduction to gender, reduction in child mortality, limiting disease transfer and ecosystem and environmental sustainable management. To tackle poverty reduction within a framework of environmental sustainability the UNEP calls for a number of interventions, some of which will be matched by this project, namely;

- Technical intervention; develop appropriate technologies based on traditional practices

- Social interventions; more effective extension and training services to educate the poor and enhance their capacity to manage eco-systems

Focusing exclusively on the environment; GoR single handily is unlikely going to achieve MDG 7 despite several proactive attempts including promotion of climate smart agriculture.

Rwanda has made substantial progress towards achieving most MDGs with the GoR EDPRS providing overarching development guidance but still ranks 166 on the HDI (2011). This project will focus on MDG 1 and 7 as well as contributing to MDG 3 and 4. According to UNDP report; 2011, Rwanda can potentially meet MDG1 but is unlikely to achieve MDG 7 (<http://www.unrwanda.org/undp>) due to its high population, small land size, degradation of natural resources, unsustainable agricultural practices and insufficient soil and water conservation mechanisms.

Funding is sought from FONERWA as the needs and plans for this project closely match with the aims and outputs of the FONERWA grant, particularly under window 1 - Conservation and Sustainable Management of Natural Resources. With SACR expertise and support from the FONERWA team, SACR is confident of implementing a meaningful project that will make real environmental, social and economic change and provide evidence for project scale up to reach a greater % of the Rwandan population.

**Q 2.2** *What change is this project intended to achieve (state specific objectives, expected results/impact and long-term legacy. To address the core environment and climate change objectives of the project, it would be helpful to refer to national and sectoral climate change and environment objectives. Provide measurable indicators, within a log-frame matrix. In addition, make a note of the expected impacts on employment and poverty reduction, as well knowledge and technological transfer.)?*

This project intends to improve the livelihoods of 600 vulnerable farmers and their families (3000 people) in Rwanda by building their capacity to implement environmentally sustainable agricultural practices.

Output 1: 600 vulnerable households will have reduced malnutrition and increased income from improved quantity and diversity of food production as a result of environmentally sustainable agriculture. (Indicators used; 1) increase in FAO dietary diversity score, 2) reduction in hunger months)

- The promotion of sustainable and climate smart agricultural techniques maximises the potential of limited land. Agricultural productivity is enhanced through technical skills transfers and land and animal management techniques. Crop production will have increased 2 to 5 fold and households will be food secure and able to acquire additional incomes due to sale of surplus agricultural products.
- Crop diversification, in particular, vegetables in kitchen gardens provides households' access to more nutritious foods. This contributes to addressing insufficiency of micronutrients. Households will be able to produce sufficient and diversified food throughout the year
- Provision of livestock to beneficiaries will, 1) give farmers easy access to vital animal protein, 2) increase soil fertility and productivity due to presence and application of organic manure 3) allow beneficiaries to earn incomes from the sale of milk, other agricultural products and sale of animals upon passing on the gift to another beneficiary.
- The project will provide agricultural and nutrition education and inputs, in particular, skills and technology transfers to supported households. Agricultural productivity will increase and

malnutrition will reduce due to nutrition education, consumption of diversified and high quality foods. Households will easily access proteins from meat and milk and other nutrients especially iron and vitamin A from vegetables. Household food security will be enhanced, surpluses will be realised and livelihoods will be diversified and sustained.

- Through social development training cooperatives and farmer groups will be mobilised, their capacity strengthened and enhanced through various training, exposure visits, coaching and mentoring. The results; they will be able to participate in decision making processes, take-on leadership roles/responsibilities, lobby and advocate particularly at local government levels. Stronger, empowered and resilient cooperative/farmer groups and institutions will ultimately be built. Equality, respect and confidence, especially of women will be enhanced. Supporting cooperatives/ farmer groups complements and is in line with GoR's promotion of cooperatives as drivers for rural development and empowerment.

Output 2: 600 vulnerable households will be implementing techniques to tackle major environmental challenges such as soil erosion, vital nutrient depletion and unsustainable agricultural practices. (Indicators; 1) Annual % increase in land secured against erosion, 2) Number of farmers using composted manure and planting nitrogen fixing plants for nutrient restoration, 3) Number of farmers who are harvesting water)

- Protecting the environment is not only intrinsically a good thing but will also support growth and sustainability. Fodder establishment will ensure year round feed for livestock and protect the soil. Water both for production and human consumption will be easily available due to rain water harvesting. Farmers will be able to irrigate their farms during dry seasons. When livestock have constant access to food and water, milk production increases dramatically.
- Water harvesting will reduce household costs related to water purchasing, freeing up income for other needs including household renovations, education and medical insurance
- Environmental protection and regeneration not only increases food production but increases sustainability. Hitherto land that would have not been put to productive agricultural use will once again be put to gainful use because of soil and water conservation. Soil erosion and degradation will be controlled and reversed leading to increased productivity and soil health. Farmers will have year-round access to water for irrigation.
- The use and presence of peer farmers and animal health workers will result in ownership and sustainability. Better access to extension services contributes to sustainability, increased productivity and technical capacity, as training and skills are reinforced. Training will be provided to government extension workers to increase their capacity and for sustainability purposes as they will be active after this action ends.

Output 3: 600 vulnerable HH are using energy saving or renewable energy devices, including fuel efficient stoves, biogas and solar lanterns (Indicator; Number of men and women with access to low carbon energy)

- Diminished reliance on wood fuel for energy generation purposes, contributing to decreased deforestation

- Improved health as a result of reduced smoke and particle emissions and remaining emissions being directed away from the kitchen, research suggests that fuel efficient stoves reduce particle emissions by close to 70%. Solar lanterns reduce dependency on kerosene candles which are high carbon emitters.
- Reduced cooking time freeing up people and particularly women’s time for other activities
- On a staggered basis households will be provided with solar lantern and telephone charger, these will be repaid over a year. Great Lakes energy will supply the lanterns and they will also provide education in their use, benefits and costs. Farmers will within their groups establish revolving loan funds to ensure all households have access to solar devices. This is beneficial for the environment; it reduces deforestation and saves money from purchased wood fuel. Solar lanterns have the additional benefits of extending hours of light in houses with no access to electricity – this has a number of benefits including allowing children longer to complete homework. One of the models used for this project includes phone charging capabilities. Typically households with no electricity often have to walk for 30 minutes or more to access a phone charging point, where they have to pay. Access to charging devices cuts out this time consuming job and saves money. Access to mobile technology is of increasingly significant value; farmers can access market information under the GoR e-soko scheme, pay bills, access bank accounts etc.
- Previous research undertaken on this particular model of solar lantern suggests that families save 393 Rwf a week on other light sources and gain income of 148 Rwf a week from cell phone charging.
- This model is being used by another NGO but they are not operating in any of the districts in which this project will take place.

Across all outputs the focus is upon leaving capacity, skills and resources within the community. This means the value of the project is maintained and expands following the end of input from SACR.

Examples include;

- Skill transfer to farmers, working hand in hand to implement changes
- Training of community peer farmers and animal health workers for long lasting support and extension of beneficiaries
- Purchasing high quality livestock to improve the breeding stock, provision of AI with pure breed semen also maintains stock quality
- A cow is a ‘bank’ that provides direct benefits such as manure and milk but also an asset in times of dire emergency. The average lifespan of a cow is ten years but as they reproduce the initial cow gift multiplies. SACR requires each direct beneficiary to give the first heifer to another SACR beneficiary to establish community solidarity chains and to reduce costs, after this, farmer’s herds continue to grow and cattle can either be sold for income or kept to increase manure and milk production as well as provide a resource for biogas, for example.

**(Logframe attached as annexe)**

<b>Q 2.3</b>	<b>How</b> will the project objectives be achieved <i>(include a detailed Work Plan as an appendix highlighting key deliverables and activities and responsibilities. Clearly describe the approach and methodology to be followed and the sequence of activities planned.)?</i>
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The proposed action will adopt participatory adult learning and training approaches to empower households. With enhanced capacities, farmers will be able to actively participate in project design, planning, implementation, management, monitoring and evaluation. They will be able to identify and mobilise their own resources. Households are organised in groups and sub-group (cells) and training will allow them to identify capacity needs; develop group capacity building plans and visions in collaboration with SACR. Development of ownership and sustainability strategies will be a key component of capacity

enhancement.

By adopting integrated and holistic approaches that encompass environmental conservation, sustainable agriculture, livestock management and social development the multi-faceted nature, causes and manifestation of malnutrition and poverty will be tackled. Diversity of training modules and approaches will focus on both technical and theoretical (soft and hard) aspects and are designed to respond to unique needs of adult learners. SACR's development philosophy or principles; the "corner stone's", that emphasize unity, ability to share and accountability among others will guide and inform project implementation.

This project will work with smallholder farming households in the East and Northern Provinces in order to improve methods of agricultural land management, rehabilitating soils, encouraging afforestation whilst reducing poverty and malnutrition. This project will support 600 households, roughly 3000 women, men and children so that they may protect and improve their land, increase production, reduce poverty and malnutrition and contribute to the social and economic development of the country.

Specifically the project will;

- Bring farmers together in groups to facilitate easy training as well as to provide support networks for encouragement and shared learning. In order to ensure groups remain strong and work together into the future SACR provides social development training including gender equality, conflict resolution, group management, record keeping, constitution development and envisioning. These social development modules will contribute to uptake of all environmental and agricultural training.
- SACR staff will support households working together in groups to develop and strengthen constitutions and undertake envisioning exercises to clarify project and long term visions and missions. Experience shows that groups with agreed upon constitutions, vision and mission are more likely to maintain project activities once direct project support ceases. Accordingly, numerous capacity building initiatives including training will be executed. Each and every farmer group supported will be encouraged to develop a clear mission, set targets, indicators and milestones to enable them to monitor progress of project implementation and measure achievements. Groups will be encouraged to form 'cell groups' or neighbourhood households' of 4 to 8 members living in close geographical proximity. This will support project monitoring and evaluation, promote "copy farming" and peer support, learning and mentorship and complement extension services and easily facilitate the process of "passing on the gift or multiplier effects".
- Farmer groups' ability to keep records and undertake basic strategic management ambitions will be enhanced through training, coaching and mentorship. Record keeping improves effectiveness, accountability, profitability of economic ventures and facilitates decision making.
- SACR sustainable agriculture officer and extension workers will support farmers with establishment of kitchen gardens: these simple, yet effective and innovative agricultural production techniques are appropriate in areas with land scarcity. They maximize the potential of small plots of land as is the case in Rwanda whilst also protecting and improving soil fertility.
- SACR's proposed programme model has been recognized and documented as a "best practice" agricultural technique in Rwanda by the Smiths School at the University of Oxford in a study sponsored by DFID. The result, the government of Rwanda has mandated district and sector leadership to ensure each and every household have kitchen gardens as a strategy of addressing

malnutrition. This action thus complements this newly instituted government policy.

- Training in mulching and use of cover crops will reduce bare fallows and erosion. Landscape elements such as hedges or agroforestry provide shelter and favourable microclimates, improving moisture management and capacity to adapt to high temperatures.
- From vegetation, animal dung and urine, beneficiaries will make compost manure. Production of and utilization of organic manure made from compost will supply many micronutrients to soil whilst increasing organic matter. Increased organic matter will result in better soil structure which in turn increases soils moisture retention capacity. Nutrient release from compost is slow and so continues over a longer period of time. Additionally, compost reduces wind and water erosion and encourages the growth of beneficial soil organisms such as earthworms. Production of compost manure will address the challenge associated with lack of fertilizers highlighted by both beneficiaries and district leaders during needs assessments and consultations. Lack of fertile soils is a major cause of low food production and resultant malnutrition. Good manure management and rational utilization also reduce opportunities for methane and nitrous oxide release to the atmosphere
- It is estimated that between 25 and 40% of the current excess of CO<sub>2</sub> in the atmosphere results from the destruction of soil and their organic matter (UNCTAD report, 2013). This CO<sub>2</sub> emitted through soil depletion can be put back into the soil through a change in agricultural practices. There has to be a shift away from practices that destroy organic matter to ones that build up the organic matter in the soil such as composting, mulching and maximum ground cover. SACR undertook research which shows that over a five year period each group captures more Carbon dioxide than is released. (The research 'preparing to climate proof' is attached)
- Farmers' food productivity will increase while quality and food diversity will be enhanced to include foods rich in minerals, proteins and vitamins. Malnutrition is addressed, income increased due to sale of surpluses and households are able to produce crops even within the drier seasons of the year due to added humus and compost, proper aeration, good root growth, air circulation and increased water availability.
- Capacity in animal management will be built to ensure health and productivity of livestock as well as integration into the farm system. Farmers will acquire skills in animal health and hygiene, feeding, and shed construction. Healthy animals produce greater quantities of milk and proper sheds facilitate manure and urine collection. An integrated system of crop farming and animal management produces the most efficient nutrient cycles, key for regenerating soils, capturing carbon, reducing emissions and contributing to limiting climate change
- Upon establishment of sufficient fodder and of recommended varieties to sustain milk yields, maintain animal health and nutrition, animals will be provided to the beneficiaries. Some members of the district have previously received livestock from the government under the Ministry of Agriculture and Animal Resources (MINAGRI) girinka (one cow per poor family) scheme but milk production remains low; averaging just 3 litres a day in some cases. A major challenge highlighted during assessment by SACR research staff was poor quality and insufficient fodder which is partly caused by soil acidity and general lack of knowledge or skills. Farmers will have yearlong fodder varieties available for their livestock and of good quality such as leuceana, calliandra and other forms of legumes. Milk productivity will increase, soil fertility will be maintained and improved through nitrogen fixation and soil erosion reduced through root growth and better management. Farmers will be encouraged to grow Napier grass as main fodder plant due to their rapid growth ability, ability to withstand harsh weather and suppress weeds. Napier is advantageous; can be harvested multiple times throughout the year, be stored in multiple ways, e.g. as hay or silage, are high yielding even without fertiliser application, are cheap and

sustainable option for animal food.

- High biomass fodder species such as Napier provide environmental benefits in several ways. They support intensive dairy production systems, thus reducing grazing pressure. High grazing pressure causes overgrazing and soil erosion. They directly provide ground cover that protects soils from erosion. When fed to improved breeds they contribute to reduced enteric methane emission per kilogram of animal product (milk or meat) produced. Management of pests and diseases using disease resistance strains of Napier is environmentally compliant because it negates the use of non-target specific pesticides that kill beneficial insects and microorganisms.
- Households will receive one dairy heifer or three goats to provide a source of manure, animal protein and income from sale of milk. SACR's intensive or "zero" grazing approach to livestock management best fits the Rwandan context where majority of households fend on less than 1 ha of land. Through well managed zero-grazing techniques, farmers will get greater quantities of milk than under other extensive livestock management techniques; quality control and ensuring appropriate numbers for proper management underpin zero grazing. Damage on land is minimized as could have been the case in extensive systems where animals graze on marginal lands, e.g. steep hillsides and swamps or deforested lands. Soil erosion, conflicts with neighbors due to possible destruction of crops and spread of diseases such as tick borne fever are everyday realities within the region in uncontrolled livestock management systems.
- Improving nutrition encompasses three elements. 1) Increasing availability of micronutrient-rich foods through improved and diversified household production. 2) Increasing access to nutritious foods by raising income through commercial production and new on- and off-farm employment opportunities. 3) Improving utilization and sensitization about the value of balanced diets and basic hygiene during food preparation. Agricultural extension workers will work alongside SACR regional coordinators to promote consumption and preparation of nutritional diets. Together, they choose crops that are high in important vitamins and minerals, and are relatively easy to grow. Examples of crops include green leafy vegetables, sweet potatoes, tree fruits, passion fruit, taro, plantains and bananas. This integration of nutritional and agricultural activities maximizes the expertise of project implementers. Beneficiaries will be trained to use simple cooking methods that maintain the nutritional value of their produce.
- Specific focus will be given on topics such as the significance of good nutrition for pregnant women and the '1'000 day window' targeting malnutrition in children under two years. A substantial body of research points to the irreversible damage that malnutrition can cause during this young age (DFID Scaling up Nutrition, 2011). Districts have a small number of community health volunteers who focus on nutrition education, awareness and other basic health practices. They will actively be engaged as a strategy of providing them refresher trainings in order to build their capacity. They will continue to offer their support to the wider community and in the long term, sustainability will be promoted.
- This project will also pilot a solar drip irrigation system; the system uses technology designed to help rural farmers generate income and to combat food and nutrition insecurity in the developing world. The system combines solar (photovoltaic) water pumping and low-pressure drip irrigation, allowing farmers to grow high-value and nutritious crops year-round. The project has been successful in Ethiopia and Benin but to date hasn't been attempted in Rwanda and a successful pilot could provide evidence for a scale up across the country and attract renewable energy

specific funding. Solar-powered water pumps have long been used in remote regions for reliable water delivery. In rural areas, where the price of diesel for generators is frequently highest, and the supply mostly unreliable, solar-powered pumps are both clean and cost-effective. Drip irrigation is a proven efficient and labour-saving technology that delivers water directly to plant roots. With drip irrigation, farmers can achieve higher yields over larger areas with less water and labour. The system consists of a solar-powered water pump that fills a reservoir or tank. The reservoir, in turn, gravity-distributes water to a drip irrigation system. Solar Market Gardens can draw from both surface and groundwater sources. A communal piece of land will be used to trial the garden and volunteers will operate and maintain it; sales of crops will be divided amongst the volunteers. In other trial systems, farmers have paid back costs of \$20'000 in three years, the likely increase in income would not necessarily be as high. Previous experiments have been in arid zones, where production increases from nearly nothing.

- GoR in its EDPRS 2 recognises that irrigation has the potential to triple crop production by comparison to the current model of largely rain fed agriculture. Irrigation of farm land provides farmers with a level of certainty in their production encouraging them to invest in other inputs and activities that will increase the productivity of the land. However, irrigation systems are complicated and a trial of the solar market garden will be invaluable for further development of irrigation activities, which could then be developed as a national strategy for improved land productivity and has the potential to attract additional funding.
- Small holder households will be exposed to and learn appropriate land and natural resources management initiatives targeting Rwanda's hilly terrain and soil that continue to deteriorate unabated. Farmers will learn how to build and maintain terraces, water and soil conservation, agro-forestry, nursery establishment. Better water and land management in combination with extensive agro-forestry has been linked to increased rainfall in previously drought-prone areas of Rwanda (Southern Sector District Leader Interviews, 2012). Poor water management results in wastage thus insufficient water available for both agricultural production and household consumption. Water harvesting techniques will be introduced and promoted among farmers.
- Extended and intensive training is required in water and soil management techniques. SACR will closely involve government extension workers as a way of sharing information, building their capacity so they can offer sufficient support to farmers beyond the life of the proposed action.
- Exchange visits are an invaluable activity and training mechanism. Best farming demonstration plots within the community will be selected by staff as sites for visits. They facilitate knowledge sharing and identification of common problems. Exchange visits provide motivation for newer farmers to maintain their activities and utilise training. The exchange visits will promote stronger relationships between the beneficiary groups, staff and government extension workers.
- Households will discover how to construct and use fuel efficient cook stoves as a strategy for environmental protection and improved health for beneficiaries. The design of the fuel efficient stove that is being promoted by SACR generates sufficient energy for household needs with less wood fuel usage. Deforestation is thus reduced. Other technological benefits include its simplicity, ease of construction and use of locally available materials during construction and maintenance. The stoves also have positive health benefits for users as they produce less smoke and particle emissions. It will therefore directly tackle challenges associated with respiratory diseases linked to long-term smoke inhalation.
- Some participants, particularly youth will specifically be identified and trained as trainers as a strategy of ensuring appropriate transfer of the technology and to contribute to reduction in youth under and unemployment.

- SACR will provide the upfront capital for purchase of 200 SunKing Pro solar lanterns and phone chargers for distribution among farmers, farmers will use a revolving loan system to repay. This money will then be recycled to purchase a further 200 lanterns for distribution and so on. For a small initial investment a large population will be reached with solar energy. The lanterns will be provided by Great Lakes Energy – a Rwandan company which has been operating since 2005. Evidence from previous projects demonstrates that on average families saved 393Rwf each week from reduced dependence on other light sources, additionally they earned 148Rwf a week from provision of cell phone charging. SACR will monitor use of lanterns for energy saving, income and for farmer preferences.
- As part of sustainability strategy and ownership, farmers will develop links to community saving organisations (SACCOs)
- Out of the total beneficiaries supported, the most successful ones and those willing to support their colleagues and neighbourhood community members will gain the knowledge and experience to become ‘peer (model) farmers’. They will receive additional specialised training to be appropriately equipped for the task. With the additional knowledge gained, these peer farmers will provide support to members of the community. Peer farmers will also support their extended families, neighbours and communities more generally. This will result in a ripple or multiplier effect; more beneficiaries will be reached. Peer farmers generally understand the context and challenges affecting the communities, they are easily accepted by their communities and are volunteers. Capacity of existing extension workers will be further enhanced in response to unfolding needs for extension services. Research has demonstrated that women respond better to extension services provided by other women than when the same services are provided by men and so our focus will be on training more women as peer farmers (Action Aid, 2011 ‘What women farmers need: a blueprint for action’)
- Animal health workers will be identified and trained to support the work of SACR and government extension workers. They will be responsible for monitoring animal health and provide appropriate advice, linkage and animal health care support. Extension workers also undertake artificial insemination of animals for the farmers to support high quality breeding; these services will be passed on the government extension workers at project end. This is instrumental for sustainability purposes.

SACR method promotes community solidarity chains or “passing on the gift” – where livestock and other knowledge or skills are passed onto other community members, friends and families. This multiplier effect means more households will access inputs/other resources, in particular livestock which have significant nutritional and economic benefits and socio-cultural importance. It also means that more beneficiaries will benefit from this same initial investment. Knowledge and skills will be strengthened and transferred to other vulnerable households beyond project life. Sustainability, social capital/protection and safety net mechanisms are enhanced. Farmers groups will be divided into sub-groups or cell groups comprising 4-8 neighbourhood households. This will support project monitoring and evaluation, promote “copy farming”; peer support, learning and mentorship, promote stronger more cohesive cooperatives and farming groups, complement extension services and “passing on the gift or multiplier effects”

**Q 2.4** **How** does the project address cross-cutting issues such as gender and youth?

**Gender:**

Although tremendous progress has been made towards gender equality in Rwanda, inequality continues to persist especially at lower levels of governance and society; perpetuated mainly by negative cultural norms. To encourage women's empowerment, this project targets 70% women beneficiaries. This also improves uptake as women are the main care providers and typically undertake more of the farm labour. This proposed project is designed to mobilise women's empowerment, profile different gender roles and responsibilities, highlight negative practices and cultures that hamper women empowerment and participation. Division of labour at household levels will be promoted with the aim of reducing women's workload and time spent on unpaid activities so they are able to undertake productive and gainful employment activities leading to increased production and income. A focus on women's empowerment also has important repercussions for the children in the house, and family welfare in general. Research suggests that when women have greater decision making power a greater proportion of household income is spent on food and children's education.

The social development element of the project will also address rights related issues, especially gender based violence. Whilst official data suggests a reduction in gender inequality and in particular gender based violence there is still a demand for increased dialogue amongst community members for a better understanding of gender inequalities. This projects contribution will be towards providing safe and supported avenues for community dialogue and exchange, women's and other vulnerable person's ownership and access to information, inputs, and resources/assets will also form a centre piece. Sensitisation and awareness of men and women on the causes, effects and means of addressing gender inequality will be undertaken. Main delivery strategies will include formal and informal training workshops as a module of social development. Overall, the action complements Rwanda's comprehensive gender equality policies, approaches and planning framework.

**Youth:** This project targets vulnerable households, including orphan headed. Staff will engage the entire household in training activities and sensitisation recognising that whilst not necessarily the head of a household, young people contribute to farm work and will likely raise their own families, so these skills can be passed on. Working with the entire household ensures we reach a greater number of direct beneficiaries.

Young people, especially young girls typically bear the brunt and drudgery of a number of household chores, in particular water and fuel wood collection. Introducing water harvesting devices and fuel efficient stoves reduces the time taken on these activities freeing young people up for homework, other productive activities and leisure time. Farmers will be taught to construct a fuel efficient stove and unemployed young people will attend training in order to equip them with a skill that could be used for income generation.

An impact report demonstrated that three times as many families who work with Send a cow end up sending their children to secondary school and university. (Report was undertaken in Uganda)

<b>Q 2.5</b>	<b>Who</b> are the stakeholders affected by the problem, and who are the stakeholders influential in solving the problem? How have they been incorporated and involved in project design and delivery?
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Major stakeholders in this project are;

- 1) The smallholder farmers and their households who comprise the direct beneficiaries. Mainstreaming participation throughout our projects is a SACR cornerstone and as a result, project discussions and planning takes place with direct beneficiaries before any activities are implemented. Beneficiaries highlight their needs, aims and discuss their capacity with qualified SACR staff. Beneficiaries will be heavily involved as activity participants but also in the role of monitoring and evaluation which

contributes to project sustainability and success and ensures project ownership.

2) Peer farmer trainers and community animal health workers – direct beneficiaries who excel and who are willing to support other farmers will be involved in monitoring and project implement, they will also go on to support other farmers, increasing the number of people reached by the project. Some of our peer farmers train over 20 other farmers. Research has shown that all our farmers train, formally or informally other families in the communities in which they are based, a conservative figure of 6 farmers for every direct beneficiary means that with 600 direct beneficiaries a further 3600 families or a further 18'000 people will benefit. They are all project stakeholders.

2) District and sector leaders who are regularly updated and consulted in relation to SACR work and who have contributed in terms of selection of beneficiaries and project plans. This project directly contributes to achievement of district development agendas and plans and as a result government leaders are involved in monitoring progress, sharing learning and project development.

3) Other development actors: SACR regularly attends networking of international NGO meetings, in order to understand what other NGOs are doing, what their challenges and weaknesses are and where our expertise is best utilized, they will be a minor stakeholder in this project and learning and best practice will be shared amongst them.

4) Government of Rwanda: Closely aligned to GoR priorities, in terms of agriculture, poverty reduction and climate resilience the GoR will be a major stakeholder in this project and particularly if funding is channeled through FONERWA. SACR has good working relationship with Ministry personnel and will report regularly, where appropriate as well as feed into agricultural planning and discussions via the Agriculture Working Sector Group Meeting.

5) Rwanda Agriculture Board (RAB) will support the project with animal health and breeding, particularly provision of semen for artificial insemination. RAB will coordinate with SACR extension workers for implementation of all relevant activities.

6) Gako Organic Farmer Training Centre (GOFTC) – the training centre is used to provide intensive training to a number of beneficiaries who will go on to become SACR peer farmer trainers and community animal health workers.

5) Other Send a Cow country projects – Send a Cow works in 5 other countries across sub-Saharan Africa and they will remain a stakeholder in the project as we share learning for current and future project strengthening.

6) UNEP and Global Environmental Facility (GEF) as major climate bodies and funders

**Q 2.6** **How** will the benefits of the project be sustained after FONERWA funding comes to an end?

The holistic nature of this action contributes to project sustainability, first tackling the social challenges that perpetuate poverty before integrating these into technical training which provides beneficiaries with skills and knowledge to pull themselves out of poverty and to maintain their development. The focus of the project is leaving skills, knowledge and inputs within the communities and building the capacity of people to disseminate their learning for wider reach and sustainability.

1. **Financial sustainability** will be achieved through increased productivity, engaging in value addition and sale of surplus products, establishing viable and profitable income generating activities, linking beneficiaries to financial institutions, ensuring proper business management and supporting revolving and cash round loan schemes. Beneficiaries will be linked to formal financial institutions.

2. **Institutional sustainability:** At the beginning groups undertake envisioning exercises in order to establish milestones to guide project implementation. Capacity of group leaders will be enhanced through training, coaching and mentorship. Various volunteer structures such as peer farmers, cell groups, group leader's forum and animal health workers will also be put in place for sustainability

purposes and will remain operational beyond the life of the project since they will have acquired entrepreneurial, management and development knowledge and skills. Peer farmers and animal health workers remain a vital community based resource for project beneficiaries and other community members.

3. **Policy level sustainability:** This project will complement government policies for poverty reduction. Strategic collaboration will ensure the district continue to prioritise related issues in subsequent district plans and advocate for additional resources to continue supporting similar initiatives. District and sector leaders and staff that will be engaged in this action will continue to provide support beyond the life of the action.

4. **Environmental sustainability:** Adoption of climate-smart agricultural techniques that conserve and regenerate natural resources means that beneficiaries will prosper from the land whilst protecting it for the future. Best practice water management techniques provide water year round by harvesting during rainy season and distributing during the dry. Water management techniques such as irrigation facilitates the easy use of water and allows farmers to control water flow through their farms reducing impact of heavy rains on crops and soil. Through **Agro-forestry**, trees will be able to capture carbon through their leaves and trunk, nitrogen through their roots and provide natural drainage. They increase the content of organic matter in the soil, which in turn, increases soil fertility and water-holding capacity. Plant vegetation provides animal feed and fuel wood. Strategically planting trees on hill slopes will prevent soil erosion. **Soil Conservation;** Soil and vegetation are both key carbon sinks and composting is the best way to convert plant material into a soil improving fertiliser. Without the capture of carbon that comes through the composting process much more would be released into the atmosphere when plant material rots and without compost soil fertility will continue to decline. Additionally, by significantly improving the ratio of cultivated land against non cultivated land, there is more vegetation to soak up carbon. Overall, SACR sequesters more carbon that it produces, including international travel.

In order to expand the impact of this action beyond the initial beneficiaries as well as ensure its sustainability a five element dissemination plan has been established to guide information sharing and multiplication of successful project results.

**1) Knowledge transfer** - All the training we deliver to our beneficiaries will be shared with others. Livestock will also be shared amongst further beneficiaries. Knowledge transfer will entail both formal and informal knowledge acquired and links to networks and contacts, for example formal training from peer farmers will ensure multiplication of best practice agricultural techniques ('the multiplier effect'), whilst informal copy farming also disseminates information.

**2) Identifying end users** – including direct beneficiaries, families, neighbours and the communities within project locations as well as government officials, healthcare providers, schools and other NGOs.

**3) Collaboration between dissemination Partners** – All project partners will be responsible for information sharing and dissemination. Other partners will include local leaders, cooperative management committees, local and national media, and research institutions.

**4) Communication** – Information will be shared via a number of formal and informal pathways. Farmers pass on skills through copy farming. Farmers who excel will be trained to become Peer Farmers; they will then provide more formal support to others. Information will be disseminated to government officials through attendance by agricultural extension workers at SACR training. Project progress reports will be shared with stakeholders to facilitate information transfer

**5) Evaluation** – Success of information dissemination will be monitored by dissemination partners. Formal monitoring and evaluation of the entire project will take place regularly and reports will be written and shared with all stakeholders, this will provide an opportunity to reassess dissemination

techniques throughout the action and for future actions.	
<b>Q 2.7</b>	<b>What</b> is the scope for income generation from the project?
<p>Beneficiary level; Through improved agricultural techniques farmers will increase production, once becoming food secure additional surplus will be available for sale and income generation. During previous projects farmers have diversified income sources for income generating techniques including, collective marketing, value addition of vegetables and dairy products, mushroom farming, handicrafts, provision of basic animal health services.</p> <p>Organisational level; SACR is a non-profit organisation and does not intend to generate income from this project. However, success with this project and development through lessons learnt will increase opportunities for funding, particularly from climate change and environmental facilities such as the Global Environmental Facility (GEF).</p>	
<b>Q 2.8</b>	<b>Preparation:</b> Has a feasibility or pre-feasibility study been conducted ( <i>If yes, then please attach a copy to this PD</i> )?
No, this project has been built on experience and learning from previous SACR projects and in consultation with our stakeholders.	
<b>Q 2.9</b>	<b>Preparation:</b> Are there any outstanding regulatory or legal requirements that need to be met before the project can proceed ( <i>access to land, planning consent, use of new technologies</i> )?
No	
<b>Q 2.10</b>	<b>Preparation:</b> Has an Environmental Impact Assessment been conducted for the project ( <i>If yes, then please attach a copy to this PD</i> )?
Attached is SACRs environment pre-assessment form and research into the environmental impact of Send a Cow projects.	
<b>Q 2.11</b>	<b>How</b> will the performance of the project be monitored and evaluated ( <i>both during and after the project</i> )?
<p>A designated project manager will be assigned to the project charged with the responsibility of day-to-day implementation, management and ensuring timely reporting. All project staff will meet monthly to review progress against plans, decide on major decisions and agreement on major changes. A project inception meeting will be organized bringing together all the major stakeholders as well as biannual stakeholder review meetings. .</p> <p>Community based M&amp;E systems will be promoted and spearheaded by SACR extension workers and assisted by government extension workers, district and sector level staff from all partners. The partners will agree on follow up and evaluation framework including dividing the different roles and responsibilities among themselves. Other key players will include peer/model farmers, cooperative/ group leaders and sector executive Secretaries. They will be beneficial beyond the life of the proposed action as it promotes local ownership and builds local capacity. A detailed exit plan will be developed</p>	

jointly and in consultation with the community and beneficiaries at project inception so all partners are in agreement in respect to the indicators and strategies.

Management committees will assign roles and responsibilities, monthly status reports will be Produced; quarterly, biannual and annual reviews will be undertaken and adjustments may be made pending approval of the donor. SACR has established a monitoring and evaluation framework/logframe which details the indicators with which to measure progress towards their self established goals. These will be reviewed internally by both SACR on regularly agreed upon intervals. A full project evaluation will take place upon completion.

A baseline has been undertaken by SACR staff with good local field knowledge. It is against this baseline that progress towards objectives will be measured using the mutually agreed upon indicators. Households will be involved throughout the implementation, monitoring and evaluation of the project for ownership, buy in, enhanced participation and sustainability and will contribute to assessing progress against mutually established indicators. Certain indicators will be measured using industry standard monitoring tools in particular the dietary diversity score. Major M&E activities that will be undertaken during the project include: A) Bringing stakeholders together for a start-up workshop to develop and refine a comprehensive M&E framework B) Quarterly review workshops for farmer representatives. C) SAC's Information Management System will be used by EW to collect data such as group attendance, yields and progress towards indicators and then used by the regional coordinator to analyze information. D) Success stories and case studies and any research will be documented by the regional coordinator and shared with other stakeholders including other Send a Cow country programs, local government and other development actors. E) A mid-term review and end of project evaluation (looking at impact, relevance, effectiveness and efficiency) will be undertaken by SAC; F) Annual audits to ensure accountability and value for money; G) Staff and community capacity building for M&E. (Monitoring and Evaluation framework attached)

**Q 2.12** **How** will you involve the beneficiaries and other stakeholders in monitoring and evaluation?

- 1) Mainstreaming participation for direct beneficiaries throughout our projects is a SACR cornerstone and as a result, project discussions and planning takes place with direct beneficiaries before any activities are implemented. Beneficiaries will be heavily involved as activity participants but also in the role of monitoring and evaluation which contributes to project sustainability and success and ensures project ownership. Beneficiaries will input into surveys and evaluations on a quarterly basis, in particular group leaders will monitor group activities and progress. At a household level beneficiaries will monitor activities and record results including but not limited to; crop production, consumption, sales.
- 2) Government extension workers, district and sector level staff will contribute to monitoring as the project closely aligns with district development plans, it is in their interest to contribute to evaluation in order to assess progress towards their targets. At inception the partners will agree on follow up and evaluation including dividing the different roles and responsibilities among themselves.

**Q 2.13** **Which** Output from the FONERWA's overarching M&E framework will be contributed to in the project's M&E Framework (*if possible choose an indicator from FONERWA's M&E framework*)?

- Conservation and management of natural resources strengthened and sustained as a result of the fund – Indicator;
- 1) Area of land secured against erosion
  - 2) cover Area of forest and agro-forest covered (disaggregated by afforestation/restored forest/agroforestry)

**Q 2.14** **Lesson Learning:** Please explain how the learning from this project will be disseminated and shared during (and at the end) of the project, and to whom this information will target (e.g. *Project stakeholders and others outside the project*)

Innovations, documentation of good practices and learning and transfer of appropriate technology will be undertaken especially in regards to nutrition, soil and water conservation, natural resources management, disaster risk reduction and agriculture.

During project implementation stakeholders will be provided with project updates including challenges, progress towards milestones and any lessons learnt as well as development of programmes due to altered situations/circumstances and lessons.

Dissemination of lessons learnt will target all stakeholders, including local and national government, other NGOs/Development Actors, funding bodies and Send a Cow country programmes across Africa. SACR will request leadership of Agriculture working sector group meeting for an opportunity to share lessons learnt and best practice with all agricultural stakeholders in Rwanda. SACR will identify a number of dissemination pathways including print and visual media, formal and informal meetings and focus groups. This will allow for dissemination of findings beyond direct stakeholders.

Project evaluation report will be shared with stakeholders as well as online for easy access to information.

**Q 2.15** **Risk Management:** Please outline the main risks to the successful delivery of this project indicating whether they are high, medium or low. If the risks are outside your direct control, how will the project be designed to address them?

Risks	Impact	Probability	Mitigation	Assumption
Farmers are unwilling to adopt and implement new technologies	High	Low	1) Consult with farmers prior to project planning and implementation for input and ownership of project 2) Agreed on exit strategies	Farmers remain as committed as they are at inception throughout project life.  Local authority remain supportive of the project
Lack of affordable, good quality livestock on the market	Moderate	Low	1) Undertake market assessment 2) Maintain good contact with past providers 3) Start procurement	Livestock dealers maintain operations

				procedure early enough	
Post-harvest loss affect farmers ability to sell surplus and to ensure year round food security	Moderate	Moderate		1)Train in preservation techniques 2) Link to government run storage facilities	Farmers implement/adopt training
Partner (Great Lakes Energy) does not complete work on time	Moderate	Low		Ensure strict contract and terms of reference	Great Lakes maintain capacity to implement projects
Unfavorable government policies cause obstacle to implementation	Moderate	Low		1) Continue to work with government as major stakeholder 2)Undertake lobbying and policy support activities	Government open to support and suggestions from NGO stakeholders
Farmers remain dependant on SACR at project exit (sustainability issues)	High	Low		Develop clear exit strategy, goals and targets with all HH	HH want to be self reliant Exit strategies in place
Lack of interest from low carbon device suppliers to partake in distribution and research	Moderate	Low		Develop clear ToR with organizations prior to project implementation	Suppliers maintain capacity to deliver products to farmers
Unpredictable weather events impact upon production	Moderate	Moderate		1) Train in climate resilience and disaster mitigation methods 2)Follow agro-climatic monitoring by	Farmers implement resilience mitigation methods

			Famine Early Warning Systems (FEWS) network	
Crop and livestock diseases cause loss of productivity	Medium	Medium	<p>1) Train farmers in early disease identification</p> <p>2) Provide vaccination services</p> <p>3) Train in quarantine procedures</p> <p>4) Sensitize stakeholders to proper disease management.</p> <p>5) Farmers trained on how to make Biological pesticide</p>	<p>1) Quarantine Policy in Place</p> <p>2) Government of Rwanda maintains its quarantine procedures throughout the country</p>

**Q 2.16 RiskManagement:** What specific risks, if any, does your project pose to the environment, people or institutions affected by the project and how will these be managed and mitigated?

Risks	Impact	Probability	Mitigation	Assumption
Introduction of new varieties of forage for livestock would contribute to a loss of biodiversity	Moderate	Low	Sensitize stakeholders to the importance of agro-biodiversity.	New Varieties are available on the market
Improper adoption of manure application techniques may contribute to	Moderate	Low	1) Create awareness among stakeholders about greenhouse	Available manure disposal policy

	increased greenhouse gas emissions.			gases.  2) Use strategies to mitigate greenhouse gas emissions and ensure sufficient training in proper manure management and application.  3)Monitoring to assess manure application on project farms		
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### SECTION 3: PROJECT BUDGET AND VALUE FOR MONEY

**Q 3.1** **What** is the total cost of the project (RWF; provide total cost for each year of the project disaggregated by capital and recurrent expenditure)?

Total: Rwf 674,740,778

Year 1: Recurrent – Rwf260,490,765 Capital – Rwf 6,700,000

Year 2: Recurrent – Rwf 268,733,099 Capital – 0

Year 3: Recurrent – Rwf 138,816,913 Capital – 0

(Only capital expenditure necessary in this project is the purchase of two new motorcycles in year one of the project for use by extension workers. Recurrent costs are very similar in year ones and two because this is where the most intense period of training occurs for all households, which are staggered over the first two years. Provision of livestock occurs in both year one and two. Costs drop significantly for year three as there is no livestock provided and only refresher training, extension services and monitoring and evaluation take place)

**Q 3.2** **What** is the total amount requested from FONERWA (RWF; provide financing needs for each year of the project)?

Total: Rwf 539,792,622

Year 1: Rwf 213,752,612

Year2: Rwf 214,986,479

Year 3: Rwf 111,053,530

**Q 3.3** **List** all other sources of funding. Note whether the status of other funding sources (i.e. Whether the money has been approved or is awaiting authorisation)

Send a Cow UK – (Financial and in kind authorised)

**Q 3.4** **Additionality:** Explain why the project cannot be fully financed by other sources than FONERWA?

Funding is sourced from FONERWA because it closely fits within their targets and thematic windows, namely; Conservation and Management of natural resources strengthened and sustained as a result of the funding but also research and development of low carbon energy devices. With that in mind funding was sought out by FONERWA.

In terms of the project scope, geographic location, timing and priorities, FONERWA funds are the most relevant source of funding available to SACR at the present time. Amongst the range of funding

instruments available with an environmental focus the budget requirements are frequently too high or too low to suit the project needs and SACR capacity

**Q 3.5** **What** non-financial support is needed to implement the project? What is the best way for FONERWA to deliver this support?

-Innovation sharing  
-Policy updates  
-Structured reviews

FONERWA could possibly facilitate stakeholder meetings for information and lesson sharing across all FONERWA supported projects.

**Q 3.6** **Value for Money (Economy):**

- i) Briefly describe how the required inputs have been identified and how the GoR procurement procedures will be used to ensure they are obtained cost effectively
- ii) Provide identified unit cost measures or selected project outputs? (Please see VfM guidelines on how to determine these. Further guidance from the FONERWA Secretariat is available)

Inputs have been identified based on past experience with running similar projects and advice from our expert staff advisors, following the project work plan. Main inputs are livestock (pregnant heifers, dairy goats, local goats, breeding bucks), veterinary inputs (accaracide, sprayers, mineral blocks) and agricultural inputs (seeds and seedlings). SACR will also need to procure two motorcycles and overhead items including stationary, fuel, spare parts for vehicle maintenance. A full three year procurement plan is attached based on Government of Rwanda standard procedures, broken down year by year (three worksheets).

Aside from this one of the largest inputs is training – training is largely provided by SACR staff, in certain cases specialist training is required and this will be sourced from high quality providers. SACR has an MoU with the Gako Organic Farmer Training Centre, who provide training to a peer farmers and community health workers at reduced costs.

Livestock – project will use cross breed dairy cows that combine disease and local climate resilience with high milk producing capabilities.

A market study of solar lanterns was undertaken before agreeing to partner with Great Lakes Energy on provision of the SunKing Pro. Across a number of studies the SunKing range came out on top in terms of usability, durability, price and effectiveness. Great Lakes energy is the only provider of SunKing allowed to distribute the units in Rwanda and as an addition will work with us to provide training in their use and benefits.

Unit value = 1 Household.

Unit cost for output 1: Rwf 813,644 (162,728pp)

Unit cost for output 2: Rwf 228,555 (45,710pp)

Unit cost for output 3: Rwf 82,369 (16,473pp)

Unit costs have been worked out based on activities and inputs linked to each output as well as a proportion of overhead costs as appropriate. Costs were worked out as averages per household over the course of the project, which includes monitoring and evaluation. Households are trained in a staggered fashion with 400 houses beginning in the first year, 200 in the second and with the third year for refresher training, monitoring of progress and provision of extension services. As a result costing per HH is worked out across the three years but appear in the VfM workings as the costs associated with the average household figure in relation to our targets per year. Households develop at various speeds and

averaging out across the three years is the simplest way to cover costs whilst enabling easy cost benefit reconciliation. Unit costs are greatest for output one because of the number of different training modules and because provision of livestock falls under output 1 in the budget.

SACRs work in this project covers improvements in the environment, nutrition and income for 600 HH (3000 people). The total project cost is Rwf 674,740,778, over three years. This means that households will contribute to sustainable environment protection whilst lifting themselves permanently out of poverty for Rwf 1,124,567 or Rwf 224,913 per person. Once we take into the multiplier effect (Research that demonstrates that for every direct beneficiary we support at least a further 6 households (5 people each benefit), that cost drops to Rwf37, 485 or roughly \$50.

**Q 3.7 Value for Money (Efficiency):**

- i) Briefly explain how the provision and operation of project inputs produce the expected outputs
- ii) What is the Net Present Value (NPV) and benefit cost ratio for this project (Please see VfM guidelines on how to determine these measures. Further guidance from the FONERWA Secretariat is available)?

The project’s overriding theme and focus is inputting skills and knowledge into the community, the highest cost of inputs, across all the outputs is training. Training is intensive and long term so that the beneficiaries are fully equipped to implement skills indefinitely. Furthermore, research into our work demonstrates that for every person trained not only do their immediate families benefit but at least an additional 6 families. This means for the 600 direct families (3000 people) we will reach a further 18000 people (600 direct \* 6 families = 3600 families \* average house size of 5). Additional to this knowledge transfer, we also train peer farmer trainers and community animal health workers who volunteer to work with other farmers and provide training and animal health support within their own communities, some of our farmers are working with 20 other families. To a certain extent all of this knowledge sharing has been taken into consideration in making the cost benefit analysis and NPV, the project will only incur costs for the first three years but people will continue to benefit as a result of the ‘multiplier effect’ indefinitely. So as not to inflate our figures or our expectations, during our value for money assessment we have deliberately made low estimates, we have assumed each farmer will train only one other farmer, where in reality the figure is at least 6. There is a training element across all outputs and achievement of each output will depend on provision of high quality training, support and monitoring. Most intensive training is for output 1 and 2; training will cover social development, sustainable agriculture, animal management, post harvest management, nutrition and good feeding, environmental protection, agro-forestry amongst others.

The second largest cost is for livestock. Livestock are high quality cross breed dairy cows. Cows are cross breed to combine the benefits of local stock with high breeding dairy cattle. Past experience has shown that pure breed animals survive less well with the climate and local diseases, despite good animal management and healthcare. These livestock are loans, repayable in kind when the farmer passes on an animal to a future SACR beneficiary; this increases the value of each livestock purchased. Furthermore, livestock are multi-purpose with a number of benefits including; provision of manure for soil fertility, increased production, biogas material, milk for home consumption and for sale, collateral for loans and a saleable asset for times of serious emergency (although this is not encouraged by SACR). With free artificial insemination services these cattle are easy to breed and once the first cow is born and passed on all additional offspring will either contribute via increased manure and milk or income from sale. This cycle can in theory continue indefinitely. The original livestock will last for roughly 10 years, during which time it will calf on average 5 additional times. The environment, people and animals are all closely linked and livestock provision again will benefit all outputs. Their costing has been placed under output 1 for ease of calculation but in actual fact they enable achievement of all outputs. Livestock provide a source

of animal protein necessary for reducing malnutrition and a source of income. Fodder establishment for livestock is necessary for reducing soil erosion and fixing nitrogen. Manure and urine is also used by farmers to generate compost fertiliser restoring soil fertility and further down the line farmers use animal waste to feed biogas digesters contributing to achievement of output 3. Despite potential methane release as a result of livestock programmes SACR groups sequester more carbon in total than they release over a 5 year period.

Other inputs include seeds, saplings, mineral blocks and sprayers. Farmers are provided with seeds to increase the range of crops they can grow but are also taught the skills to transplant seedlings, graft plants and to recycle this initial seed gift so that they only need to be provided to the beneficiaries once. To reduce costs sprayers are shared between groups of five farmers and whilst mineral blocks are provided at the time of cattle transfer, farmers also learn how to make their own for future use. This has also doubled as an income generating activity for previous beneficiaries who have begun producing mineral blocks for sale.

Careful consideration is taken into choosing seedlings and seeds for both crops and animal forages. Farmers are taken through a variety of options and decide with the extension workers which are most useful for them, this means farmers will grow a range of crops for consumption and for sale, including crops that will significantly diversify farmers diets. A range of fodder crops have been chosen because they offer multiple benefits which increases their value, for example the crops used in this project are nitrogen fixing, provide ground cover and some can be used as 'landscape farming' whereby they act as hedges or demarcate areas of land ownership. Napier grass, the main animal feed is fast growing and can be cut multiple times a year, farmers never fully pull the plants out and as a result the maximum amount of biomass remains in the field continuing to capture carbon. Finally, the quantity and quality of fodder is linked to increased milk production. Growing a range of crops therefore contributes to achievement of output 1, ensuring reduced malnutrition and providing a source of income, but the year round cover of ground and agricultural practices that encourage good environmental management also contribute to achievement of output 2.

The agroforestry approach maintains the largest amount of year round soil cover – vital for carbon capture and nutrient retention but also in the long term for increasing rainfall. It will also contribute to the government of Rwanda's intentions to increase area covered by forest to 30% by 2020 (Rwanda Vision 2020). Agroforestry will support achievement of output 2 but will also diversify food available to farmers, contributing to output 1.

By facilitating set up of cheap rain water harvesting devices, households save a lot of time which can be put to productive use but also money as in many project locations households pay per jerry can where it is from an improved source. Rain water harvesting increases climate resilience, reducing sedimentation from runoff and providing a source of water for times of prolonged drought, contributing to achievement of output 2. As a result of year round access to water, farmers will consistently produce more crops and therefore rain water harvesting will also contribute to achievement of output 1.

This project will pilot a community – run solar irrigation plot. The purpose of this is to trial technology that has been successful in other parts of Africa for increased year round crop production in a convenient and environmentally friendly manner. With the drip irrigation system in place farmers will be able to achieve higher yields over larger areas with less water and labour. In previous projects farmers have repaid the costs in 2 -3 years. If this pilot proves successful SACR will seek funding to implement more solar irrigation projects across the country, increasing production on a larger scale. Success with the pilot will also mean an increase in production, necessary for achievement of output 1.

For this project, funds have been requested to purchase 200 solar lanterns. From this initial purchase 200 farmers will receive the lantern on a loan basis which once repaid will be used to buy a further 200 and so on. This revolving fund will be dedicated to purchase of solar lanterns and will continue to be used for this purpose beyond the end of project life, reaching many more people with solar technology and charging capabilities. By requesting that people pay for the lanterns there is a heightened sense of ownership, important for maintenance and consistent use. SACR promotes the use of an energy efficient stove that can be manufactured locally with cheap and freely available materials; this reduces costs significantly and so removes this barrier to uptake of technology. For achievement of output 3, it will be necessary for all households to be using one form of carbon reducing or renewable energy, a lantern, a stove or ideally both.

The project NPV = Rwf 38,347,428 per household and the benefit/cost ratio = 2.7:1 (60,824,398: 22,476,970). Due to the nature of this project a number of benefits have not been monetized, or where a significant monetary figure has been assigned but the likely year of realization is 10+ years and unlikely to be adequately monitored it hasn't been included in the analysis. The cap on working out benefits was put at 9 years because we know for certain that the lifespan of a productive cow is nine years, in our experience the benefits far exceed 10 years but are costly to closely monitor.

All monetized valuations are explained in the spreadsheet and consistently low estimates have been used to avoid excessive inflation of projected value of benefits.

Benefits that have not been included due to difficulty monetizing include;

- Household harmony
- Increased confidence
- Reduction in gender inequality
- Cultural significance of cows and social status that comes with asset ownership or improved wealth
- Reduction in soil degradation
- Reduction in use of chemical fertilisers (the savings made from not having to use chemical fertilisers captures the cost benefit and has been used in calculations but there are additional environmental benefits)
- Maintained and increased carbon capture in soil
- Capture and recycling of nitrogen
- Increased resilience to droughts
- Reduction in loss of life or injury as a result of landslides
- Improved long term learning ability of children

Benefits that have been monetized but not included are;

- No GDP loss; recent research by a number of institutes including the Rwandan CFSVA has pointed to a long term reduction in GDP as a result of micronutrient malnutrition, particularly during the '1000 day window'. Estimates by Rwandan government put this figure at 3%. We estimate the value of this per household at 343,800 per household per year. This is figured out using an average HH as having three children and GDP projections from Rwanda's Vision 2020.
- Increase in earning potential - Research suggests a 10% total increase in income generating potential (Duflo - Poor Economics), for children with adequate nutrition. Value is worked out from an estimated Income per Capita of \$583 per person per year. Total value is based on benefits to three children – 104'400Rwf per household per year.

**Q 3.8 Value for Money (Effectiveness):**

How does your project demonstrate effectiveness:

- How will it show the outputs meet the project objectives?
- Which indicators will you measure to demonstrate effectiveness?

Project staff, along with various stakeholders will closely monitor implementation and results in order to demonstrate effectiveness. The projects main objective or outcome is 'Improved livelihoods of 600 vulnerable farmers and their families (3000 people) in Rwanda by building their capacity to implement environmentally sustainable agricultural practices by December 2016'. Holistic in nature, the project will have positive results across a number of themes for financial input including; environmental protection, learning, documentation and dissemination, climate change adaptation, poverty alleviation, income, employment, health and long term economic development.

Achievement of outputs will ensure achievement of objectives, because;

Output 1: Reduced malnutrition and increased income from improved quantity and diversity of food production for 600 vulnerable HH as a result of environmentally sustainable agriculture by Dec 2016 – Reduced malnutrition and increased income are relatively straightforward to measure and provide two indicators of improved livelihoods (one element of the overall outcome). SACR will measure the dietary diversity score change of households as well as reduction in hunger months. As part of these evaluations will include monitoring surplus foodstuffs generated and the income it brings in, regular monitoring will assess income from sale of goods as well as from other income generating activities adopted. Regular household visits will monitor change in income, in a monetary sense as well as from the point of view of increased assets, improved attendance at school and reduction in healthcare expenses.

Output 2: 600 vulnerable HH implementing techniques to tackle major environmental challenges such as soil erosion, vital nutrient depletion by December 2016 – whilst activities focusing on sustainable increases in agricultural production will be measured under output 1, the focus of output 2 is particularly on monitoring reduction in the worst causes of environmental damage. This includes widespread deforestation, poor land management, limited water management and lack of nutrient replacement in soils. The results of output 1 and 2 are closely linked but separating them out makes measuring effectiveness more straightforward as we can attempt to demarcate areas of improvement that have the potential to have a land only benefit. Whilst recognising that the land and people who live of the land are sometimes inextricably linked.

Output 3: 600 vulnerable HH are using energy saving or renewable energy devices by December 2016 (energy saving cook stoves and/or solar lanterns and phone chargers) – output three enables an improvement in livelihoods and the environment. Achievement of output 3 will include reduction in cost of living from savings on fuel wood and kerosene, necessary for improved livelihoods. It will enhance quality of life and reduce illnesses particularly respiratory diseases and infections. Energy efficient stoves reduce time wasted on cooking and collecting of firewood which frees up time for more productive activities, again improving livelihoods. Women and children are typically responsible for these types of jobs and so output 3 supports the empowerment of women and children for social and economic development. Deforestation is reduced and less carbon is emitted into the atmosphere which is necessary to achieve sustainable land management.

A theme across all outputs is sustainability of land and the resources, recognising that livelihoods will be threatened so long as the environment on which they depend is not protected and continually degraded.

Outcome Indicators used to measure effectiveness will be;

- 1) Number of Ha of land secured against erosion – used to demonstrate best practice land management for limiting environmental degradation. By using an indicator that is linked to land size rather than household we are able to assess the impact on the environment, necessary for achieving the outcome and enabling us to contribute to wider FONERWA and GoR outcomes and targets.
- 2) No. of HH practicing at least three climate smart agricultural practices (inc. Agroforestry, mulching, legume planting, composting, rain water harvesting) – if each household is practicing at least three climate smart agricultural techniques we can be sure that they will have developed the capacity to implement sustainable agricultural methods, in part achieving our outcome.
- 3) No. of HH with increased income – increased income is one way of measuring improved livelihoods. The notion of improved livelihoods is not only captured in a monetary sense it can also be measured by proxy means such as dietary diversity, regular attendance of children in school, reduced illness or better housing. However, increased income is a straightforward way to measure effectiveness of the project in terms of improving livelihoods. Other measures of improved livelihoods will be captured at output level.

**ATTACH ANNEXES HERE TO THE PD APPLICATION**– *these can be accepted as separate files but clearly organise and identify the annexes so they are easy to refer to.*