



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: LDCF

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PART I: PROJECT INFORMATION

Project Title:	Reducing Vulnerability of Banana Producing Communities to Climate Change Through Banana Value Added Activities - Enhancing Food Security And Employment Generation		
Country(ies):	UGANDA	GEF Project ID: ¹	5603
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	120092
Other Executing Partner(s):	Ministry of Agriculture, Animal Industry and Fisheries (MAAIF); Ministry of Industry Trade and Cooperatives (MTIC)	Submission Date: Resubmission Date: Revised resubmission:	09/25/2013 11/01/2013 04/1/2014
GEF Focal Area (s):	Climate Change	Project Duration (Months)	36 month
Name of parent program (if applicable): • For SFM/REDD+ <input type="checkbox"/> • For SGP <input type="checkbox"/> • For PPP <input type="checkbox"/>		Project Agency Fee (\$):	267,900

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK²:

Focal Area Objectives	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
CCA-1 (select)	LDCF	1,020,000	1,431,267
CCA2 (select)	LDCF	625,000	2,503,400
CCA-3 (select)	LDCF	1,175,000	3,802,866
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
Total Project Cost		2,820,000	7,737,533

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: The objective of the programme is to support vulnerable communities in Western Uganda to better adapt to the effects of climate change (CC) through banana value addition activities, to provide greater opportunities for income generation, poverty reduction and food security						
Project Component	Grant Type ³	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
Component 1: CCA mainstreamed into	TA	Outcome 1: CCA strategies are	Outputs 1.1 National policy documents such	LDCF	125,000	270,000

¹ Project ID number will be assigned by GEFSEC.

² Refer to the reference attached on the [Focal Area Results Framework and LDCF/SCCF Framework](#) when completing Table A.

³ TA includes capacity building, and research and development.

National Development Policy/Strategies.		incorporated into developmental policies and implemented by stakeholders in the various sectors	as the Agriculture Development Strategy & Investment Plan, updated with action on CCA Output 1.2 CCA coping strategies promoted among investors and other stakeholders in the agro-industries and rural enterprise development sector.			
Component 2: Climate Change resilience building of vulnerable communities in major banana producing regions and contribute to food and income security thorough livelihood diversification.	TA	Outcome 2. Vulnerable targeted communities are increasingly participating in resilience building activities for income diversification	Output 2.1 Sensitization of farmers in the target district on CCA coping strategies to build resilience to CC	LDCF	55,000	200,000
	INV		Output 2.2 Small scale processing facilities established in target regions for vulnerable communities to engage in income diversification banana value addition activities Output 2.3 Banana-based products from income diversification activities effectively marketed in Bushenyi, Kampala and other locations with good marketing potential		925,000	704,000
	INV	Outcome 3. Vulnerable targeted communities are increasingly adopting alternative agriculture practices to tackle the high incidence of diseases affecting bananas, maintain soil fertility and sustain their agriculture based livelihoods	Output 3.1. Community-based banana tissue culture industry established to support the demand generated from CCA coping livelihood diversification activities introduced to the vulnerable farming community Output 3.2 Biodigestors to convert banana waste into biogas established to support income diversification activities, and the	LDCF	1,080,000	3,075,600

			resulting digestate used for soil fertility			
Component 3: Dissemination of information and expansion of the strategy and project benefits	TA	Outcome 4. Lessons learned and best practices from policy changes, capacity development initiatives and pilot plants disseminated.	Output 4.1 Guidelines on best practices, knowledge dissemination tools and communication products produced in various languages (English, Swahili and local). Output 4.2 Project knowledge shared with other countries in the Sub-region through websites, guidelines and communication products	LDCF	350,000	1,306,133
Component 4: Quality Control Monitoring and Evaluation	TA	Outcome 5. Quality control and efficient monitoring of project intervention to support adoption by CC vulnerable communities	Output 5.1 Timely quarterly and annual reports prepared; midterm and final evaluation [using Adaptation Monitoring and Assessment Tool (AMAT)] of project activities completed	LDCF	146,000	2,000,000
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
Subtotal					2,681,000	7,555,733
Project Management Cost (PMC) ⁴				(select)	139,000	181,800
Total Project Cost					2,820,000	7,737,533

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
GEF Agency	UNIDO	Cash	70,000
National Government	MAAIF	Cash	7,511,533
National Government	MAAIF	In/Kind	36,000
Private Sector	Agro Genetic Technologies Ltd (AGT)	Cash	120,000
Total Cofinancing			7,737,533

⁴ To be calculated as percent of subtotal.

D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (\$) (a)	Agency Fee (\$) (b) ²	Total (\$) c=a+b
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total Grant Resources						

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

² Indicate fees related to this project.

E. PROJECT PREPARATION GRANT (PPG)⁵

Please check on the appropriate box for PPG as needed for the project according to the GEF Project Grant:

	<u>Amount Requested (\$)</u>	<u>Agency Fee for PPG (\$)⁶</u>
• No PPG required.	-- 0--	--0--
• (upto) \$50k for projects up to & including \$1 million		
• (upto)\$100k for projects up to & including \$3 million	100,000	9,500
• (upto)\$150k for projects up to & including \$6 million		
• (upto)\$200k for projects up to & including \$10 million		
• (upto)\$300k for projects above \$10 million		

PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF PROJECT ONLY

Trust Fund	GEF Agency	Focal Area	Country Name/Global	(in \$)		
				PPG (a)	Agency Fee (b)	Total c = a + b
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total PPG Amount						

MFA: Multi-focal area projects; MTF: Multi-Trust Fund projects.

⁵ On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁶ PPG fee percentage follows the percentage of the GEF Project Grant amount requested.

PART II: PROJECT JUSTIFICATION⁷

PROJECT OVERVIEW A.1. Project Description.

1) The global environmental problems, root causes and barriers that need to be addressed;

Over the past 100 years, rising temperatures of about 0.5 °C have been recorded in East Africa and mean annual temperature of between 0.7 °C and 1.5 °C are predicted by the 2020's⁸. In Uganda, the western and south western regions are among the most vulnerable in East Africa to the adverse effects of increased weather variability and climate change (CC). According to the Uganda National Adaptation Programme of Actions (NAPA)⁹, these semi arid regions have the highest population growth rate with an average range of 6-9.7%. The majority of people who depend on near subsistence agriculture, based on banana, maize and beans for their livelihoods and food security, live in absolute poverty which is recognised to reduce people's adaptive capacity¹⁰, increasing their vulnerability to the deleterious effects of CC and limiting their ability to cope with and recover from the shocks.

For example, in Bushenyi District one of the major banana producing districts in Western Uganda, banana is cultivated on 170,000ha of the land (40% of the total area¹¹), mainly by smallholder farmers. The banana's ability to produce fruits all year round makes it an important food security crop and cash crop¹². The bananas are mainly sold fresh and the farmers receive very little from sales, typically approximately 2USD for one bunch in the rural markets, compared to the market prices in Kampala (the capital city) of 9 - 15 US dollars. Mature banana ripen three to five days after harvesting. Even before the effects of climate change, huge post harvest losses were incurred during transportation due to ripening and rotting. The rising temperatures and consequently humidity due to CC are expected to exacerbate these losses. The problem of post harvest losses resulting in decline in income for poor small farmers is further compounded by reductions in productivity. The optimum temperature for banana growth is 20-30°C and total yields per ha through time is generally stable within that range. It is predicted that due to CC there will be extended periods of temperatures above 30°C, which will result in a general decline in productivity¹². Furthermore, increased weather variability and climate change, as seen by changes in the onset and duration of the rainy seasons, more frequent and severe droughts and floods, resulting *inter alia* in increased incidences of pests and diseases such as the banana bacterial wilt disease (BBW) and anthracnose will also affect sustainable supply of fresh bananas in Uganda and the incomes of the communities, whose livelihoods depend on banana production.

A 2011 vulnerability assessment of the agriculture sector in Uganda covering six USAID/Feed the Future priority districts including Mbale, Isingiro, and Kasese in the Western and South Western regions, revealed the absence of buffers against challenges associated with CC. The report further indicated that the systemic vulnerability of households studied also stems from the fact that they depend heavily on crops whose value chains are sensitive to climate variability and change; any change in food production critically increases overall vulnerability¹³.

⁷ Part II should not be longer than 5 pages.

⁸ LTS International (2008) Climate Change in Uganda: Understanding the implications and appraising the response Scoping Mission for DFID Uganda

⁹ Ministry of Water and Environment, 2007. National Adaptation Programme of Actions, Department of Meteorology, Government of Uganda

¹⁰ ACCRA (2011) Rethinking Support for Adaptive Capacity for to Climate Change. Africa Climate Change Resilience Alliance. Overseas Development Institute, London, UK. Available from: <http://policy-practice.oxfam.org.uk/publications/rethinking-support-for-adaptive-capacity-to-climate-change-198311>

¹¹ Of the 60% remaining, reportedly 8.6% is open water, 2.2% wetland and 18.3% protected national forest reserve

¹² Thornton P, Cramer L (editors), 2012. Impacts of climate change on the agricultural and aquatic systems and natural resources within the CGIAR's mandate. CCAFS Working Paper 23. CGIAR

Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark. Available from http://cgspace.cgiar.org/bitstream/handle/10568/21226/ccafs-wp-23-cc_impacts_CGIAR.pdf

¹³ USAID (2013) Uganda climate change vulnerability assessment report, USAID African and Latin American Resilience to Climate Change (ARCC) August, 2013

In the face of the country's population growth rate of 3.2% per annum, one of the highest in the world¹⁴, there will be an increase in future demands for bananas and banana-based products, and the need for employment in both the rural and urban populations. Urban growth will also demand a shift from fresh to processed foods and beverages. Recently scientists of the CGIAR's Climate Change, Agriculture and Food Security research group (CCAFS) predicted that CC will decrease availability of other annual staple crops such as maize, rice and wheat, further increasing demand for banana¹². It is therefore critical that vulnerable communities are enabled to engage in alternative livelihoods activities, changes in agriculture practices and food preservation systems, to ensure their food security, and that they can earn additional income to better cope with the shock of high food prices and scarcity in the wake of CC.

The GoU has therefore requested UNIDO to implement a climate-resilient livelihood diversification project within its banana value chain development programme, incorporating CCA strategies in order for the country to achieve some of the adaptation goals outlined in its National Adaptation Plan (NAPA).

In line with the NAPA identified key coping strategies of *food preservation, alternative livelihood systems* and *changes in agriculture practices*, the project will develop capacities for communities to engage in livelihood diversification value addition activities such as: vacuum packing and solar drying of fresh bananas; banana juice and wine making. It will provide additional income to build adaptive capacity and resiliency to the effects of climate change, in that the resulting wealth created will enable further CCA coping strategies through: *changes in agriculture practice*, construction of reservoirs for *water harvesting* and *soil conservation strategies*. In addition the project will support: the use of banana waste for biofuel to power the processing facilities as well as domestic use; development of the banana tissue culture industry for the benefit of the communities and promote investment and access to finance to support the cottage industries that this project will develop.

2.) The baseline scenario and any associated baseline projects

Recognizing the socio-economic importance of banana in Uganda, its status as the main staple (consumption in Uganda is reported to be 1.6kg/person per day – highest in the world¹⁵) and its potential for poverty alleviation, a number of Government lead initiatives are in place to ensure the sustainable production and use of banana in the country and to improve the livelihoods of the resource poor farmers in the target districts of Western Uganda.

a) Development and implementation of a favourable policy and institutional framework that will facilitate a coordinated development of the banana industry:

Since 2006 the GoU has promoted its vision of Prosperity For All (PFA) and requires all governmental agencies and local governments to implement programmes in an integrated and coordinated manner to bring about economic transformation especially in rural areas. The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) has developed the Agricultural Sector Development Strategy and Investment Plan (DSIP) 2011-2015, an enabling policy to guarantee public investment in the agricultural sector. A number of developmental partners are assisting MAAIF to develop the implementation plan and identify priority areas based on commodities including: developing the local markets; zoning; and providing agricultural development services to farmers. However, these plans do not specifically capture climate change adaptation strategies. The Ministry of Water and Environment is developing the National Climate Change Policy which aims to ensure harmonized and coordinated approach toward a climate resilient and sustainable low carbon development path for Uganda¹⁶, and coordination of this policy with other sectors is required.

b) Investment to increase banana production and contribute to income security and poverty reduction in rural areas:

The intervention in these areas is envisaged to increase banana production by 30% within the next three years. The programme is being implemented through improved farmer participation in the value chain

¹⁴ United Nations (2009) United Nations Development Assistance Framework (UNDAF) for Uganda, 2010-2014

¹⁵ <http://www.iita.org/banana-and-plaintain>

¹⁶ <http://www.ccu.go.ug/index.php/news-events/news-media-releases/47-national-climate-change-policy-development-process-update>

and cover up to 60 districts in the Western, Central and Eastern Uganda, the main regions where bananas are produced as well as one to three districts in Northern Uganda in the fourth year.

i) Primary Production: In the western region, MAAIF in collaboration with FAO is establishing farmer field schools (FFS)¹⁷ aimed at assisting farmers in production of staple crops such as banana, beans and potato as well as sunflower and eradicating of diseases. The group of farmers are provided with training on water harvesting technologies, agronomy, soil fertility and farm husbandry and sanitation practices to stop the spread of BBW. This is being supported by research conducted by the National Agriculture Research Organisation (NARO). NARO has capacities to produce new banana varieties including new high value CC resilient varieties with early maturing (drought and high temperature avoidance), dwarf types (providing resilience to falling during storms) and disease resistance traits through plant breeding, soil analysis and disease diagnosis. Their technologies are disseminated to farmers through the MAAIF and NGO's working in the region.

In addition, a number of entrepreneurs are supporting the efforts of increasing productivity through the banana tissue culture (TC) industry. Banana plantlet production and virus indexing methodologies are well established technologies and routinely used in the banana production systems of major producing countries such as India, China, Ecuador, and Brazil. However, in Uganda the current capacities of the few companies producing TC banana plantlets are not sufficient to realistically meet the needs of all banana producers and sustain a banana value addition and product diversification programme. Currently, NARO together with the MAAIF are carrying out demonstration trials within their FFS to show the profitability of using TC plantlets. However, opportunities for the banana producing communities to build resilience, through the use of disease free TC derived planting material when available, is still bleak, as the current price of about 500 shilling (USD 0.19) for each plantlet is out of the reach of the resource poor farmer on an individual basis.

ii) Value Addition: Currently there is very little value addition activities in banana. Although traditional juice and wine are produced, processing is largely unhygienic, where spear grass and bare hands are used to extract the juice, the processor is prone to cuts and tears, rendering the juice susceptible to contamination which deters consumers from patronizing the product. The Department of Agricultural Sciences and Food Technology, Makerere University, has developed refined technologies for the extraction, pasteurisation and packaging of banana juice -although not yet been commercialised. This and other enabling technologies need to be made available to the resource poor banana producers to improve efficiency of and add value to traditional processing activities to generate addition income and enable resilience building.

In Bushenyi District, the GoU established the “Presidential initiative for banana industrial development (PIBID)”, a pilot project modelled around rural Technology Business Incubators (TBI) and Industrial Technology Parks (ITP). PIBID setup a banana flour processing facility in the district and sources its supply of fresh bananas from local farmers, PIBID in turn provides inputs and agronomic extension services to its cluster of farmers. Providing smaller holder farmers in other district with skills and capacities to engage in other value addition activities will allow more communities to earn additional incomes and contribute to resilience building.

iii) Waste Utilisation: Since 2009, under the Uganda Domestic Biogas Program (UDBP), Heifer International and other partners have been implementing a project to install 12,000 bio-digesters based on cattle manure as feedstock in rural and peri-urban areas in Uganda. The gas generated from these domestic bio-digesters is sufficient for the daily domestic needs of typical rural households and the digestate can be used as compost to improve soils for crops. The target groups for this biogas programme are farming households with more than 2 zero-grazed cattle, where the beneficiary contributes to the cost of the installation of the bio-digesters. While some banana producers in Western Uganda have already benefited from the project, the majority of the resource poor farmers, particularly female headed households, without the basic number of cattle requirement and financial means to raise the initial investment cost, are not eligible. Furthermore, currently organic waste from bananas (including peelings) is not routinely composted in either rural or urban areas.

¹⁷ <http://www.fao.org/nr/land/sustainable-land-management/farmer-field-school/en/>

c) Developing institutional capacities for national and regional markets to expand the commercialization of banana to make it more profitable for farmers.

Another aspect of the MAAIF strategic programme (see a above) is to strengthen farmers' access to national and regional markets for the sale of fresh and value added agricultural products, as a means to increase the profitability of farming activities, contribute to income security and poverty reduction in rural areas and contribute to export and foreign exchange. This is being done through investment in infrastructure of the rural markets and storage structure installation, which will be of particular benefit to women and children who are burdened with transportation of produce from production areas to market outlet. However, to ensure sustainability of any investment in a livelihood diversification system for the vulnerable smallholder farming communities, there needs to be further support in terms of access to finance and credit.

Recently, a number of donor-supported programmes have been established to provide technical assistance and extend credit to microfinance institutions (MFIs) and Savings and Credit Cooperatives (SACCOs), to enable them to support micro, small and medium sized enterprises including those in the agribusiness sector. UNIDO has also been conducting "Investment Promotion Technical Assistance Programme (ITAP) for Uganda" and supporting the Uganda Investment Authority (UIA) to attract greater flows of investments to various sectors including agribusiness. Attracting investors to support climate resilient livelihood values activities would further ensure CCA coping strategies are promoted in the country.

d) GEF Supported Programmes.

GEF through FAO's is supporting a regional project the Transboundary Agro-ecosystem Management Programme for the Kagera River Basin (Kagera TAMP), which lies within Burundi, Rwanda, Uganda and Tanzania. In Uganda, the project covers communities in Kabale and Mbarara Districts. It is promoting sustainable land and agro-ecosystems management (SLaM) across the basin, including using FFS approaches, thereby generating local and national benefits and global environmental benefits, and, responds to key priorities of the countries sharing the Kagera river basin. The TAMP started in 2010 and is scheduled to close in August 2014. Lessons learned and best practices in promoting CCA strategies in FFS from the TAMP project will be applied in the proposed project.

3.) The proposed alternative scenario, with a brief description of expected outcomes and components of the project- Coping Strategies,

1: Mainstreaming CCA into National Development Policy/Strategies.

In the first instance, the project will raise awareness and build partnerships for CCA mainstreaming in the national poverty reduction through productive activities strategy. Capacities will be built among national and district governmental agencies to mainstream CCA strategies into the ongoing developmental policies to ensure that proactive actions on adaptation are implemented alongside the standard methods identified to achieve economic prosperity in rural areas. Indicators that best describe the vulnerability of the banana producing communities will be identified. These will be assessed and monitored periodically during the project, and where applicable, if an indicator demonstrated increased vulnerability overtime, stakeholders will be trained to identify and incorporate the appropriate adaptive measure(s). Stakeholders will also be trained to include such indicators in their immediate and long-term plans for the target regions and the banana production system in general.

2: Building resiliency thorough livelihood diversification.

The project will work in 3-5 districts in the Western region where banana farming is heavily concentrated and is experiencing increased post harvest losses as a result of climate change, as well as increased disease pressure with rising temperatures, particularly the south west. The exact locations will be established during PPG stage. In each region the project will work with smallholder farmer groups or associations already identified by the MAAIF that reach at least 100 banana producing households per district.

Technical assistance support will be provided to the target farming communities to introduce *alternative livelihood systems* and catalyse *changes in agriculture practices*. The project will facilitate the uptake of disease free TC derived planting material as a *change in agriculture practices* to build resilience in the banana producing communities. The farmers groups will be assisted to setup smallholder owned cottage

industries whereby they procure TC plantlets from producing companies and supply the disease free planting material to their farmers. In the longterm, the establishment of the community based TC industries will facilitate the introduction of new banana stocks better adapted to the adverse effects of CC and safeguard the existing stocks.

The project will setup banana processing facilities to support income diversification value addition activities of the small holder farming groups. Introducing these interventions, will reduce the volumes transported and amount of waste in the urban markets and extend the shelf life to up to 21 days. In addition to providing the added income to reduce the vulnerability and enable them build resiliency to CC, the new products will also supplement the diets of the vulnerable in the communities contributing to food and nutritional security. The facilities will be supported with bio-digestors designed to use the banana waste (peels and fruit stem), to supplement energy to run the plants. In addition, the use of banana waste will contribute to curbing the spread of diseases, in the envisaged CC induced higher temperatures, which is favourable for microbial growth resulting in high disease incidence.

Promotion of investment especially for any processing business is indispensable for its future growth. The project will therefore promote investment into CCA coping strategies that benefit vulnerable communities and will provide avenues for the beneficiaries to secure finance for the livelihood diversification activities.

3: Dissemination and expansion of CCA coping strategy and benefits

Lessons learned and best practices from policy changes, capacity development initiatives and the processing plants will be disseminated throughout Uganda and other banana-based agro-ecosystems in other countries. Open days will be organised at the project sites to facilitate marketing of the banana value added products and to further illustrate the benefits of engaging in such livelihood diversification activities.

4.) Incremental cost reasoning and expected contributions from the baseline, LDCF and co-financing;

a) Sensitization and awareness among stakeholders on CC coping strategies to build resilience

The project will organise workshops and strategy formulation meetings to assist national and district governmental agencies of relevant sectors to mainstream CCA strategies into their respective sector developmental policies. The key executing partners MAAIF and MITC will be guided to include CC adaptation into budgeting and financing, implementation and monitoring activities.

Stakeholder workshops will be organised to engage the various actor in government (policy, research and extension), the identified private sector entities, and the target communities, in discussions and training on: assessment the climate risk to the banana subsector/banana production system; and building on the ones proposed within the scope of this project, other CC opportunities to further build resilience, (e.g. the development and dissemination of climate resilient banana varieties) which can be addressed through ongoing or future developmental interventions will be identified.

Sensitization workshops will also be held in the target communities to raise farmers' awareness on the impact of CC on their livelihoods and the available *coping strategies* they can engage in to enhance resilience. These workshops will be conducted using the MAAIF's established structures such as the NAADs, their network of FFS and small holder farmers groups.

b) Support for income diversification value addition activities

To enable the vulnerable banana producing households' build adaptive capacities and resilience to CC through alternative *livelihood and income diversification activities*, the project will setup 2-3 banana processing facilities in each region and the farmer groups in the identified districts will be supported to engage in banana value addition to diversify their livelihood and reduce the amount lost from over ripen and rot. Capacities will be built for:

i) vacuum packaging of fresh banana. ii) production of dried (Solar drying), iii) baked or fried chips, iv) banana juice and v) banana wine making, introducing technologies to improve the efficiency of and add value to traditional processing methods and ensure processing of wholesome juice with an authentic flavour suitable for local and urban consumption.

c) *Promoting banana waste utilization for biogas and for soil fertility*

The project will further add value to the banana waste generated from the *livelihood diversification processing activities* mentioned above, by converting it into biogas to supplement the energy needs of the processing plants. The project will develop partnerships with the Uganda Domestic Biogas Programme and other ongoing initiatives as well as private companies that can promote, sell and provide maintenance service for bio-digesters in Uganda, and establish bio-digestors designed to use the banana waste in the banana processing facilities. Individual and farmer groups will be further supported to acquire the resulting digestate to use as organic fertilisers for their crops to combat soil degradation. In addition the project will provide skills and knowhow to farmers to adapt banana peels as feed-stock for their domestic bio-digesters, many of which are built for use with cow dung.

d) *Support for a sustainable banana industry*

To further build resilience in the banana producing communities through *innovative changes in agriculture practices*, the project will support entrepreneurs in the plant tissue culture business to supply high quality disease-free banana plantlets at affordable prices to the banana producers in the target communities. The project will setup 2-4 plantlet nurseries per district. Capacities will be built among the farmers groups to manage and run the nurseries as smallholder owned cottage industries, whereby they procure the TC plantlets from producing companies, hardening-off, and supply of disease-free plantlets and their derived suckers at affordable prices to their member farmers. These facilities will further also serve the communities in the dissemination of new varieties including CC resilient, vitamin A and iron rich varieties when these are developed by the researchers at NARO.

e) *Promoting investments and access to financing of resiliency building diversified livelihoods activities – ensuring sustainability*

A series of training events will be conducted for the smallholder farmers groups on basic business management skills including preparation of business plans, financial planning. Partnerships will be established with the existing commercial and donor backed financial institutions and schemes to facilitate access to credit for the growth and maintenance of the income diversification activities of the farmers.

Open days targeting the envisaged end-users and stakeholder from the food and beverages industry, financial institutions and the standards bureau will be held at the processing facilities to promote the products and create awareness of the benefits of project.

Based on UNIDO's ongoing experiences and network of domestic and international investors in agro-industries, the project will organise an investment forum to promote investments into the income diversification activities of the smallholder farmers and CC adaptation strategies that enable resilience building of vulnerable people in general. To this end the experiences of the GEF-FAO TAMP project and others livelihood projects in the region will be sought.

f) *Quality Control Monitoring and Evaluation*

In order to track progress in reducing vulnerability of the target communities, vulnerability indicators will be identified and baseline established during the PPG, for subsequent tracking. These indicators will be shared with stakeholders at the project inception workshop to be applied in monitoring of the project and as part of the overall aim of mainstreaming CCA in national programme activities. Annual project monitoring reports will be done in accordance with UNIDO's regulations and GEF's RBM and AMAT. Independent mid-term and final evaluations of the project will also be conducted.

g) *Project management Cost*

A local technical expert will be recruited as national project coordinator for the duration of the project. In addition to the day to day management and monitoring of the project, the incumbent will also provide oversight in the technical execution of the project. A project/admin assistant will also be recruited to provide logistic and administrative inputs to the project. To facilitate implementation and monitoring at the project sites, a vehicle will be acquired and maintained throughout the project..

5) The adaptation benefits (LDCF/SCCF) - Diversification of Income and Food Security;

The proposed project seeks to assist communities in the main banana production regions whose livelihoods and food security depend on banana production, with opportunities to reduce their

vulnerability to climate change, sustain and enhance their livelihoods through banana value addition activities to diversify their income, thereby enabling them to better cope with the effect of and build resilience to CC.

It is envisaged that as a result of their improved income and financial status, the target beneficiaries will be able to afford other innovative adaptation strategies such as: construction of reservoirs for water harvesting and adopting soil conservation strategies to increase resilience to the increasingly frequent landslides and CC exacerbated soil degradation; engaging in other forms of value addition to further build resilience.

6) Innovativeness, sustainability and potential for scaling up - Production system and value Chain.

The project proposed will demonstrate the efficacy and profitability of the coping strategies described above within an organised farming group which can be scaled-up and also replicated in other districts of Uganda and more widely in the other banana-based agroecosystems of the region. The project is innovative as it focuses not on the production system alone but also on the value chain. By establishing profitable value-addition activities coupled with sound business management skills in normal banana production and the subsistence farming routines of the communities, who would otherwise become increasingly food insecure due to CC, will ensure their food security. The project is innovative in terms of enabling communities to better adapt to CC in that the resulting wealth created from the introduction of the CCA strategies described above (food preservation, alternative livelihood systems and changes in agriculture practices), will enable the communities to afford more changes in agriculture practice including the routine use of disease free TC planting material to replace older trees for sustainable high productivity, construction of reservoirs for water harvesting and adopting soil conservation strategies. Furthermore the intervention will ensure food security through a continual supply of the staple banana and additional income to afford a variety of nutritional foods.

A.2. Stakeholders.

The primary stakeholders and beneficiaries of this project are the banana producing smallholder communities in Western Uganda, Bushenyi including female headed farming households. These are essentially smallholder resource poor farmers who depend on the fresh banana as their main source of income and staple for food. The farming households and communities will benefit from improved knowledge and strengthened capacities to add value to their farm produces in a sustainable manner, as a means to better cope with the adverse effects of CC.

The project will also involve micro, small and medium enterprise (MSMEs) already engaged in traditional processing of banana and those agro industries that support the banana sector, to expand and improve the efficiency of their businesses incorporating the CCA practices, the knowledge and skills the project will bring. In consultation with national counterparts Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and the National Agricultural Advisory Services (NAADS), the potential small holder communities, MSMEs and NGO's currently working in the target communities would be identified during the PPG phase and engaged in the final preparation of the project.

A.3 Risk and mitigation measures.

Risk	Level	Mitigations
Banana crop failure due to CC	Moderate	As a sturdy perennial crop, banana is relatively less vulnerable compared to maize and coffee for instance ^{12,13,15} . The most important risk of CC to banana production is the potential impact of pests and diseases on the crop. The use of the banana peels as biogas will prevent the spread of diseases envisaged as a result of higher temperatures, enabling the communities better adapt to the effects of CC on banana production. In addition, MAAIF and its implementing agencies in the baseline project are assisting the communities by developing and introducing new varieties improved agronomic and farm sanitation

		measures. Lastly, the tissue culture cottage industry which this project proposes is an important component in the ensuring the suitability of the industry in that, it will ensure the periodic replacement of diseased plantation with clean planting material. It is envisaged that the indicators that will be adopted as part of the project component 1 will enable stakeholders monitor and measure vulnerability and risk of the banana production system, hence help in mitigating this risk.
Insufficient supply of raw material for the banana value addition income diversification activities	Low	The processing facility will be set up in major banana production areas, which characteristically suffer losses when they are unable to sell their fresh bananas.
The current social stigma associated with the consumption of traditional banana juice and wine due to the perceived unhygienic means of processing, could pose a risk to purchasing and consumption of the products in the urban areas such as Kampala with high market potential.	Low	As part of the strategy to market the products, attract investment into these livelihood diversification activities and dissemination of information and project benefits, open days will be held at the processing plants exhibiting the production process of the products, drawing attention to the value of the project in enabling the communities better adapted to the effect of climate change through these alternative livelihood activities.
Inadequate supply of energy to power the processing plant in the communities where there is little or no electricity	Moderate	i) The project will introduce the use of the banana waste for biogas production as an energy source for the processing plant and also domestic use for farmers willing to acquire them.
Low rate of adoption of banana waste for biogas and soil improver/fertiliser	Low	As the existing domestic biodigesters are based on cow dung as the feedstock, during the PPG, the project will establish the requirements for the use of banana peels such as prior treatment of the peels and also promotion of the material produced (compost) etc.
Low rate of adoption of clean tissue culture derived planting material could also be a risk to the expansion of the banana tissue culture industry	Moderate	i) The MAAIF and FAO are providing farmers knowledge and skills on good agronomic practices including demonstrations on the benefits of the use of tissue culture plant material. ii) The project will in the first instance work within this network of communities, provide them with skill on how to run their own plantlet outlets as a business. iii) The project will also support entrepreneurs already involved in the banana plantlet production to supply affordable plantlets to the community run outlets.

A.4. Coordination.

The national executing partners for the project are the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and the Ministry of Industry Trade and Cooperatives (MTIC) and their implementing/affiliate organisations. The proposed project will work in synergy with the ongoing efforts in the country described above, particularly the FAO/MAAIF farmer field schools, the established plant tissue culture companies producing banana plantlets, and the UDBP.

The MAAIF through its Department of Crop Production and Marketing and the National Agricultural Research Organization (NARO) will be responsible for coordinating activities related to capacity building and training among producers, the production and distribution of tissue culture plantlets, marketing and financing. The National Agricultural Advisory Services (NAADS) will execute activities related to the dissemination of information and expansion of the benefits of the CCA coping strategies to other districts in the country.

The MTIC through its Department of Industry & Technology and the Uganda Industrial Research Institute (UIRI) will execute activities relating to value chain development. The programme will draw on

expertise UNIDO has previously established in the National Cleaner Production Center (NCPC) and Uganda Investment Authority (UIA) on waste utilization and investment promotion respectively.

During the PPG, collaboration will also be sought from other stakeholders such as the Climate Change Unit of the Ministry of Water and Environment which recently developed a national policy on climate change, the Centre for Research in Energy and Energy Conservation (CREEC) and Heifer International which has been involved in the Uganda Domestic Biogas Programme and the installation of domestic biodigesters in Uganda, and NGO's working on value addition in the target areas of Bushenyi and Mbarara. UNIDO will work to ensure synergies with the GEF project “Strengthening Climate Information and Early Warning Systems in Uganda to Support Climate Resilient” which aims to strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Uganda and is currently being developed by UNDP. During the PPG phase potential partner micro-financing and credit institutions, and appropriate execution arrangements with the national executing agencies would be identified.

DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 National strategies:

Uganda is a LDC which is identified as one of the countries most vulnerable to the adverse effects of Climate Change (CC). As such, Uganda is eligible to receive support from the LDCF for implementation of urgent and immediate adaptation measures as described in its National Adaptation Programme of Action (NAPA) on CC.

According to the Uganda's NAPA, the western and south western highlands are some of the areas which are most vulnerable to climate change and variability, as the predominately poor people are not able to cope with and recover from the predicted adverse effects of CC. The NAPA further describes the urgent interventions for priority sectors such as agriculture to improve the adaptation of the communities in terms of food security and ensure the long-term resilience of such communities to CC.

The proposed project is in line with two priority projects of the NAPA. It will contribute to the NAPA priority project 6 – “Drought Adaptation Project”, which aims to enhance the adaptive capacity of the vulnerable communities in drought-prone parts of Uganda to enhance their capacity to cope with the increasingly frequent droughts. The project will also contribute to the NAPA priority project 7 – “Vector, Pest and Disease Control” which aims to enable subsistence farmers to cost effectively manage disease outbreaks, including disease affecting crops, with a special emphasis on vulnerable communities.

The project will promote some key CCA strategies (food preservation, alternative livelihood systems and changes in agriculture practice), identified by the NAPA to provide greater opportunities for income generation, poverty reduction, enhanced food security and enable the local communities' whose livelihoods depend on banana production for their income and food security to better adapt to the adverse effect of climate change.

The project is also in line with the national policy on climate change which aims to ensure a harmonized and coordinated approach toward a climate-resilient and sustainable low-carbon development path. Lastly, the project is in line with the UNDAF for Uganda, Outcome 2 on “livelihood benefits of vulnerable segments of the population” and the national developmental objective (NDP) Objective 1 on “Increasing household incomes, and enhancing the availability of gainful employment”.

B.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities:

The project will contribute to the LDCF goal, notably to objective CCA-1 on “Reducing Vulnerability” in that the project will provide opportunities for income diversification through banana value addition activities among the resource-poor banana producing communities in order to build resilience to CC. The project will also contribute to objective CCA-2 on “Increasing adaptive capacity” in that it will increase knowledge and understand of the CC concerns and also strength awareness in through the whole spectrum of value chain actors in the agro industry subsector on adaptation to the climate risk.

Lastly, the project will also contribute to objective CCA-3 on “Adaptation Technology Transfer” by supporting the banana tissue culture industry to ensure the sustainability of the sector. It will set up

community owned banana tissue culture plantlet outlets to maintain and distribute clean planting material to the farmers. In addition, the project will also setup banana waste utilization facilities to generate biogas for use in the income diversification value addition activities as well as promote it for domestic use, where the use of peels for biogas will not only supplement the energy but would also aid in the reduction of waste in the urban areas. Communities will be encouraged to use the digestate as a soil improver / fertiliser.

B.3 The GEF Agency's comparative advantage for implementing this project:

UNIDO's comparative advantage to implement this project within the GEF Programme is that, its overall mandate is to promote and accelerate sustainable industrial development in developing countries and economies in transition. In recent years, UNIDO has assumed an enhanced role in the global development agenda by focusing its activities on poverty reduction, inclusive globalization and environmental sustainability. The Organization is recognized as a specialized and efficient provider of key services meeting the interlinked challenges of reducing poverty through productive activities, integrating developing countries in global trade through trade capacity building, fostering environmental sustainability in industry, and improving access to energy. With respect to this project, UNIDO's has competence in:

a. Income Diversification for CC Vulnerable Banana Producing Communities:

Under its thematic programme C.1 "Poverty Reduction through Productive Activities", UNIDO works to combat poverty and food insecurity in developing countries, especially in least developed countries (LDC) and transitional economies by to strengthening agricultural value chains through inclusive agribusinesses that ensure increased income for farmers, reduced food losses, and increased availability of nutritious food products. From its work in Africa, Asia and Latin America, UNIDO has developed robust methodologies for industrial value chain diagnosis¹⁸ and inclusive agribusiness development, particularly in the African context¹⁹. In response to global trends and Member States request, UNIDO is within the programme component C.1.3 "Agribusiness and Rural Entrepreneurship Development", placing an emphasis on nutrition and qualitative aspects of food processing as a critical element of food security, and innovative adaptation to climate change as a means of strengthening the resilience of smallholder farmers²⁰.

b. Transfer of Adaption Technology and Ensuring Sustainability

UNIDO also provides services to enable its member States to reduce environmental damage of industrial activities, to promote energy efficiency and increased reliance on renewable energy as the energy source for such industrial/productive activities, and to build capacity in emerging technologies, including biotechnology. Under the programme component C.3.2 "Resource-efficient and Low-carbon Industrial Production", UNIDO promotes the application of resource efficient and cleaner production methods, to achieve climate resilient industrial development. UNIDO has developed capacities in the National Cleaner Production Centre (NCPC) and the Uganda Investment Authority (UIA) both of which will have key roles in the project. UNIDO also has a field office in Uganda, which will provide programme support.

c. Lastly the proposed project is in line with UNIDO's thematic programme C.4 Regional Programmes and with thematic priorities on i) South-South cooperation (SSC), (ii) support to the least developed countries (LDCs), and (iii) gender equality and the empowerment of women (GEEW). "Cross cutting issues",

In implementing this project, UNIDO will draw on its in-house and global network of expertises to ensure the sustainability aspects of livelihood diversification and adaptations strategies it will introduce to the target vulnerable communities.

¹⁸ www.unido.org/fileadmin/user_media/MDGs/IVC_Diagnostic_Tool.pdf; www.unido.org/fileadmin/user_media/Publications/Pub_free/Value_chain_diagnostics_for_industrial_development.pdf

¹⁹ http://www.unido.org/fileadmin/user_media/Services/AgroIndustries/Agribusiness_for_Africas_Prosperty_e-book_NEW.pdf


²⁰ UNIDO PROGRAMME AND BUDGETS 2014-2015, 19 March 2013

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

- A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mr Patrick Ocaïlap	Deputy Secretary to Treasury	MINISTRY OF FINANCE, PLANNING AND ECONOMIC DEVELOPMENT	08/05/2013

- B. GEF AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yy yy)	Project Contact Person	Telephone	Email Address
Mr. Philippe Scholtès Officer-in-Charge Programme Development and Technical Cooperation Division (PTC), UNIDO GEF Focal Point •		04/1/2014	Yvonne Lokko	+43 1 26026 3737	Y.Lokko@unido.org 