



FAO/GLOBAL ENVIRONMENT FACILITY
PROJECT DOCUMENT



Project Title:	Support for sustainable food production and enhancement of food security and climate resilience in Burundi's highlands
FAO Project symbol:	GCP/BDI/040/GFF
GEF Project ID:	642896
Recipient Country(ies):	Burundi
Executing partners:	Ministry of Water, Environment, Territorial and Urban Planning; Ministry of Agriculture and Livestock
Expected EOD (Starting Date):	April 2017
Expected NTE (End Date):	April 2022
Contribution to FAO's Strategic Framework: (Indicate as appropriate)	<p>50% for SO2 "Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner" Output 2.1.1 Innovative practices for sustainable agricultural production (including traditional practices that improve sustainability) are identified, assessed and disseminated and their adoption by stakeholders is facilitated.</p> <p>25% for SO4 "Enable Inclusive and efficient agricultural and food systems". Output 4.2.3 Value chain actors are provided with technical and managerial support to promote inclusive, efficient and sustainable agrifood chains</p> <p>25% for SO5 "increase the resilience of livelihoods to threats and crises" through reducing vulnerability to drought and other impacts of climate change Output 5.2.2 Improving capacities to undertake vulnerability and/or resilience analysis.</p> <p>Country Programming Framework Outcome: <i>The project meets all four axes of the Burundi Country Programme Framework namely: (i) capacity building of Agricultural Producers Organizers; (ii) natural resource management; (iii) management and use of information; (iv) strategic planning and coordination.</i></p>
Contribution to GEF TF Focal Area Strategic Objectives and Programmes:	IAP – Food Security, LD-1, Programme 1; LD-1, Programme 2; IAP – Food Security, LD-3, Programme 4; IAP – Food Security, LD-4, Programme 5; IAP – Food Security, BD-4, Programme 9.
Environmental and Social Risk Classification	Moderate risk
Gender Marker ¹	G1
Financing Plan: GEF allocation: Co-financing:	<p>GEFTF: USD 7,396,330</p> <p>Government of Burundi: i) IFAD loan portfolio, PRODEFI II: USD 21,440,000; ii) World Bank PRODEMA II : USD 6,000,000; iii) World Bank coffee project : USD 14,110,728; iv) MINAGRI : USD 3,000,000, FAO: USD 500,000</p>

¹ Throughout this document, the term SLM is used most frequently, but is considered equivalent to INRM.

Sub-total co-financing:	USD 45,050,728
Total budget:	USD 52,447,058

Executive Summary

Land degradation in Burundi’s highlands is leading to a decline in agricultural production, loss of agrobiodiversity and contributing to food shortages, food insecurity, chronic malnutrition, land and social conflicts, poverty, rural-urban migration and increased vulnerability to climate change. The IAP-FS programme seeks to tackle the major drivers of environmental degradation by advancing a holistic and integrated approach (inter alia pro-poor and inclusive) to enhance agricultural productivity in smallholder systems where food insecurity is directly linked to agriculture. This approach will ensure that gender and nutrition are mainstreamed throughout the project as critical issues to address the food security challenge. The Burundi IAP-FS project will address these challenges and drivers through the following components, with the specific objective to “increase adoption of resilient, improved production systems for sustainable food security and nutrition through integrated landscape management and sustainable food value chains”: 1. Strengthened institutional framework and support mechanisms; 2. Improved livelihoods and food security through integrated natural resources/watershed management; 3. Monitoring and assessment of global environmental benefits and socio-economic impacts. The three expected Outcomes are: 1.1 Multi-stakeholder and multi-scale platforms in support of policy and institutional reform and knowledge sharing mechanism for scaling out of SLM practices and integrated natural resources / landscape management in place; 2.1 Increased land area and agro-ecosystems under integrated natural resources / landscape management and SLM best practices and improved market access and value chains leading to enhanced and sustained production and livelihoods; 3.1 M&A framework in place and relevant institutions capacitated, carrying-out monitoring activities and communicating experiences and results. The project will be implemented on-the-ground in eight selected micro-catchments of Gitega, Mwaro and Muramvya Provinces in the highland agroecosystem east of the Congo: Nile watershed divide with a gender sensitive focus. The project will also catalyse transformational change across a wider area of the country through provision of training and knowledge management products for the partner (co-financing) projects. At national level, it will support an incremental increase in capacity to realize and monitor the win-win-win benefits of integrated natural resource management / sustainable land management (INRM / SLM, *note: throughout this document, the term SLM is used most frequently, but is considered equivalent to INRM.*). The IAP-FS is timely as it contributes to the objectives of the Government in improving the livelihoods of people through creating favourable conditions for ensuring food security.

Acronyms and Abbreviations

Acronym	Explanation
ACB	African Centre for Biodiversity
ACCES	Climate Change Adaptation for Soil and Water Resources Conservation Project (financed by the Special Fund for Energy and Climate)
ACORD	Agence de coopération et de recherche pour le développement
ADD	Duhaguruke Dukore Association
ADISCO	Appui au développement intégral et à la solidarité des collines
ADLP	Programme d'appui à la Décentralisation et à la Lutte contre la pauvreté
AfDB	African Development Bank
AGRA	Alliance for a Green Revolution in Africa
ASAP	Adaptation for Smallholder Agriculture Programme
AVEDEC	Association Villageoise d'entraide et de Développement Communautaire
BD	biodiversity (GEF focal area)
BH	budget holder
BV	Bassin versant (French; in English = watershed)
CA	conservation agriculture
CAADP	Comprehensive African Agricultural Development Programme
CAPAD	Confédération des Associations des Producteurs pour l'Auto-Développement
CBD	Convention on Biological Diversity
CC	climate change
CCA	climate change adaptation
CCDC	Communal Community Development Committees
CDC	Cell Development Committees
CDF	Centre de Développement Familial
CCM	climate change mitigation
CNA	capacity needs assessment
CNCA	National Aid Coordination Committee
CNE	Commission nationale de l'environnement
CNF	National Land Commission (Commission National Foncier)
CNTA	Centre National de Technologie Alimentaire
CPPA	Cadre de Planification en Faveur des Populations Autochtones
CSA	climate smart agriculture
CSO	civil society organisation
CSIF	country strategic investment framework (for SLM)
CSLPII	Strategic Framework for the Fight against Poverty II
CTB	Coopération Technique Belge
DATAR	Diversity Assessment Tool for Agrobiodiversity and Resilience
DG	Digital Green
DPAE	Directions Provinciales de l'Agriculture et de l'élevage
DfID	Department for International Development (UK)
FAO	Food and Agriculture Organisation
FFS	farmer field school
FGD	focus group discussions
FIES	food insecurity experience scale (used in HH-BAT)
FISP	farm input subsidy programme
GEB	global environmental benefit
GEF	Global Environment Facility
GHI	Global Hunger Index
GIS	geographic information systems

GoB	Government of Burundi
GSADR	Agriculture and Rural Development Sector Group (Groupe Sectoriel Agriculture et Développement Rural)
GSEAE	Sectoral Group on Water, Sanitation and the Environment
HDDS	household dietary diversity score (used in HH-BAT)
HEA	household economy analysis
HH	Household
HH-BAT	household baseline assessment tool
HRBA	human rights based approaches
IAP-FS	integrated approaches pilot on Food security
IFAD	International Fund for Agricultural Development
IGA	income generating activity
IGEBU	Institut Géographique du Burundi
ILO	International Labour Organization
INDC	Intended Nationally Determined Contributions
ICNEN	National Institute for Nature Conservation
INRM	integrated natural resources management
IP	Implementing Partner
IPC	Integrated Food Security Phase Classification
IRAZ	Institut de Recherche Agronomique et Zootechnique
ISABU	Institut des Sciences Agronomiques du Burundi
ISFM	integrated soil fertility management
IW	international waters (GEF focal area)
LADA	Land Degradation Assessment (in Drylands) (methods and tools)
LCA	Green Belt Action
LD	land degradation
LUS	Land Use Systems
MEA	Millennium Ecosystem Assessment
MINAGRIE	Ministere de l'Agriculture et de l'Elevage (Ministry of Agriculture and Livestock)
MEEATU	Ministere de l'Eau, de l'Environnement, de l'Aménagement du Territoire et de l'Urbanisme (Ministry of Water, the Environment, Land Management and Urbanisation) [former MINATTE]
MSNDPHG	Ministère de la Solidarité Nationale, des Droits de l'Homme et du Genre (Ministry of National Solidarity, Human and Gender Rights)
Mol	Ministere de l'Interieur et de la Formation Patriotique (Ministry of the Interior and Patriotic Education)
MTE	Mid-Term Evaluation
NAIP	National Agricultural Investment Plan
NAPA	National Adaptation Plan of Action to Climate Change
NAP/LCDT	National Action Programme to Combat Desertification (Lutte contre la dégradation des terres)
NBA	Burundian Association of Environmental Protection
NCCCA	National Communication on Climate Change and Adaptation
NEPAD	New Partnership for Africa's Development
NGO	non-governmental organisation
NPC	National Project Coordinator
NSC	National Steering Committee (of IAP-FS project)
OBPE	Burundi Office for the Protection of the Environment
ODAG	Organisation pour le Développement dans l'Archidiocèse de Gitega

ONCCS	National Control Office and Seed Certification
OP	Producers Organisation
PACDC	Coffee Sector Competitiveness Project / (Projet d'Appui pour la Compétitivité de la Filière Café) (World Bank)
PAIOSA	Programme d'Appui Institutionnel et Opérationnel du Secteur Agricole (Coopération Belge)
PCU	Project Coordination Unit
PGR(FA	plant genetic resources (for food and agriculture)
PMSAN	Multi-sectoral Food and Nutritional Security Platform
PNE-Bu	National Water Partnership
PNIA	Plan National d'Investissement Agricole
PNPRGC	National Platform for Disaster Risk Prevention and Management
PNSA	National Food Security Programme (Programme National de Sécurité Alimentaire)
PNSEB	National Fertiliser Subsidy Programme (Programme National de Subvention des Engrais au Burundi)
PNTD	participatory negotiated territorial development
PPG	project preparation grant (development phase)
PPIA	Plan Provincial d'Investissement Agricole
PRODEFI II	Value Chain Development Programme – Phase II (IFAD)
PRODEMA	Productivity and Development of Agricultural Markets (World Bank)
RAPTA	Resilience, Adaptation Pathways and Transformation Assessment Framework
SAN	National Agriculture Strategy (Strategie Agricole Nationale)
SIP	Strategic Investment Programme (of TerrAfrica)
SHARP	Self-Evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists'
SLM	sustainable land management
SLWM	sustainable land and water management
SMSS	solar multi service stations
SNEB/PAE	National Environment Strategy of Burundi and Action Plan
SNPA /DB	National Biodiversity Strategy and Action Plan
SSA	sub-Saharan African
SUN	Scaling-Up Nutrition
SWC (CES)	soil and water conservation (conservation des eaux et sols)
Kagera TAMP	transboundary agroecosystem management project for Kagera basin
TFP	Technical and Financial Partners
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIPROBA	Unissons-nous pour la promotion des Batwa
VAIM	Volet Appui Institutionnel au Ministère
VCS	Voluntary Carbon Standards
VGGT	Voluntary guidelines on the responsible governance of tenure (FAO)
WOCAT	World Overview of Conservation Approaches and Technologies
WB	World Bank

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SECTION 1 – Project rationale

1.1 Project Context

1.1.1 The national context

Physical context²

Location

Burundi is a landlocked country at the heart of Africa's Great Lakes Region, located between 29°00'-30°25' East and 2°20'-4°25' South. The country has an area of 27,834 km², of which 13,800 km² is in the River Nile basin draining east and 14,034 km² is in the basin of the Congo River draining west into Lake Tanganyika (see Map 1 in Annex 9).

Climate

Burundi's climate is humid tropical, well-endowed with abundant rainfall, the distribution of which is influenced by altitude and ranges between 773mm and 2,670mm per year. It is characterized by an alternating rainy season which usually lasts from October to May and dry season from June to September. The minimum rainfall falls on the Rusizi plain, while the maximum occurs in areas of high altitude such as the crest of the mountain divide between the Congo and Nile basins (see Table 1). The annual average highest temperature is 24.1 ° C (Imbo plain) while the lowest is 15.6 ° C (Rwegura).

Table 1: Regional variability of rainfall and evapotranspiration

Natural Region	Altitude (m)	Average annual rainfall (mm)	Potential evapo-transpiration ETP (mm)	Climatic balance P-ETP (mm)
Congo-Nile crest	2,000-2,670	1,750	652	+1,098
Central plateau	1,500 – 2,000	1,325	918	+ 407
Moso Plain	1,150 – 1,400	1,150	943	+ 207
Imbo plain	774 – 1,000	900	978	- 78
N-E depression	1,320 – 1,500	925	951	- 26
Average	1,722	1,274	740	+ 534

Source : GoB (2009)

Hydrology

Burundi has a dense network of permanent rivers in two major river basins (Nile and Congo), also many natural lakes including Lake Tanganyika, the second-deepest lake in the world, reaching 1,436m (~2,600 of the 32,400 km² (8%) of the lake area lie within the country boundaries). Lake Tanganyika is vulnerable to pollution due to its extremely long period of renewal. Burundi has three other important reservoirs: Lake Mugeru (Province Bujumbura), the transboundary Lake Rwegura (Kayanza Province) and Lake Cuhoha (Kirundo Province). There are numerous small floodplains and swamps in the north and southeast of the country.

Given its geographical position straddling the watersheds of the Congo and Nile basins, Burundi does not benefit from inflow of waters from any other country.

Geology and Soils

In geological terms, most of Burundi is covered by Precambrian rocks composed of 3 major geological groups. The soils and topography of Burundi vary in age, fertility and erodibility from the west to the east. In the plain of Imbo, soils are recent, established on lake sediments or river alluvium. In the foothills of Mumirwa, the soils

² Source: GoB, (2011b)

are relatively fertile but highly erodible due to the escarpment topography. On the Congo-Nile divide, the soils under a tree canopy have been protected, but are strongly leached in the long deforested areas. In the central highlands, hill summits are frequently occupied by poor and shallow soils, while in the valleys, a sandy humus soil accumulates. In Bugesera depression, soils are formed on highly erodible substrates, which are particularly inert, with a very thin humus layer. The soils of the marsh areas are mostly rich in organic matter, including fertile tropical brown soils. In the depression of Kumoso, ferrisols and lateritic soils are distinguished on hills and slopes, with kaolisols in the nearby valleys.

Landscape, Agroecological Zones, Flora, Fauna and Land Cover

The landscape of Burundi is dominated by hilly plateaus with altitudes varying from 1,400–1,800 m, and decreasing towards the east and south-east of the country. The highest mountains in the Congo-Nile divide are Mount Teza (2,665 m) in Muramvya Province and Mount Heha (2,670 m) in Bujumbura Rural Province.

The country can be divided into 5 agroecological zones, based on rainfall, elevation and topography: the western plain of Imbo, the western escarpment of Mumirwa, the Congo-Nile divide, the central highlands, Kumoso depression to the east and Bugesera depression to the north-east (Maps 2 and 3 in Annex 9 and Table 2).

Table 2: Agroecological zones in Burundi (1950-2008)³

Eco-Climatic Zone	% land area of country	Elevation (m)	Ave Annual Temp (°C)	Ave Annual Ppt. (mm)
Imbo plains	7	800-1,100	23	800-1,100
Mumirwa slopes	10	1,000-1,700	18-28	1,100-1,900
Congo-Nile divide	15	1,700-2,500	14-15	1,300-2,000
Central highlands	52	1,350-2,000	17-20	1,200-1,500
Kumoso and Bugesera	16	1,100-1,400	20-23	1,100-1,550

As shown in Map 4 of Annex 9, the land cover of Burundi is dominated by herbaceous crops (small-scale, predominantly rainfed subsistence agriculture), followed by rainfed shrub crops, tree crops and forest plantations [very limited tea plantations, ageing coffee orchards, agroforestry (including the predominant banana) and plantations of exotics (*Eucalyptus* spp. and *Pinus* spp.)]. There remain some areas of tree and shrub savanna – but the extent of native closed trees, which would have been the dominant natural vegetation of the country, is very limited.

The farming system in Burundi consists of small landholdings, with very small double or triple-cropped plots which are mostly rainfed and cultivated by hand, providing subsistence and producing little or no marketed surplus. The low level of involvement in markets for individual crops is succinctly summarised in Verschede *et al* (2013) which states “*The level of marketing by the farmers is so low that no individual farm-gate prices could be captured*”.

Burundi’s biodiversity across terrestrial, aquatic and semi-aquatic ecosystems includes a recorded 2,950 species of plants, 596 birds, 163 species of vertebrates, 52 species of reptiles, 56 species of amphibians and 215 fish species (UNEP, 2006) (see Annex 10 for more details). The country’s biodiversity has drastically declined in recent years, mainly due to intense pressure from the expanding human population resulting in the conversion of large areas of forest into crop land and extensive livestock farming. The protected areas of the country encompass 5.6% of the total land area of the country (157,700 ha,) (see Map 7, Annex 9).

Montane forest, which previously occupied 33 - 50% of the country, has mostly been denuded; with only a patch of 800 ha of closed forest now recorded on the banks of Lake Tanganyika (see Annex 10). Other remaining forests occupy only 127,662ha and wetlands account for only 120,000ha (about 5% of the total area of the country). The national forests have not been inventoried since 1980.

³ Source: IFPRI (2013)

Protected areas provide important protection for the fragile land and ecosystem services critical to the resilience of communities. These areas may also generate income through the tourism industry. Burundi established the National Institute for Nature Conservation (INECN) in 1980 to implement the decision on protected areas arising out of the Stockholm Environment Conference of 1972. INECN has since created 14 protected areas—albeit without prior consent in some cases or with inadequate compensation, leading to high levels of conflict with the affected communities. The return of peoples displaced by conflict is also exerting great pressure on protected areas, with returnees settling and turning land to agriculture, in violation of the law.

Concerning the country's agrobiodiversity, reports of the Ministry of Agriculture and Livestock (2008) believe that food crops occupy about 1.21 million ha, or 90% of the cultivated areas of Burundi and 43.4% of the national territory, while cash crops occupy 104,000 ha, or 3.7% of the national territory. According to the Fourth Report of Burundi to the Convention on Biological Diversity (CBD) regarding implementation of the 2010 Aichi targets, agricultural ecosystems include 74 crop species, of which there are 23 species of food plants, with 9 species of cash crops, 231 species of forage crop species, with 27 species of vegetable plants and 14 species of fruit plants. Almost all crops grown in Burundi have been introduced (MINATTE 2000).

At national level and in IAP-FS project areas, food crops are dominated by bananas, tubers and roots (sweet potato, cassava), legumes (mainly haricot beans, also reportedly pinto beans⁴), grains (maize, rice, wheat, sorghum), vegetables (*inter alia* cabbage, eggplant, onions, tomatoes) and fruit (*inter alia* avocado, mango, papaya, guava, passionfruit), as well as oilseeds (peanut, soybean, sunflower). The industrial crops are dominated by coffee, tea, cotton, oil palm, sugar cane and tobacco.

More than 21 cultivated forage species have been inventoried, consisting of grasses, herbaceous and shrubby legumes. Forage legumes are mainly produced on erosion control benches, thus play a dual role of providing fodder / forage for animals and providing protective vegetation to reduce runoff and erosion of topsoil down slope.

The agroforestry system comprises of small woodlands, dominated by *Eucalyptus spp.*, also other exotic trees (*Grevillea*) and some indigenous species (*Erythrina abyssinica*, *Ficus* div. sp. and *Chenopodium ugandae*, *Cordia africana*, *Albizia gummifera*, *Tetradenia riparia*, *Plectranthus barbatus*, *Momordica foetida*, *Maesopsis eminii* and *Markhamia lutea*). The dominant fruit trees (*inter alia* avocado, mango, papaya, guava) are found scattered among agricultural crops, within an agroforestry rather than an orchard setting.

Domestic animals in Burundi, by order of population size, include: goats, poultry, cattle, sheep, rabbits and pigs (various races of each). Most of the goats kept are of mixed breed, although some projects have recently introduced Boer goats, for their higher meat production. For cattle, the imported breeds, in order of importance are: Friesian (Holstein), Montbéliarde, Brown Swiss, Jersey and Guernsey. Sheep remain low in numbers in the highlands (including Mwaro and Muramvya Provinces), but more important in Gitega, probably for cultural reasons and the higher density of the human population.

With the intervention of development projects financed by technical and financial partners, a semi-intensive system (integrated agroforestry and livestock keeping) has developed and is characterized by high proportions of improved breeds of zero grazed cattle in permanent housing and mono crops of recently introduced productive varieties of bananas.

Maintaining the diversity of crops grown and livestock kept is beneficial, as these provide several socio-economic (better dietary diversity and nutritional levels) and environmental services (food and nutrition, supply of manure, erosion control) while enhancing resilience to shocks.

Social context

Burundi is characterized by “an inadequate infrastructure network, a very low human development index, a general lack of capacity, weak governance and high vulnerability to external shocks” (AfDB, 2011). Burundi's Human Development Index (HDI) value for 2014 was 0.400, which is very low and positioned at 184th out of

⁴ FAO (2016a)

188 countries and territories. Between 1980 and 2014, Burundi's HDI value increased from 0.230 to 0.400, an increase of 73.9% or an average annual increase of about 1.64%. However, according to IFPRI (2013):

"The period 1990–2000 was characterized by slow growth in both rural and urban populations in response to the civil conflict that engulfed the country for close to sixteen years and caused massive displacement of people to neighbouring countries in search of asylum.

Urban population growth rates are generally higher than rural growth rates for all years, rising sharply in the latter part of the last decade as more than 500,000 Burundian returned home after the cessation of war. Recent years have seen a surge in the rural–urban exodus in response to widespread poverty in rural areas."

"Since 2008, Burundi has embarked on extensive economic and social reforms to stimulate growth and regional integration; resulting in progress - albeit slow - in modernizing its economy and administration. However, despite these achievements, the country remains fragile, particularly in the security domain" (AfDB, 2011). According to ECVMB⁵, in 2013/2014 the rate of personal income poverty was 64.6% in the total population, compared to 67.1% in 2006.

Analysis of data on living conditions of households showed that:

- 1) the income poverty level of the population is much higher in rural areas (68.8%) compared to urban areas (27.6%);
- 2) households headed by women are generally less poor monetarily than those headed by men (61% against 65.3%);
- 3) heads of households working in the primary sector (agriculture, fisheries, livestock, forestry, fish farming) are significantly poorer (71.3%) than those working in the industrial sector (60.2%), in business activities (34.3%) and services (28%).

In terms of employment, the majority of jobs in the Burundian economy are in the informal sector (76%), compared to 14% in public administration and only 10% for the private sector, public enterprises and parastatals.

Monetary poverty and poor living conditions are closely linked. The simultaneous analysis of the two dimensions of poverty shows that only 21% of households in Burundi are not affected by the phenomenon and generally live in acceptable conditions. In other words, 79% of individuals in Burundi live in poor or vulnerable households.

Batwa

According to estimates, the number of minority Batwa people is around 1% of the total population (78,071 according to the report on the land situation of the Batwa in Burundi in 2008). The territorial occupation shows that they are spread all over the national territory; however there are a greater concentration in the Provinces of Cibitoke, Gitega, Karuzi, Kayanza, Ngozi and Bujumbura.

It is reported that since the monarchical period⁶, the Batwa have been marginalized and discriminated against by the two other ethnic communities in Burundi (i.e. the Bahutu and Batutsi) (GoB, 2016b). They face socio-economic integration issues. Regarding access to land, the Batwa do not have access to tracts of land, thus as the land is one of the biggest factors of production in Burundi, where the vast majority of the population (over 90%) lives on agriculture, they have been disadvantaged. In the past, Batwa lived by hunting, gathering, blacksmithing and pottery; jobs that provided them a certain level of standing. However, in the current context, most of these livelihoods are no longer viable, thus today they survive only thanks to the meager income from the provision of services and pottery, but this is very limited.

Batwa face a range of other issues, including:

⁵ Source: ECVMB - Survey on the living conditions of households in Burundi

⁶ Burundi ceased to be a monarchy when King Ntare V Ndzizeye was deposed by his Prime Minister and Chief of Staff, Capt. Michel Micombero, who abolished the monarchy and declared a republic in 1966.

- Local community development plans rarely take into account the concerns of Batwa. Indeed, at the institutional level, following the prejudices and stereotypes, the personal services sector and officials at the administrative and political levels are not very sensitive to the specific needs of indigenous peoples (Batwa). Given this situation, it is necessary to train them through sensitivity training, information and needs identification techniques;
- Often, the Batwa are associated with minor acts of delinquency due to their poor living conditions. The defense of their rights is made difficult by the low level of education, high poverty, lack of information on criminal and legal proceedings and prejudices against them. There is evidence of discriminatory attitudes in their treatment.
- In relation to citizen participation, the Batwa are generally excluded in instances of decision making and particularly for women. Also, they are generally not invited in meetings both at municipal level and lower (cells / commune) levels.
- Few Batwa children enter school, and most of those who do leave school before the end of the first cycle (primary). This implies a perpetuation of poverty.
- Most Batwa do not have decent housing; the vast majority live in small straw huts.
- In terms of legal recognition, the Batwa do not enter into legal marriages and this has consequences on access to services to which they should be entitled (recognition of children and of inheritance rights, access to care for children's health under five years and to free education, etc.).
- The Batwa have no easy access to health care due to extreme poverty and marginalization. HIV / AIDS continue to spread in the Batwa community because of lack of information. Particularly high current practices among Batwa include polygamy, concubines and rape, *inter alia* contributing to the transmission of this disease.

In conclusion, “*the Batwa have very limited capacity to catalyse their own development*” (ibid.).

Economic context

Burundi is one of the poorest countries in Africa, with a GDP per capita of US \$ 170 in 2011 (US \$ 286 in 1993 before the latest crisis). According to the UNDP report (MDG, 2010), Burundi has lost nearly two decades of income growth. However, the country has substantial natural resources, including mineral deposits, but suffers from its isolation, lack of infrastructure, an unattractive business climate and a poor match between supply and demand. To this is added pressure on natural resources due to the high population density, one of the highest in Africa (300 / km²), combined with rapid population growth (2.6% in 2010) especially in rural areas, where 90% of the population live. Furthermore, at the 2008 census, 69% of the population was under the age of 15 – and the average fertility rate was 6.25 children per woman (IFPRI, 2013).

Nearly 70% of the population lives below the poverty line (less than 1 US \$ / day / person) and 85% of households face daily food insecurity. The acute malnutrition rates are above 10% and the daily calorie intake/person is well below the required standards (1,650 calories compared to the recommended 2,250). Coverage of essential nutrient requirements is provided to 75% for energy, 40% for proteins and 22% for fats, with an insignificant consumption of foods rich in vitamins and minerals (fruits and vegetables) especially in rural areas⁷.

Verschede *et al* (2013) found “A symptom of the very poor livelihoods of the mainly subsistence farm households, with little marketed surplus, was their high level of food insecurity, with only 7% of the households being food secure and more than two thirds of all households labelled severely food insecure.” [The household baseline assessment (HH-BAT) study during the PPG found only 1% of the households interviewed in the IAP-FS intervention areas had no food insecurity – see Section 1.1.2 and Annex 14 for more details.]

A very challenging issue raised by the analysis of Verschede *et al* (2013) is that of land fragmentation – the study found “*farms are highly fragmented with on average more than eight plots on the hillside and one to two plots in the marsh*”. The authors quantified land fragmentation using the Simpson Index⁸ and found results of

⁷ SAN : Stratégie Agricole Nationale du Burundi

⁸ Simpson Index = the sum of the different plot areas squared divided by the square of total cropping area, which varies from zero to one, with higher values indicating lower fragmentation.

0.2 in both provinces. This level of fragmentation makes all land management efforts more time-consuming and thus less rewarding.

The economy is not diversified and remains highly vulnerable to external shocks as a small landlocked country, vulnerable to political instability and increasingly to weather extremes and climate changes. Agriculture, mainly based on small farms, is the main sector, representing 48% of GDP and about 90% of the workforce, most of whom are women farmers. Export crops are largely dominated by coffee and tea, both of which are characterized by low productivity, with an annual growth rate below 3% between 2006 and 2010. The service sector represents 32% of GDP, with a rate of 5.1% growth in 2010, which comes mainly from the transport sector and telecommunications with 6.9% and 8.8% respectively in 2009 and 2010. The industrial sector also recorded a better growth (5% in 2010 against 3.7% in 2007), mainly from construction, mining and energy. Burundi has significant mineral deposits but the exploitation of these resources requires road, rail and energy infrastructure.

IFPRI (2013) notes:

The country's transportation system is generally poor, with a limited feeder road network; the hilly terrain and lack of access to the sea further compound the problem. Poor infrastructure increases the number and range of middlemen, reducing farm gate margins. It also means limited access to market information (for example, on prices and high-demand areas) that would allow meaningful decision making. Given poor capacities in storage and processing facilities and techniques, many farmers are shut out of lucrative markets, leading to a deepening of poverty.

Figure 1 shows trends in per capita GDP and share of GDP from agriculture between 1960 and 2000. Annual income per capita declined suddenly, from \$156 in 1991 to \$110 in 1997—nearly a 33 % reduction. It has remained stagnant since then. The decade-long reduction of the 1990s is attributed to the crisis experienced in the country around 1993, exacerbated by the trade embargo imposed on the country from 1995 to 1999. The embargo drove up the cost of inputs while reducing the availability of foreign exchange, curtailing purchasing power and consequently overall economic development.

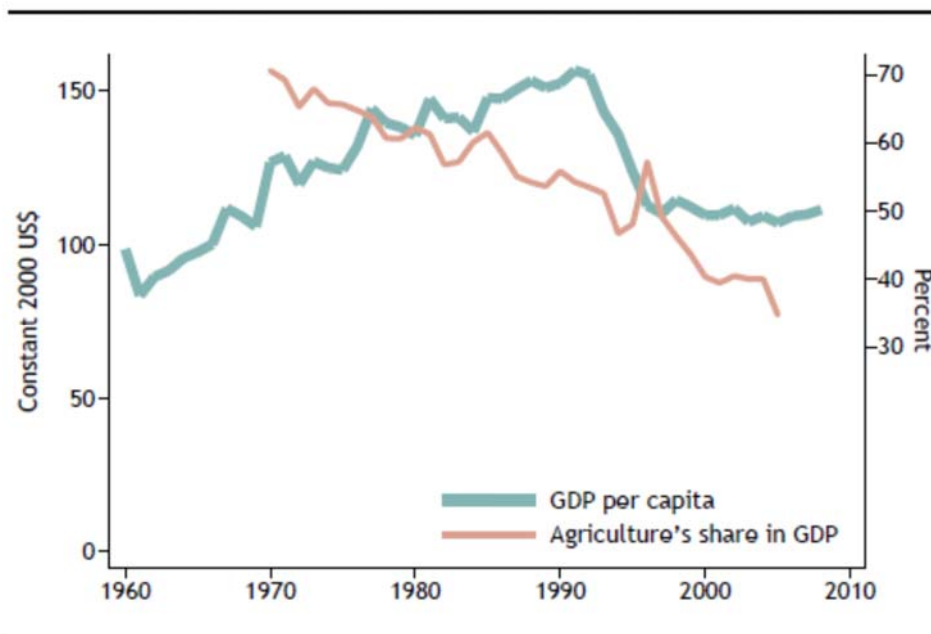


Figure 1: Per capita GDP in Burundi (constant 2000 US \$) and share of GDP from agriculture (%t), 1960–2008⁹

Burundi's economy is dominated by small-scale, predominantly rainfed subsistence agriculture (>90 % of the total population), which occupies 50% of Burundi's land area.

Agriculture is the main income earner; however, its contribution to GDP has declined over time, from over 70% in the 1970s to 35% in 2010. Total GDP increased in real terms over this period, indicating the growing importance of the service and manufacturing sectors to the economy. The performance of agriculture has been poor. Omamo et al. (2006) showed that agricultural crop productivity grew by only 1.3% from 1983 to 1993 and declined by -0.4% between then and 2003. Compared to the pre-war period, current average per capita agricultural production has more than halved, making it now among the lowest in the East African Community. Land fragmentation, rapid population growth, declining yields, falling soil fertility, and low level of input utilization and of technical knowledge are major issues contributing to this decline (FAO, 2015).

The current production structure, dominated by subsistence farming, makes the economy very vulnerable and fragile due to its dependency on a now highly variable climatic situation (see Section 1.2).

In an analysis on scenarios for the future in the face of climate change, IFPRI (2013) recommend that key strategies for addressing climate change should encompass enhancing agricultural productivity and investing in the non-agricultural sector to expand livelihood options, also critically measures for slowing population growth. Those relevant to the IAP-FS are:

- increasing agriculture productivity through appropriate policies, technologies and practices that should probably include increasing funding to national agricultural research and extension services;
- promoting sustainable land management;
- prioritizing the agriculture sector by increasing its budget to at least 10% of the national budget;
- implementing sensitization and awareness campaigns on the potential effects of climate change on agriculture.

Other recommendations, not related to the IAP-FS, were:

- supporting family planning facilities;
- investing in education;

⁹ Source: IFPRI (2013)

- promoting accessible non-agriculture livelihood options;
- implementing land reforms.

Institutional framework

In Burundi, a large number of different institutions are relevant to the integrated management of natural resources (INRM) and especially of land resources (soil, water, biodiversity), the development of sustainable food chains and the fostering of sustainability and resilience for food security. These include public institutions (government ministries and other statutory bodies), the private sector, NGOs, associations and local populations living from the exploitation of natural resources. The key institutions and their main responsibilities are summarised below (as restructured in 2015).

Ministry of Water, the Environment, Land Management and Spatial Planning / MINISTERE DE L'EAU, DE L'ENVIRONNEMENT, DE L'AMENAGEMENT DU TERRITOIRE (MEEATU)

MEEATU (created in 1989) is responsible for the design, coordination and harmonization of actions for the sustainable management of natural resources. Pursuant to Decree No. 100/198 of 15 September 2014 amending the Decree No. 100/95 of 28 March 2011 determining the responsibilities, organization and functioning of the Ministry, the duties of MEEATU include, among others, to:

- a. Design and implement the national policies on water policy, the environment, spatial planning, urban planning and housing, ensuring the protection and conservation of natural resources;
- b. Develop and implement, in cooperation with relevant ministries, the national struggle against soil erosion policy;
- c. Establish a stable structure for coordination of water resources management;
- d. Develop a national water policy and the implementing regulations;
- e. Develop and disseminate a national programme for environmental education;
- f. Establish policies for adaptation to climate change in collaboration with other concerned departments;
- g. Develop and enforce regulations on land use, environment management and protection ;
- h. Design and implement a consistent policy for reforestation at the national level;
- i. Contribute to the implementation of international conventions and programmes for the management and protection of the environment and natural resources;
- j. Develop and implement sustainable national strategy for the management and use of land in Burundi;
- k. Ensure the national cadastre and land security.

To fulfill its responsibilities, the Ministry is organised into various departments including: DG Water Resources and Sanitation, covering the water sector and sanitation sector; DG Spatial Territory and Land Heritage Protection involved in spatial planning and protection of lands; DG of Planning and Housing, in charge of urban planning and housing sector

MEEATU also has responsibility for two autonomous institutes: The Burundian Office for Environmental Protection (OBPE) with two directions, one in charge of forests and the other environment and climate change and the Geographical Institute of Burundi (IGEBU) whose primary mission is the collection, processing, mapping, conservation and making available to users hydrological data, hydrographic, weather, climate and spatial data /GIS.

The Ministry benefits from the support of frameworks for dialogue such as the National Environment Commission, the Sectoral Group on Water, Sanitation and the Environment (GSEAE), the National Water Partnership (PNE-Bu), and the National Platform for Risk Prevention and Disaster Management.

Ministry of Agriculture and Livestock / MINISTERE DE L'AGRICULTURE ET ELEVAGE (MINAGRIE)

Although the primary responsibility of **MINAGRIE** is coordinating the agricultural sector, the government entrusted it with important responsibilities related to the management of natural resources. Indeed, the main tasks of MINAGRIE as reorganized by Decree-Law No. 100/115 of 30 April 2013 are to:

1. design, plan, coordinate and implement the national agriculture and livestock policy;
2. regulate and monitor the functioning of food chains;

3. develop and implement, in cooperation with the ministries, the national policy of protection and soil fertility policy;
4. identify and implement national mobilization policy for self-development and agriculture, forestry and livestock extension.

To carry out the tasks assigned to it, MINAGRIE relies on central services with the Minister's office, four branches and sixteen Provincial Directorates of Agriculture and Livestock (DPAE). MINAGRIE also ensures the supervision of two public institutions: Institut des Sciences Agronomiques du Burundi (ISABU) in charge of agricultural research and Centre National de Technologie Alimentaire (CNTA) responsible for the promotion of technological innovation in the agricultural sector.

Ministry of Interior and Patriotic Education / MINISTERE DE L'INTERIEUR ET DE LA FORMATION PATRIOTIQUE

In the management of natural resources, the Ministry of Interior intervenes via the decentralized communities organized into Communal Community Development Committees (CCDC) and Cell Development Committees (CDC). These elected bodies have the responsibility to take charge and control local management in a transparent and participatory manner, including actions of rational management of natural resources.

Ministry of Finance, the Budget and of Privatisation / MINISTRE DES FINANCES, DU BUDGET ET DE LA PRIVATISATION

The Ministry of Finance ensures the mobilization of financial resources of the state both inside and outside as well as the scheduling of all state spending.

Intersectoral Co-ordination

Faced with the multiplicity of stakeholders in the management of natural resources, administrative coordination is a fundamental challenge to cross sectoral integration. The mechanisms established by Burundi include:

- National Aid Coordination Committee (CNCA);
- Agriculture and Rural Development Sector Working Group (GSADR);
- National Environment Commission (CNE);
- National Land Commission (CNF);
- National Platform for the Prevention of Risk and Disaster Management (PNPRGC).

Agriculture and Rural Development Sectoral Working Group (GSADR)

Set-up in 2008 by the MINAGRIE, this group provides a framework for technical discussions, support and guidance to the sectors concerned and should ensure that its activities contribute to the effective implementation of priority actions of the National Agricultural Policy and Investment Plan (NAIP).

At the national level, members of GSADR come from: (i) the Government (MINAGRIE, MEEATU, Ministry for Communal Development (MDC), MFPED and the University of Burundi (UB)); (ii) sector donor representatives; (iii) NGOs; and (iv) the private sector. In Dec 2014, there were 65 members from Government, 76 from technical and financial partners (TFP), 69 from NGOs and 42 from the private sector.

In 2014, the GSADR was formed into 13 Working Groups for efficiency in addressing themes related to the implementation of the NAIP, namely: marsh and watershed development; risk prevention and disaster management; the National Fertilizer Subsidy Programme; food security and nutrition; development and monitoring of a strategy to support producers' organisations / innovation / research / agricultural training; development of the seed sector; dairy industry; rice sector; banana sector; institutional reform of MINAGRIE; agricultural information system; review of strategic documents of MINAGRIE.

The national GSADR covers topics relating to the 13 Working Groups (see above); also seasonal weather forecasts; processing; strategic planning of agribusiness in Burundi; analysis of chronic food insecurity guided by the tools of the Integrated Food Security Phase Classification (IPC) etc.; the situation of hunger in the world; monitoring and analysis of agricultural and food policy; presentation of new projects; and NGO activities.

The GSADR was set up at provincial level in March 2013 for exchange, guidance and coordination of sector interventions so as to ensure that the activities contribute to the effective implementation of the Plan Provincial d'Investissement Agricole (PPIA) and thereby the agricultural policy of the Government.

Members of Provincial GSADR consist of: all Agriculture and Rural Development Department heads, the Governor's Economic Advisor; agronomists and municipal veterinarians, various representatives of TFPs and NGOs working in the province, representatives of the municipal administration, producers' organisations (OPs), private sector operators, Centre de Développement Familial (CDF), representatives of the decentralized departments of the Ministries (MEEATU, Communal Development, CDC), religious denominations.

The Provincial GSADRs meet once a month and extraordinarily as many times as required. Links are maintained with the national level by the transmission of the minutes of provincial to the national GSADR meetings via the Permanent Secretary in charge of the MINAGRIE's Provincial Direction for Agriculture and Livestock (DPAE).

At provincial level, the topics are varied and cover the Presentation of Annual Work Plan, as well as achievements of the various stakeholders, restocking of livestock, climate hazards and strategies to undertake evaluations of specific actions (e.g. Fertilizer Subsidy Programme, promotion of "kitchen gardens").

The country's various technical and financial partners (TFP) do not provide any formal regular financial support to GSADR but donors provide ad hoc support according to their means. Nationally the working groups are supported minimally by the institutional support programme (PAIOSA) of the Belgian Technical Cooperation (CTB) (mission expenses; members transport, communication expenses for the Secretary of GSADR, performance bonus for the President and Secretary). At Provincial level, funding for GSADR activities is provided by TFP, mainly PAIOSA and World Vision for management, travel, communication costs and workshop expenses.

Details of the other groups are provided in Annex 15

Legal and policy framework

Legal

Burundi has ratified various conventions and initiatives at both regional and international levels in connection with the environment, particularly those related to the management of natural resources. These include among others the United Nations Convention to Combat Desertification (UNCCD), the Convention on Biological Diversity (CBD) and the UN Framework Convention on Climate Change (UNFCCC) (see Table 3).

Table 3: Dates Burundi signed, ratified and treaties entered into force

Treaty	Signature	Ratification / Acceptance	Entry into force
United Nations Framework Convention on Climate Change (UNFCCC)	11 Jun 1992	6 Jan 1997	7 Apr 1997
Convention on Biological Diversity (CBD)	12 Jun 1992	2 Sept 1993	29 Dec 1993
United Nations Convention to Combat Desertification (UNCCD)	Oct 1994 to Oct 1995	6 Jan 1997	26 Dec 1996

At national level, the legal measures taken by Burundi to operationalize the political commitments to sustainable management of natural resources and the environment are outlined in Table 4.

Table 4: Burundi's legal measures to operationalize the political commitments to SLM and INRM

Legal Instrument	Brief description
Constitution of Burundi	Burundi's commitment in favour of sustainable land management is expressed in the 2005 Constitution as follows (Article 35): "The State ensures the proper management and rational

Legal Instrument	Brief description
	use of natural resources of the country, while preserving the environment and conservation of resources for future generations."
Land Tenure Code of Burundi (Code foncier du Burundi)	<p>Law No. 1/13 of 9 August 2011 amending the Land Code of Burundi distinguishes land in the public domain of the state and other public entities that are subject to the rules of the national management and those in the private domain of State and private persons under the land management law.</p> <p>The Land Code in its Article 313, states that land ownership can be established either by a land title issued by the Registrar of Land Titles; or by a land certificate from the Municipal Land Service recognizing a regular appropriation of land resulting in personal or collective holding, permanent and sustainable, according to the customs of the time and place and according to the vocation of the land.</p> <p>In Article 380, the land code protects landowners under the customary rights as follows: These private rights may be subject to a certificate issued by the Municipal Land Service territorial jurisdiction.</p> <p>Title VI is on the legal regime of wetland/swamp land; it sets the specific provisions of their development, so as to maintain and improve their production potential (art. 36-51). This development must also register with a view to balanced and sustainable management of the environment and respect for international conventions binding on Burundi, in particular the Convention on Wetlands.</p>
Environmental Code (2000)	Law No. 1/010 of 30 June 2000 on the Code of the Environment sets the ground rules to enable the management of the environment and its preservation against any form of degradation for a rational use of natural resources and maintaining the ecosystem balance. Compared to the creation of an enabling environment, the Code provides that its implementing legislation shall establish specific measures to protect soil to fight against desertification, erosion, loss of arable land and pollution (Article 30).
Water Code (2012)	Law No. 1/02 of March 26, 2012 sets-out the fundamental rules and the institutional framework to ensure the rational and sustainable management of water resources, facilities and public irrigation works.
Forestry Code	<p>The new Forestry Code of Burundi has replaced the one enacted in 1985 and sets the rules governing the administration, management, operation, monitoring as well as forest policy. The new code emphasizes a number of aspects which were omitted in the 1985 Code, including the National Forest Policy (2012) which is now a tool for any manager of forest ecosystems; strengthening penalties against offenders who violate the management of forest resources, etc.</p> <p>Other elements were included in the bill, including: forest cover recovery procedures, also the institutionalization of a National Forestry Fund in order to allow the Forestry Administration to proceed with the extension and renewal of forests.</p>
Law on the Establishment and Management of Protected Areas	Law No. 1/10 of 30 May 2011 updates the 1980 Decree Law on the establishment of protected areas and is to involve all stakeholders in the management of protected areas. In Article 2, this law states that part of the territory can be classified by decree in "protected area" where the conservation of fauna, flora, soil, in short, the natural environment is of special interest and that it is important to preserve it against the effects of natural or artificial degradation likely to alter its composition.
Pre-co-operative Law	<p>In order to facilitate the communities organized around income-generating activities such as agriculture, animal husbandry, agroforestry, community woodlots, fish farming, beekeeping, crafts, brick, etc., to contract loans from micro-finance institutions, a law on pre-cooperative groups was enacted by the Government of Burundi in December 2011.</p> <p>This law has helped to change Farmers Field Schools (FFS) supervised by the GEF/FAO Kagera TAMP into pre-cooperatives groups. Based on these ongoing initiatives, this project intends to strengthen the technical and organizational capacities of existing pre-cooperatives and other groups to increase their number. These will be organized through sustainable values chains and adapted to each agro-ecological zone.</p>

Policy

Degradation of natural resources is a major concern in the economic and social development of Burundi. The commitment to drive sustainable development based on sustainable use of natural resources is translated in various policy documents and strategies that provide guidance on environmental management. These are listed in Table 5 and detailed in Annex 16.

Table 5: Key policies providing guidance on environmental management in Burundi

Policy	Brief description
Burundi Vision 2025	The government's long-term framework for the country's comprehensive economic and social development was adopted by Parliament in October 2010.
Growth and Poverty Reduction Strategy Framework (CSLP)	A continuation of the first CSLP (2006), which places the challenges of growth and job creation at the centre of governmental programmes. Through the CSLPII, the Government recognizes that for many years Burundi has accelerated environmental degradation which has already resulted in the deterioration of livelihoods and lower production capacity, particularly in the agricultural sector.
Vision of the Agricultural Sector	With an economy dependent on agriculture, investment in the sector is crucial. The government has made agriculture a priority, committing to increase spending on agriculture to at least 10% of the national budget as per the Maputo Declaration. Spending in the sector has increased however low rates of productivity persist.
National Agricultural Strategy (2007-2015 – published 2008) ¹⁰	In the area of sustainable management of natural resources and land in particular, the National Agricultural Strategy 2007-2015 undertakes to work to combat land degradation through various activities
National Agricultural Investment Plan (NAIP) (2012-2017)	This plan was developed to ensure the operationalization of the national agricultural strategy. The plan focuses particular attention to sustainable land management.
National Strategy and Action Plan Against Land Degradation (2011-2016) / Stratégie Nationale et Plan d'Action de Lutte contre la Dégradation des Sols (SP-LDS)	The national strategy and action plan developed as part of the implementation of the Convention is based on a national vision: "Participation by all groups of the population and strengthened commitment to take concrete action to protect and rational use of land for the well-being of present and future generations."
Burundi Erosion Control Protocol and Action Plan (2017)	The Protocol was drawn up to reach a common vision on watershed development techniques in Burundi. The main objective is to harmonize the work of erosion control that will take place in Burundi from January 2016 in order to cope with the adverse effects of erosion and climate change.
Country Strategic Investment Framework	In 2013, with support from UNDP and GEF, MEEATU developed an investment strategy and financial resource mobilization plan for sustainable land management (CSIF).
National Water Resources Policy	Developed in 2009, this policy provides guidance on the sound management of water resources. Among the strategic orientations of the National Water Policy include the creation of an enabling environment for good governance in the water sector

¹⁰ Note that a new national agricultural strategy and NIPA are being developed. The two documents also incorporate programmes related to climate change.

Policy	Brief description
National Environment Strategy of Burundi	The National Environment Strategy of Burundi and its Action Plan (SNEB / PAE) proposes measures to restore or preserve the balance between the interests of development and those of the environment.
National Strategy and Action Plan for Biodiversity (including agrobiodiversity)	<p>In 2000 the Government developed a National Strategy and Action Plan on Biological Diversity for the operationalization of the Convention on Biological Diversity in Burundi. The strategy includes:</p> <ul style="list-style-type: none"> ➤ conservation of biodiversity; ➤ sustainable use of biological resources ➤ equitable sharing of benefits and responsibilities in the management of biodiversity; ➤ promotion of biotechnology; ➤ education and public awareness; ➤ training and research; ➤ promotion of impact studies and harm reduction; ➤ the strengthening of cooperation and information exchange.
National Forest Policy (2012)	<p>In view of the vital importance of rational management of forest resources in the face of the shortage of wood, the forest policy provides the following strategies:</p> <ul style="list-style-type: none"> ➤ promotion of agroforestry on family farms and around protected areas; ➤ development of forest resources within the constraints of space; ➤ improving the management of existing forest heritage; ➤ involvement of all stakeholders in the management of forest resources; ➤ promoting alternative mechanisms that balance the interests of conservation and socio- economic development; ➤ promotion of forestry research and the reduction of losses due to inefficient techniques, etc.
National Adaptation Plan of Action to Climate Change (NAPA, 2007)	Burundi ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 6 April 1997. From that date, it has committed to honouring its obligations under Articles 4 and 12 of the text of the convention among others the preparation of national communications on climate change. In particular, it has developed a NAPA to strengthen human and institutional capacity and increase financial resources for adapting to climate change
Second National Communication on Climate Change (2010)	In continuity with NAPA, the objective of the Second National Communication on Climate Change is to strengthen Burundi's ability to cope with the adverse impacts of climate variability and change in the most vulnerable socio-economic sectors while ensuring sustainable development of the population. Key vulnerabilities identified were: water resources; food and agriculture; land and wetland ecosystems.
National Climate Change Policy (2012)	<p>The overall objective of the policy is to be a guide the Government and partners to adopt and implement measures to promote development resilient to climate change. Specifically, the policy is based on the following strategic areas:</p> <ul style="list-style-type: none"> ➤ adaptation and climate risk management; ➤ mitigating emissions of greenhouse gases and low carbon development; ➤ promotion of R & D and technology transfer; ➤ capacity building; knowledge management and communication; ➤ education, training and public awareness; ➤ legal and institutional framework.

Policy	Brief description
Intended Nationally Determined Contributions (INDC/CPDN) September 2015)	<p>Implemented by MEEATU with support of IGEBU and OBPE and through the Commission Nationale de l'Environnement, the Sector group on water, sanitation and the environment (GSEAE), the national water partnership (PNE-Bu), and the National Platform for Risk Prevention and Disaster Management (PNPRGC). It recognizes the needs for strengthening capacities, transfer of technology, addressing vulnerable groups and financial support including activities for:</p> <ul style="list-style-type: none"> • adaptation and climate risk management; • mitigating emissions of GHGs and low carbon development; • promotion of R & D and technology transfer; • capacity building; knowledge management and communication; • reforestation and agroforestry • promotion of improved techniques for charcoal production (meules améliorés) • promotion of improved cooking stoves

National framework¹¹ and other Interventions concerning Batwa peoples

The Constitution of Burundi provides for equal status and rights to all citizens of Burundi. In Article 13 it is stipulated that all Burundians enjoy the same rights and are entitled to equal protection of the law and that no Burundian will be excluded from the social, economic or political nation because of race, language, religion, gender or ethnic origin.

In terms of representation, Article 16 of the Constitution provides that the Government of Burundi must be made so that all Burundians are represented and it represents them all; everyone has an equal opportunity to be part; that all citizens have access to public services and that the decisions and actions of the Government collect the broadest possible support. Articles 164 and 180 of the constitution provide respectively the appointment of three members of the Batwa ethnic group in the National Assembly and Senators 3 of the same ethnic group for the Senate.

Interventions for Batwa include:

- The Government of Burundi has established a Ministry responsible for management issues of vulnerable groups - the Ministère de la Solidarité Nationale, des Droits de la Personne Humaine et du Genre (MSNDPHG - Ministry of National Solidarity, Human and Gender Rights). Its actions include through its sectoral policies and strategies; mobilizing people and finance; coordinating actions in favour of vulnerable groups, including the Batwa. It also conducts advocacy for the Batwa families who are integrated into peace villages being built across the country.
- *Technical and financial partners:* the World Bank, Belgium Cooperation, USAID, GIZ and the NGOs ZOA, ADRA, CONCERN are involved in various sectors such as support for agricultural production, improve food security of Batwa households, housing, vocational training for young Batwa crafts, the education of Batwa children and legal support (facilitation of registration of illegally married couples and Batwa children's civil status).
- *Civil Society:* There are a number of associations working on behalf of the Batwa, including Unissons-nous pour la promotion des Batwa (UNIPROBA), Action Batwa and the Duhaguruke Dukore Association ("Levons-nous pour travailler")

¹¹ Source: GoB (2016)

1.1.2 Intervention Areas

Overview

The IAP-FS project's target agroecological zone is the "highland perennial" zone – the Central highlands (see Annex 9 Map 2 – zones 1,500-2,000m and >2,000m).

The project will adopt a landscape approach for its on-the-ground activities, through a focus on micro-catchments and wider watersheds as the main geographical units. Selection of the intervention micro-catchments (BVs – bassins versants) was made based on a number of criteria, including:

- socio-economic aspects (proportion of the food insecure population, percentage of female heads of household, safety thresholds) (see particularly Annex 9 Map 4);
- environmental aspects (degree of land degradation, frequency of floods and droughts) (see particularly Annex 9 Map 5);
- feasibility and institutional capacity (existing schedule, availability of farmers organizations, availability of support services / guidance, access to markets);
- interest of local community members;
- local guidance, notably from local government technical and other staff;
- absence of other on-going on-the-ground interventions;
- presence of other stakeholders in the proximity of the project area (co-financing).

The Government decided that the project should focus on on-the-ground interventions in three provinces Gitega, Muramvya and Mwaro (see Map 1), to avoid over-extending and consequently risking dispersing the project's resources too thinly. The aim is to ensure that by concentrating on-the-ground activities across restricted landscapes, and by partnering for wider adoption of proven practices, the project will be able to demonstrate meaningful impacts and multiple benefits (Tables 6 and 7). The site selection takes into account the interventions by partner projects to ensure complementarity, see section 1.2.2 Baseline activities.

Table 6: Population statistics for the intervention provinces¹²

Province	Area (km ²)	2008 Pop ⁿ .	Pop ⁿ . density/km ²
Gitega	1,978.96	725,223	366.5
Mwaro	839.6	273,143	325.3
Muramvya	695.52	292,589	420.7
Total	3,514.08	1,290,955	367.4

¹² Source: 2008 census

Map 1: IAP Intervention Areas Provinces and Watersheds

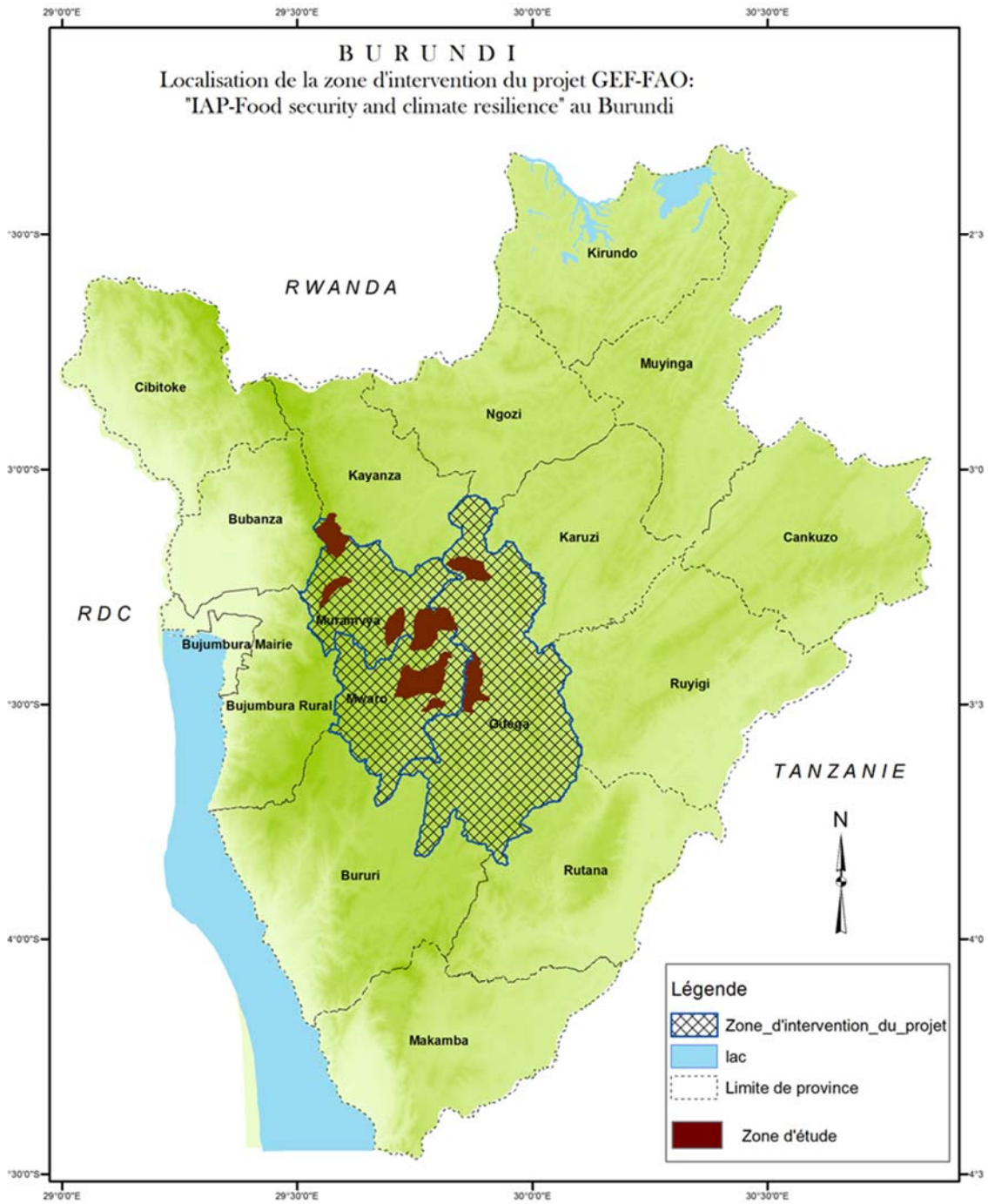


Table 7: Profile of watershed sites identified for GEF/ IAP-FS interventions

Province	Commune	Micro-catchment	Watershed areas (ha)	Number of HHs/watershed	Number of cells	Number of on-going/past FFS groups (Kagera TAMP)	Target number of FFS (1 st generation)
Gitega	Giheta	Gituku	2,443	3,764	6	4	40
Mwaro	Ndava						
Gitega	Bugendana	Kibungo	1,924	1,089	1	2	5
Gitega	Gitega	Ruvyironza	6,724	11,041	9	0	50
Mwaro	Nyabihanga						
Muramvya	Muramvya	Mukuzi	1,975	5,679	4	1	25
Muramvya	Rutegama	Muhanda	2,891	2,008	4	1	10
Muramvya	Bukeye	Nkokoma	4,589	3,431	4	1	25
Mwaro	Ndava	Kaniga	4,593	1,799	3	0	10
Mwaro	Nyabihanga	Kayokwe	4,940	2,482	6	40	15
Mwaro	Kayokwe						
3	9	8	30,079	31,293	37	49	180

Livelihoods in the project intervention areas¹³

The main production systems are: agriculture, livestock keeping, small businesses, craft making, brick / tile making, beekeeping, carpentry, charcoal production, masonry and pottery.

Crops cultivated

Agriculture is the main activity in the region; involving almost 100% of households and occupying more than 90% of the population. A wide range of crops are grown in various spatial and temporal combinations, including main food crops (bananas, beans, maize, cassava and sweet potatoes and Irish potatoes), vegetables (cabbage, amaranth and tomatoes) and fruits [avocado (*Persea americana*), mango (*Mangifera indica*), pineapple (*Ananas comosus*), some citrus (*Citrus grandis*, *C. Lemon*, *C. reticulata*, *C. sinesins*) and passion fruit (*Passiflora edulis*)] (see Annex 14). A small number of cultivated fodder species are grown [*inter alia* *Tripsicum laxum*, *Pennisetum spp.* *Brachiaria*, the shrub *Setaria spp* and herbaceous legumes (*Mucuna spp*)].

Two distinct cropping systems are practiced; a banana system – a system which reportedly has replaced cattle, which required more land (Verschelde *et al*, 2013); also plots for mixed cropping. The mixed cropping plots are very intensively managed, often with three different crops grown in series each year, starting with maize (from September to January) followed by haricot beans (sown in February and harvested in May), then vegetables (June to December). On plots in marsh areas, where small-scale supplementary irrigation is possible, vegetables can be grown in series. Vegetable cultivation is predominant in the Bugarama region in Muramvya Province. The agricultural system is mainly subsistence food production, with a portion of the banana crop sold to cover secondary needs (e.g. medical bills). Coffee used to be a widely grown cash crop – but this has declined due to the aging coffee trees, also the recent decline in the coffee price, however, it remains the main source of household income. Yields from the crops grown tend to be very low, not only due to the poor soils / nutrient mining, but also as land users have limited access to improved / disease resistant seeds / planting materials.

Livestock

Livestock are considered to be of secondary importance. A small proportion of land users keep one or two head of cattle, primarily as providers of organic manure, which is used to improve cropping areas (especially for bananas) and some is sold. Most cattle are of local (unprofitable) breeds. Most households also keep numbers of small livestock (goats, pigs, guinea pigs, rabbits, sheep and poultry), which provide meat / milk / eggs but these cannot provide organic manure in sufficient quantity to maintain soil fertility, even on the small land holdings. The most common livestock diseases include: foot and mouth disease; lumpy skin disease; African swine fever; brucellosis.

Beekeeping is practiced sporadically in all regions of Burundi and particularly in the vicinity of natural areas like the Kibira National Park (Muramvya Province). *Apis mellifera* is the dominant honeybee.

Fish are kept in a small number of man-made ponds. Three species are exploited namely *Oreochromis niloticus* (*Tilapia nilotica* the most widespread, *Clarias gariepinus* (Catfish) and *Cyprinus carpio* (common carp).

Forests, woodlands and trees

In the past, these landscapes would have been dominated by a range of indigenous trees (*Erythrina abyssinica*, *Ficus* div. spp. and *Chenopodium ugandae*, *Cordia africana*, *Albizia gummifera*, *Tetradenia riparia*, *Plectranthus barbatus*, *Momordica foetida*, *Maesopsis eminii* and *Markhamia lutea*). Today, the hills are dominated by groves of bananas for food and some cash income (see agriculture above). Small groups of Eucalyptus are observed on degraded areas, providing firewood, building material and for charcoal making.

¹³ Information mainly provided via focus group discussions held in each province in May 2016 during PPG

During the household baseline survey (HH-BAT), informants reported growing *Maesopsis eminii*, *Euphorbia tirucalli*, *Parinari curatellifolia* and *Polyscias fulva* for woodfuel. These species can also be used for various other purposes (*Euphorbia tirucalli* as hedge plant / erosion control / animal fodder; *Parinari curatellifolia* fruits for nutrition/food security; *Maesopsis eminii* provides excellent shade tree for the coffee / animal fodder), which will be encouraged in the IAP-FS.

A range of other trees are grown in areas where agroforestry is practiced (i.e. areas which benefited from past projects – such as GEF supported Kagera TAMP), including *Calliandra*, *Leuceana* and *Grevillea* (see Annex 14).

Livelihood systems

The livelihood systems of the intervention areas are all highly dependent on the natural resources. Through maintaining infiltration of rainfall, the woodland areas help to protect cropping areas from losses due to erosion and flooding (particularly common in the marshes). Locally, land users believe that “when you cut the trees, there is desertification”. Trees also protect crops from damage due to hail, strong winds and provide shade from the often intense sunlight. Livestock also depend on natural resources, as trees provide fodder, also timber for the construction of barns and shelters.

Charcoal producers, carpenters and craftsmen also need wood from trees. The bricklayers and tilers need both wood (for baking) and clay. Masons need to extract the stones they need from the ground or rivers. Beekeepers need trees to make improved hives, also to provide nectar for the bees.

Thus different livelihood systems are interdependent. The livestock keepers supply manure to crop farmers and the latter provides the livestock keepers with food crops and fodder. The brick and tile makers exchange construction materials with farmers / livestock keepers, in exchange for the use of the trees of the land users. Carpenters and beekeepers use the farmers’ trees, for raw materials and also habitats for the bee. Potters need farmers for firewood in exchange for pots.

A significant weakness affecting the livelihoods of land users is that these key productive resources are still basic, particularly rudimentary tillage equipment (hoes, machetes, picks, axes, hand carts for transporting manure, manure forks, wheelbarrows, storage sheds, shovels, watering cans, mangers and cattle troughs, also spray equipment). The jute bags used for storage / conservation of harvested crops rapidly deteriorate and expose the crops to disease and predators.

The sources of household income are currently limited to the sale of the small amounts of surplus that land users can afford (or are forced) to sell, mainly: bananas, beans, cassava, coffee and vegetable products.

Overall, the current level of agricultural production is inadequate to meet the needs of the local population, due to the limited availability of land, the high rate of population growth, the overexploited soils and lack of farm inputs (inorganic fertilizers and organic manure; plant health products; selected seeds). These issues are exacerbated by inadequate provision of advice on improved methods of production due to constraints on sector ministries’ technical staff. The recent decline in coffee prices has become disheartening to land users with coffee trees on their land and the absence of alternative developed value chains constrains their options to develop alternative sources of income.

The intervention provinces have many commonalities. See Map 1 and Table 8 which provides details where there are contrasts between the provinces.

Table 8: Key differences between project intervention provinces

Province	Natural regions, also altitudinal and rainfall ranges	Main food crops and livestock	Agroforestry, forest, woodlands, and protected areas
<p>Gitega</p> <p>Popⁿ (2008) – 725,223</p> <p>Popⁿ density – 366/km²</p>	<p>Kirimiro – 1,400 m to 1,750 m</p> <p>Southern fringe in the Bututsi region - 1,750 m to 2,300 m</p> <p>Average rainfall is about 1,200 mm - 1,300 mm, with a dry season of 3 to 4 months duration</p>	<p>The crops grown in the Kirimiro include: cereals (10% to 20%); legumes (> 30%); tubers (> 20%); bananas (15% to 20%).</p> <p>Coffee is the main cash crop.</p> <p>Land degradation causes: high demographic pressure on land for agriculture, deforestation, poor farming practices on steep land resulting in loss of soil fertility and (cassava mosaic virus).</p>	<p>Due to the high density of human population in the province, agroforestry is the dominant observed forest type and mainly consists of: <i>Grevillea robusta</i> and <i>Cedraia serrata</i>. Indigenous agroforestry species are present and remain of some importance, include <i>Maesopsis eminii</i> and <i>Markamia lutea</i>, but these are being sidelined.</p>
<p>Muramvya</p> <p>Popⁿ (2008) - 292,589</p> <p>Popⁿ density – 420/km²</p>	<p>Kirimiro - 1,400 m to 1,750 m</p> <p>Mugamba - 1,750 m to 2,600 m</p> <p>Rainfall varies with altitude, from 1,200 mm - 1,600 mm</p>	<p>The distribution of the four major food crop groups (wheat, corn, beans and also small areas of horticulture) is determined by the climate / altitude.</p> <p>The central highland area is dominated by beans, corn, banana, cassava and fruit trees such as avocado.</p> <p>Land degradation causes: deforestation, high demographic pressure on land due to agriculture, loss of soil fertility, soil characterized by a high acidity, soil erosion due steep slopes, also floods and crop diseases (cassava mosaic virus).</p>	<p>In general, natural forest species have disappeared due to population pressure and trees observed on the land today are dominated by exotic species, <i>Eucalyptus spp</i>, <i>Callitris calcarata</i>, <i>Pinus spp</i>. and agroforestry trees like <i>Grevillea robusta</i>. The locally grown cash crops are coffee, tea and cinchona (family <i>Rubiaceae</i> - quinine).</p> <p>Muramvya Province borders on the Kibira National Park (Map 7 Annex 9), a dense and humid forest area that is of undeniable environmental and economic value for the country. Kibira is located on the Congo-Nile crest and is the water tower of Burundi and provides rich wealth of wild fauna and flora, mostly endemic. The park plays a fundamental role in regulating the water regime, protecting the watershed and agricultural lands against severe erosion and the plains against flooding. Kibira National Park contributes to rural development as home to two major tea producing factories (Rwegura and Teza); and Rwegura reservoir and dam (largest in the country), which produces hydroelectric power and supplies 50% of electricity needs); There are also a large number of drinking water sources managed to supply local populations. Despite the importance of this park and forest, it is threatened to disappear if the local population are not supported to take up alternative income generating activities Threats include forest clearance for cropping,</p>

Province	Natural regions, also altitudinal and rainfall ranges	Main food crops and livestock	Agroforestry, forest, woodlands, and protected areas
			<p>firewood cutting, harvesting for timber, recurrent wildfires, uncontrolled collecting of non-timber forest products (inter alia mushrooms, medicinal plants).</p> <p>The forest species which have been most sought after and long subject to intense exploitation i are the valuable trees of the upper tree stratum, namely <i>Entandrophragma excelsum</i>, <i>Symphonia globulifera</i>, <i>Prunus africana</i>, <i>Hagenia abyssinica</i>, and <i>Podocarpus milanjanus</i> and <i>usambarensis</i>. Their destruction leads in all cases to their replacement by less valuable secondary forests. Besides logging, charcoal production is having a serious impact on the mountain forests.</p> <p>Bamboo groves of <i>Arundinaria alpina</i> are exploited for various purposes and are constantly cut - top of the list (29%) of enumerated offenses in the Kibira National Park (Habonimana et al., 2005).</p>
<p>Mwaro Popⁿ (2008) - 273,143 Popⁿ density - 325/km²</p>	<p>In Kiriromo Natural region - 1,400 m to 1,500 m In Mugamba Natural region - 1,750 m to 2,600 m Rainfall varies with altitude, from 1,200 mm to 1,600 mm</p>	<p>The distribution of the four major food crop groups (potato, wheat / maize, beans, bananas) is determined by the climate.</p> <p>Cash crops are coffee and tea.</p> <p>Degradation causes: overgrazing, deforestation, vulnerable soils (high acidity), floods, rivers banks destabilized, crops diseases, poor farming practices on steep land.</p>	<p>The local forest tree species that formerly played a big role for gathered food, feed and as medicinal plants have disappeared.</p> <p>The landscape is dominated by exotic species: <i>Eucalyptus spp</i>, <i>Callitris calcarata</i> and <i>Pinus spp</i>, with small groves of <i>Grevillea robusta</i>.</p>

Implications to the intervention area provinces of the national park

Muramvya Province includes an important part of the Kibira National Park (40,000 ha) (Annex 9 Map 7), which includes exceptional biodiversity in the remnants of its forests. The park lies on the Congo-Nile, which is the watershed line between the two basins of the major rivers of the continent, namely: the Congo River to the west and the River Nile in east. Kibira National Park is part of a series of mountain forests which extends north into Rwanda and is being linked northwards (through another GEF project LAFREC) towards the Volcanoes National Park. Kibira is of undeniable environmental and economic value for the country, particularly as the water tower of the country. Its privileged location on the Congo-Nile means that the park plays a fundamental role, regulating the water regime, thus protecting the watershed against erosion and the plains against flooding. The ecosystem functions of Kibira are vital to much of the agricultural land of Burundi and supports production of hydro-electricity for the country.

Conservation of biodiversity and agro-biodiversity in the production landscapes adjacent to Kibira National Park, which is an area of globally significant biodiversity, is of high importance locally, nationally and globally. The biodiversity of the park and the buffer zones is under threat. The high density of very poor people living adjacent to / in the forest is exerting pressure on natural resources in Kibira, including from over harvesting of wood for fuel and other non-timber forest products (mushrooms, medicinal plants, bamboo, *Dracaena* spp., honey), also repetitive fires and agricultural extension. These are also areas which likely host various crop wild relatives (no study has been completed to confirm this) but clearly the sustainable use of plant genetic resources, associated species and wild relatives that live and reproduce in a continuum within the park's, buffer zones and productive landscapes is vitally important. With growing populations, there is pressure on the park boundaries – which sustainable intensification (and diversification) outside the park boundaries could alleviate.

Indications of changing weather and climate

According to reports in the Focus group discussions (FGDs) and household survey (HH-BAT) (see Annex 14), over the last five years communities have observed greater variability in the weather than prior to that date (2010), with reports that “*the sun has been more oppressive*” (i.e. temperatures are rising) and the rains have been more irregular, starting later or being “*departing early*”. More frequent heavy rains have been observed, leading to increased loss / destruction of crops, especially in the marshes. (Note - there are no meteorological stations in the target provinces. See Section 1.2.1 for more information at national level.)

Education

Nationally, a government initiative on universal primary education gives most children in Burundi the opportunity to go to primary school. However, enrolment in secondary school drops significantly, to only 15.2%, as a consequence of widespread poverty. The index of literacy (59.3 %) remains lower than the regional average. Education increases an individual's resiliency to stress by enhancing the range of opportunities for income generation within and outside agriculture. Previous studies have also shown a high positive correlation between education and income levels, asset ownership, use of agricultural inputs, and credit access, all important factors enabling households to stem the effects of climate-related stress. Burundi's resilience to climate shock, as measured by the education level of its citizens, is hence considerably low.

The project intervention area has both primary and secondary schools, but class sizes are reportedly very large (over 80 pupils in rooms of 4mx5m) due to high demand and the enthusiasm of students and parents for education. There have been cases of school drop-outs due to hunger in some households, also unwanted pregnancies and early marriages among girls. There is a lack of technical secondary schools in the intervention area.

Food Security and Dietary Diversity

The HH-BAT study during the PPG¹⁴ verifies the extremely low levels of food security and dietary diversity in the intervention areas. The key results are presented in Figures 2 and 3 [Annex 14 provides more detail].

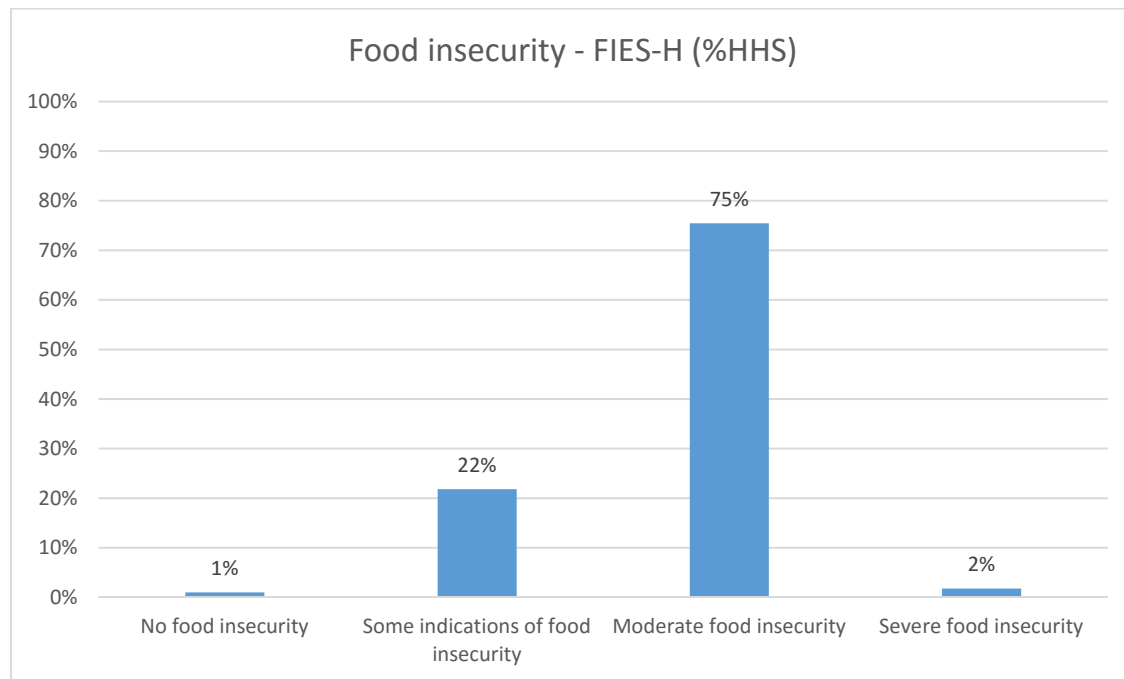


Figure 2: Food insecurity situation (% HHs - June / July 2016)

- A minimal percentage of the sample is food secure (1%)
- A high percentage of the sample is moderately or severely food insecure (77%), 75% being moderately food insecure and 2 % severely food insecure
- As far as food insecurity is concerned, comparison of FIES-H and FIES-EX-H scales between male- and female-led HHs did not point out outstanding differences (see Annex 14, Table 15 and Table 16): male-led HHs are only slightly more food secure. According to results of the FIES-EX-H scale, severe food insecurity affects 2% of male-led HHs and 4% of female-led HHs.

Conclusion: there is a relationship between gender of HH head and severe food insecurity – IAP-FS should adopt a gender-sensitive focus with regard to food security.

¹⁴ Sample 402 HHs, 263 male-headed, 139 female headed

Household Dietary Diversity

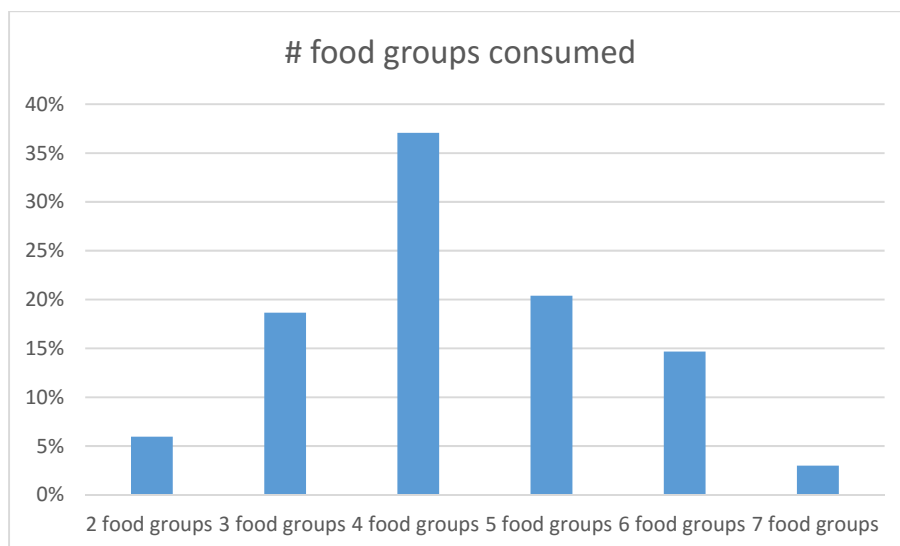


Figure 3: Household dietary diversity (% HHs – June / July 2016)

- Most households consume 3 (19%), 4 (37%) or 5 (20%) food groups during the day¹⁵. The situation varies according to gender of household head, as male-headed households tend to diversify their diets a little bit more (see Table 9).

	3 food groups	4 food groups	5 food groups	6 food groups
Male-headed HHs	16%	35%	23%	19%
Female-headed HHs	24%	42%	16%	7%

Table 9: Gender differences in household dietary diversity results

- Tubers (99%), beans (96%) and oil/fat (88%) are the most consumed food groups, regardless of the gender of household head;
- Major dietary variations between male- and female-headed households concern cereals (50% vs 40%), vegetables (75% vs 54%), fruits (32% vs 12%) and milk (6% vs 1%);
- In general, consumption of foods that provide animal protein is very low.

Conclusion: households daily consume a limited number of food groups (the majority or 37% of the surveyed households, daily consumes 4 food groups). Diets of male-headed households are more diversified with greater access to cereals, vegetables, fruits and milk. Besides the gender issue, consumption of foods providing animal protein is very low, which is an aspect the IAP-FS should address.

Health

The health situation across the whole of Burundi remains relatively precarious (WHO, 2014). The crude mortality rate is 15 per 1,000 (2008 Population Census). This situation is associated mainly with the fragility of the health system, the heavy burden of communicable diseases, chronic non-communicable diseases, neglected tropical diseases, the vulnerability of mothers, children and

¹⁵ Scoring ranges from 0-12 food groups/day

adolescents, and the role of the determinants of health (demographic pressure, the very high rates of acute and chronic malnutrition, 6% and 58% respectively, in children between 0-5).

The most prevalent diseases in the epidemiological profile are communicable diseases that particularly affect the health of pregnant women and children, the most vulnerable population groups. The frequently encountered diseases in the intervention areas are malaria, worm infections, influenza and diseases of the eye. The main causes of these diseases are poor hygiene conditions, low purchasing power of the population, a diet low in fat, minerals and protein – increasingly exacerbated by unstable weather conditions (i.e. heat waves – particularly high night-time temperatures).

Water supplies and conservation practises

During the focus group discussions¹⁶ (FGDs), local people reported that their water supply situation was acceptable, due to the good geographical distribution of water sources.

The following information was obtained during the HH-BAT in the PPG.

- There is a pipeline (to Muramvya town), which takes standing water from the river. It is drawn by farmers to carry water from the river to the hill, where there are other secondary and tertiary channels, which carry the water to households and fields. Due to the steepness of the hills, the water pressure is low so that the water supply is limited. Households must agree on the distribution schedule. This pipeline watering is practiced on vegetable plots on gently sloping land and rarely for other crops, therefore it benefits very few households
- The only other “irrigation” systems used in the intervention areas are manual methods (buckets, watering cans, etc.) to irrigate marsh areas close to rivers in the cool mornings and / or evenings during dry periods.
- Mulching is practiced only for coffee crops, tomatoes and in a few isolated cases in banana cultivation. This practice for the coffee is tending to disappear, because coffee growing is increasingly neglected due to its low price. The scarcity of mulch limits wider application.
- Cover crops are used by farmers for the sole purpose of providing for food for humans and animals’ needs. Land users are not very aware of the role of mulch in water conservation.

Housing

The houses are scattered and mainly constructed from semi-durable materials. The majority of the houses have tiled roofs (potential roof catchments for rainwater harvesting for drinking and / or watering kitchen gardens), with the second most common roofing being thatch followed by corrugated iron. The recourse to the use of tiles is dictated by the lack of straw, which is becoming increasingly rare due to the loss of vegetation cover due to land degradation and exploitation of marshes.

Social situation of Batwa in the intervention areas

During the PPG field studies and focus group discussions (FGD), it was confirmed that some Batwa indigenous peoples¹⁷ live in the intervention areas. The Batwa are one of three ethnic groups that make up society in Burundi, along with the Hutu and Tutsi. Batwa are estimated to number roughly 1% of the national population, thus around 2,000 in the project’s intervention area. The three ethnic

¹⁶ Focus group discussions were held in May 2016 during the PPG consultations

¹⁷ FAO (2016c) notes: “... *indigenous peoples, a group that has made relevant contributions to the world’s heritage thanks to their traditional knowledge, spirituality and understanding of ecosystem management, are poor in rights, access to land and opportunities. It is the lack of respect for their ancestral rights what makes them a highly vulnerable, marginalized and disadvantaged group. Thus, an agenda that pursues global food security, sustainable management of natural resources and poverty alleviation, is incomplete unless it addresses indigenous peoples’ needs.*”

groups are inter-mingled, with no specific geographical areas for each group across the proposed project intervention zone.

The presence of Batwa triggers the need for the project to establish Free, Prior and Informed Consent (FPIC) for project activities to ensure that the Batwa are adequately informed about and agree to the project intervention. FPIC is a universal norm of international law. [The normative framework for FPIC consists of legal instruments including the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)¹⁸, the ILO (International Labour Organization) Convention 169¹⁹, and the Convention on Biological Diversity²⁰ among others.]

Due to time and financial constraints, also the desire not to stimulate anticipation for the IAP-FS project before it has been designed and funding approved, it was concluded that the best approach will be to complete the FPIC process during the project's inception period (an activity towards Outcome 2.1), when there is a project team in place. The project manager will prioritise catalysing work specifically with this community to reassure and confirm that the project will respect their dignity, rights, interests, cultural specificities and that they will benefit from all the advantages of the project. This will include the *"series of steps and iterative phases are needed before the community can arrive to a collective decision of consent or withhold-consent"* using participatory engagement (consultations and negotiations) as the means and tools through which FPIC can be achieved (see Section 1.3.2 and Annex 17).

Land Conflicts

Frequent land disputes in the intervention areas are related to issues of inheritance and land users exceeding the limits of the properties. These conflicts are regularly resolved at the family level, or if problematic, at the level of the cell. In difficult situations, land users occasionally have to recourse to the courts.

Main factors of the degradation of natural resources in the intervention areas, current methods of reducing / reversing degradation and obstacles to intensification of sustainable food production

The main types of degradation reported in the HH-BAT are presented in Figure 4.

¹⁸ http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

¹⁹ Ratified by 22 Countries -

http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169

²⁰ Status: Signatories: 168. Parties: 196 - <https://www.cbd.int/convention/text/>

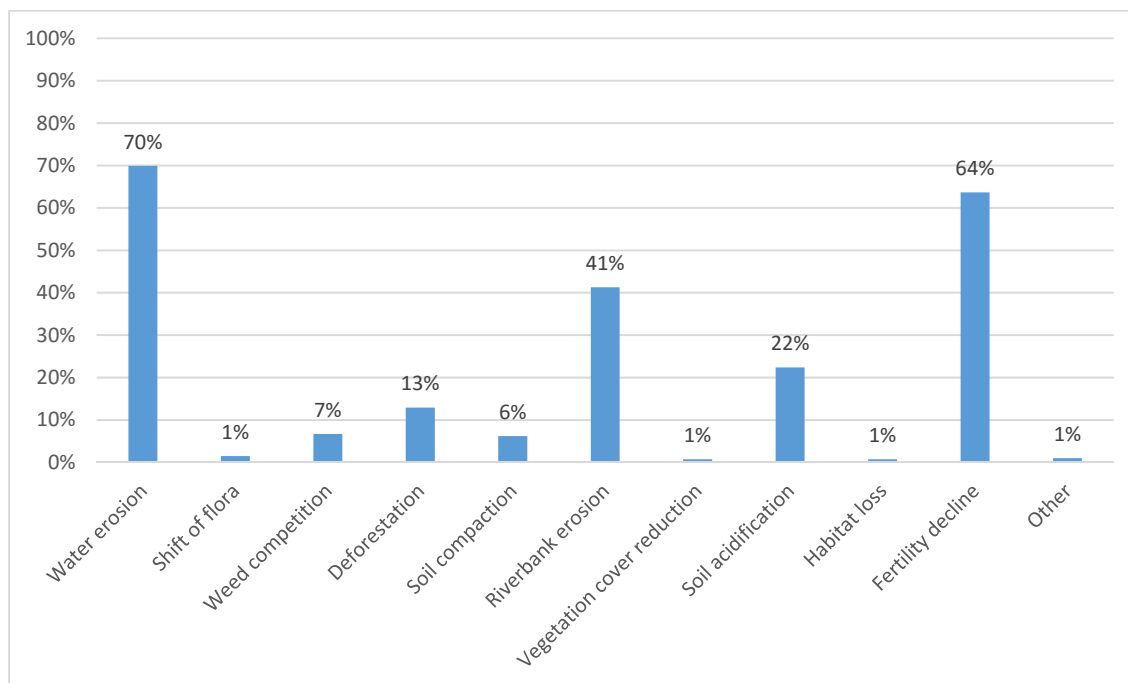


Figure 4: Types of soil / land degradation reported in the last 5 years (% HHs – June / July 2016)

Agro-ecological / climate smart agriculture (CSA) / and other sustainable land management (SLM) technologies reportedly used by some land users (probably those who have benefited from past projects) and observed in the field during the PPG include:

- ✓ agro-forestry (including *Calliandra*, *Leucaena* and *Grevillea*);
- ✓ crop-livestock integration to increase availability of manure, also high protein food for humans;
- ✓ constructing small terraces along contours and planting with herbs;
- ✓ groves of bananas play an important role in protecting soils from erosion;
- ✓ construction of contour bunds, ideally planted with grasses to stabilise;
- ✓ selective tree harvesting to avoid clearcutting;
- ✓ replacement of felled trees;
- ✓ use of indigenous plant protection products;
- ✓ small-scale irrigation in small fields (drained marshes) for vegetable production, especially in the dry season;
- ✓ protection of riverbanks with bamboo (catalysed by Kagera TAMP FFSS);
- ✓ aerobic and anaerobic composting to avoid burning the remains of the harvest;
- ✓ the setting of a binding law to ban slash and burn / bushfires, reinforced by awareness raising.

Figure 5 shows the prevalence of different SLM technologies as reported in the HH-BAT survey during the PPG (also see Annex 14).

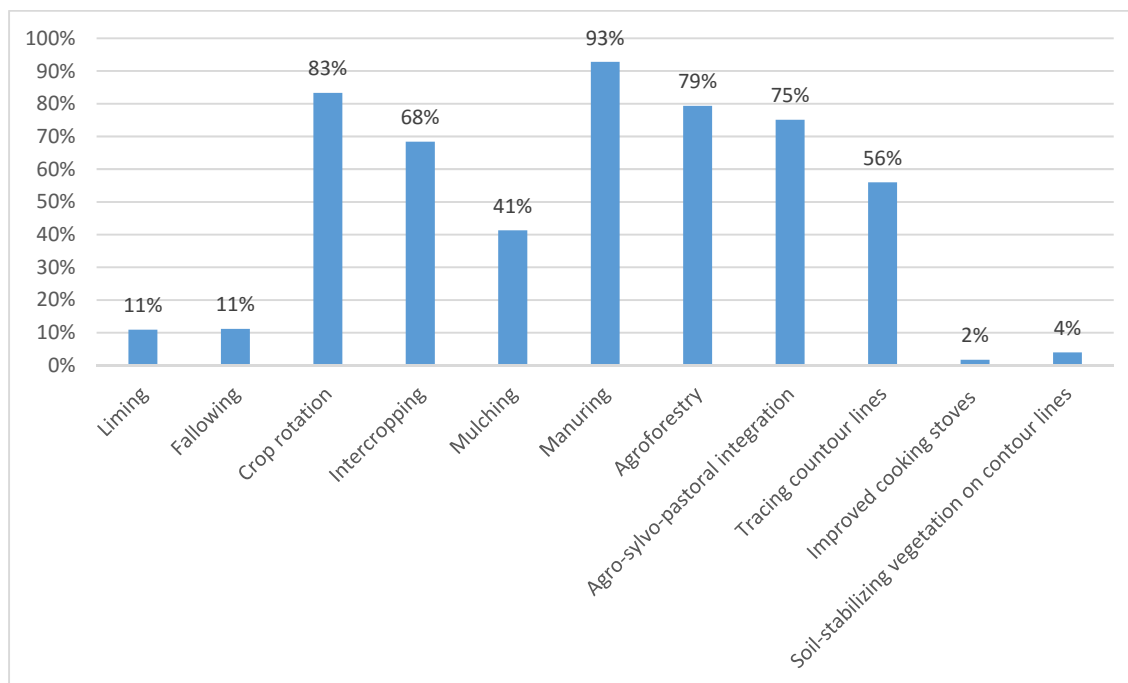


Figure 5: Prevalence of different SLM technologies reported in the HH-BAT (% HHs - June – July 2016)

FGD participants noted the following obstacles to the intensification of sustainable food production:

- ✓ land degradation due to unsustainable land use;
- ✓ lack of knowledge of improved farming techniques due to the inadequate extension system;
- ✓ insufficient organic fertilizers (of both compost and animal manure to maintain soil fertility, in the latter case due to the limited number of livestock);
- ✓ lack of inorganic fertilisers (despite the fertilizer subsidy programme, it is still expensive and often not available at the appropriate time for application);
- ✓ climate change and increased risk;
- ✓ lack of improved seeds (e.g. resilient to disease such as cassava mosaic virus; short season varieties);
- ✓ lack of financial resources;
- ✓ scarcity of land;
- ✓ lack of pesticides and veterinary drugs.

Vulnerability

FGD participants listed some factors which they perceive make their livelihoods vulnerable, including:

- crop and livestock diseases;
- rodents in the fields and in storage facilities;
- land disputes;
- low availability and low rates of use of effective agricultural inputs (selected seeds and planting materials, inorganic fertilizers, other amendments and pesticides) with prices unaffordable for small producers.;
- marketing problems (e.g. coffee and milk – possibly due to lack of bulking system and processing facilities);
- precarious housing;
- increasing frequency of extreme weather events (floods and droughts);
- limited availability of land;
- degradation of land due to activities of charcoal, brick and tile makers;
- lack of seed centers;
- lack of equipment for irrigation / wetland management for agriculture;

- lack of storage facilities for vegetables (also other produce).

Agro-processing and links to value chains (also see Annex 18)

Land users (none of whom have title deeds to the land they cultivate) have limited access to inputs and small agricultural equipment (fertilizers, improved seeds, pesticides, small tools, tillage equipment, small pumps for vegetable crops, etc.) – also limited funding to support any such purchases which could be used to boost production.

Links to the value chains are not organized, nor are steps in the chain, such as post-harvest processing and storage of products.

Access to markets is difficult due to poor roads and lack of transportation (apart from bicycles). Market price information is not available to most land users.

Capacity building needs identified during the PPG FGDs

Some of the capacity building needed by land users from local actors to increase the uptake at scale of best practices for SLM and agro-biodiversity conservation / use includes:

- ✓ new (adapted) farming techniques and agricultural practices;
- ✓ crop rotations;
- ✓ erosion control;
- ✓ agro-silvo-livestock integration;
- ✓ environmental protection;
- ✓ small-scale irrigation;
- ✓ use of indigenous plant protection products;
- ✓ improved weather forecasting - farmers request improvements in the quality of information, as current broadcast information is not very reliable;
- ✓ rainwater harvesting and storage;
- ✓ improved cooking stoves;
- ✓ seed conservation.

Organisations in the project area

A new approach is emerging by communities to tackle environmental issues through the establishment of associations. The PPG missions in the project area observed that there is a proliferation of associations of producers, but these remain poorly organized. Table 10 lists the main organisations reported during the PPG consultations to be active in the intervention areas.

Table 10: Organisations reported during PPG consultations to be active in the intervention areas

Gitega	Muramvya	Mwaro
Agence de coopération et de recherche pour le développement (ACORD)		Enviro clean land BV, the Forum of Civil Society for the Nile Basin (FCBN)
Confédération des Associations des Producteurs pour l'Auto-Développement (CAPAD)		NGO BIRATURABA, Agri-Recovery Initiative Woodland (IRAC)
Association Villageoise d'entraide et de Développement Communautaire (AVEDEC)	Burundian Association of Environmental Protection (NBA)	Organization for the Defense of the Environment in Burundi (ODBE).
Appui au développement intégral et à la solidarité des collines (ADISCO)	Green Belt Action (LCA)	NGO Environment Protection Association (ENVIRO-PROPRE)
Organisation pour le Développement dans l'Archidiocèse de Gitega (ODAG)	Dukingire Kibira, several associations of nurserymen, marsh users' associations	
Réseau Burundi 2000+		Conseil pour le Développement intégré (CONSEDI)

These organisations are all dependent on external funding, consequently not all are active and none can be considered able to co-finance the project as a donor. However, the most dynamic among them manage to get direct funding from donors, their actual presence on ground shows that they are a gateway to consider in the SLM financing strategy. Indeed, most brought their expertise in the implementation of sustainable land management activities held by the various projects of FAO and IFAD in Burundi in particular: mobilization and advocacy for sustainable land management, structuring and strengthening the capacity of communities, organization of soil and water conservation (SWC) measures, agroforestry and reforestation. Thus they are considered potential and key partners in the implementation of IAP actions.

Agro-businesses in the intervention area

Apart from some mills for transforming cassava, maize and sorghum into flour, there are no other small or community enterprises. The existing units are owned either privately or by associations of men and women, respectively playing different roles and having different responsibilities.

The numbers of livestock in the region is considered insufficient – and there are no small companies processing milk. The small amount of raw milk produced is collected to be sold (unpasteurized) in Bujumbura or in urban centers – although production is increasing due to IFAD's intervention.

Changes observed over the last five years

Despite the precarious living conditions mentioned by the communities, those participating in the FGDs reported some improvement over the past five years, due to the support of national and international NGOs and other projects, including FFSs. Specific examples cited included:

- distribution of livestock;
- training of community leaders in improved management of natural resources;
- abandonment of the practice of bushfires, in response to the new binding law of bushfires;
- evolution of the implementation of improved cultivation techniques;
- awareness of the benefits of planting agroforestry trees to stabilise bench terraces;
- improved access to compost for soil amelioration, some HHs have started using composters;
- reduced deforestation and time required to collect firewood, due to some use of improved stoves;
- training sessions for community leaders on family planning issues.

FGD participants also noted the beneficial impacts of the National Fertilizer Subsidy Programme and that some associations had received support from NGOs which provide loans at low interest rates.

The numbers of primary schools have increased over recent years, but the number is still considered insufficient, *“in view of pupils and students who overpopulate classes”*.

1.2 The Current Situation

1.2.1 Threats to global environmental benefits

A range of threats are jeopardising the global, national and local environmental benefits of the project's target agroecological zone (highland perennial) in the Provinces of Gitega, Mwaro and Muramvya, notably:

Rapid population growth

Burundi is a densely populated country with a population of 10.5 million (UNDP, 2016) and a high population growth rate of 3.1% (World Bank, 2016) (elsewhere quoted between 2.6% and 3.69%). The average number of children per woman was 6.25 at the last census (2008), 69% of the population were aged under 15 years (also at the 2008 census) and average life expectancy at birth in 2014 was 56.2 years (male - 54.5 years; females 58.0 years)²¹ and rising, thus the country's population will continue to grow rapidly and will exceed 16 million by 2030. Currently 66.9% of the population live below the national poverty level.

The average population density of this predominantly rural country (area 27,830 km²) is 377 people/km². [The only city is Bujumbura, the capital, which had a population of 497,166 at the last census (2008), thus, with rural-urban migration this is likely to already (in 2016) be well over 650,000.]

Burundi, in line with trends for the entire continent, has a rapidly growing young population. Many of those young people live on US\$2 or less a day and youth unemployment figures remain high, putting pressure on the government to find suitable employment for young people in both urban and rural areas.

The rapid population growth is inexorably leading to the reduction in the sizes of farms across all Burundi's agroecological zones; also excessive land fragmentation. According to Burundi's National Action Programme to Combat Desertification (NAP) (GoB, 2011b), the average farm size is 0.5 ha (in 1990 this was 2.2 ha), thus "farms are at the limit of their operability". However, caution must be used in the assumption that small farm size is necessarily always prejudicial to crop yields (see detailed discussion in section 1.3.3).

Many people in the country are either landless or have very limited access to land, lacking the financial resources to acquire other improved production inputs such as livestock and seeds (about 15% of the population).

Land degradation leading to the loss of ecosystem services

The land and freshwater resource base, associated biodiversity and the human populations whose livelihoods and food security depend on those resources, are being threatened by land degradation across Burundi, leading to declining productive capacity of croplands and pasturelands, deforestation and expansion of agriculture into wetlands through encroachment and irrigation development.

Due to the lack of alternatives, the decline in available land for subsistence agriculture (due to the high rate of population growth) is placing land users at growing risk of food insecurity and forcing them to intensify crop and livestock production by adopting unsustainable land use and management practices.

The aspects of intensification which are becoming ubiquitous and leading to land degradation include:

- ✓ continuous cultivation of the land (often 3 crops per year grown on each plot – maize, haricot beans then vegetables), not allowing time for fallow, which was used in the past to allow the soil physical, chemical and biological properties to recover – particularly this is affecting soil organic matter levels, vital for rainwater infiltration and retention – also leading to low response to fertilizers;

²¹ Source : <http://www.worldlifeexpectancy.com/burundi-life-expectancy>

- ✓ absence or very low rates of application of organic fertilizer (compost and manure) – due to inadequate supply and poor production methods – leading to declining soil organic matter content, which reduces the ability of the soil to provide a range of ecosystem functions (*inter alia* rainwater infiltration, moisture holding, nutrient retention) and hence to sustain plant growth;
- ✓ absence or very low rates of application of inorganic fertilisers – due to the high cost – leading to “nutrient mining”²² (i.e. each year fertility of topsoil declines);
- ✓ lack of integration of multi-purpose tree crops in the farming systems (banana and Eucalyptus ubiquitous – few others present);
- ✓ the increasing population density is encouraging people to move onto and cultivate ever steeper slopes, often without soil and water conservation measures and leading to high runoff rates and erosion of the topsoil;
- ✓ persistence in the use of traditional land preparation methods (mostly using hand tools, turning-over soil after each crop – not using reduced tillage / conservation agriculture approaches);
- ✓ as livestock numbers increase, pasture / forage resources are becoming overgrazed. [Overgrazing is related to the fact that pastures are poor and in constant deterioration, also the livestock breeding system is dominated by an extensive model (i.e. unimproved animals and pastures and declining productive capacity.)]

This degradation has economic, social and environmental costs with significant effects on the living conditions of the population. Soil degradation leads to high vulnerability characterized by:

- a loss of soil fertility;
- increasing erosion and its impact on the agro-silvo- livestock production; system
- adverse consequences for the socioeconomic infrastructure (roads, bridges, etc.);
- the appearance and spread of important diseases and pests:
 - crops (*inter alia* cassava mosaic virus and bacterial wilt of banana, corn strips disease and anthracnose²³ in Arabica coffee);
 - livestock (swine fever, tick-borne diseases for cattle, etc.);
- loss of habitat for biodiversity including agro-biodiversity (the range of managed crop, livestock and tree species and beneficial associated species such as pollinators that support production;
- genetic erosion of food crop seeds as practiced by a majority of the population.

Compounding these impacts, the lack of mechanisms to cope with increasing weather variability, frequency of extreme events and climate change are disrupting agricultural seasons, reducing yields and sometimes causing severe food shortages for rural families.

Other social impacts characteristic of land degradation include: migration of the population to neighboring countries; rural exodus; land disputes; cyclical epidemics of malaria and diarrheal diseases; seasonal energy crises related to the reduction of water and hydroelectric dams that significantly affect economic production services; non-availability of wood fuels; etc. This constitutes a real obstacle to sustainable socio-economic development.

On the institutional and organizational producers, as explained elsewhere, the country has:

²² Nutrient mining refers to agricultural practices resulting in a negative nutrient balance: export (loss) of a nutrient is greater than import (input). Nutrient loss is implicit in an agroecosystem, since crop biomass, like grain for human consumption, is harvested and transported off-site. Non-intentional losses include soil erosion and burning of crop residues. The return of lost nutrients (recycling – e.g. of composted stalks) or new additions (inputs from organic and/or inorganic fertiliser) are necessary to balance this removal of nutrients.

²³ Fungal disease which affects many plants, including vegetables, fruits, and trees. It causes dark, sunken lesions on leaves, stems, flowers, and fruits. It also attacks developing shoots and expanding leaves. It can spread very quickly during rainy seasons.

- weaknesses of organization and strengthening of capacities of local communities to finance and manage their own development;
- a lack of storage facilities, processing and marketing of inputs and agricultural products and animals;
- a non-sustainable system for monitoring and prevention of nutritional deficiencies in the population.

This is leading internally to an imbalance between supply and demand of agricultural products, resulting in:

- instability of agricultural prices;
- a decline in farmers' income;
- recurring famines in some areas.

Threats and stresses on agrobiodiversity

Despite the proven importance of agrobiodiversity, the systems are subjected to a regression in terms of animal and plant species, reducing their environmental and socio economic role. Statements of producers confirm that many varieties of crops (*inter alia* finger millet, taro, some varieties of cassava, sorghum and bananas) have disappeared and many others are in the process of vanishing, due to a range of reasons, including decreased fertility, diseases and pests, low renewal seed etc. – also pressure to produce crops which are perceived by land users to bring high economic benefits (e.g. Irish potatoes – and hybrid maize monocultures). The length of time needed to prepare some crops as food is also a factor – as declining availability of fuel wood oblige women to change the food they cook.

Loss of agro-biodiversity, the genetic diversity and wild relatives of important domesticated species, is leading to the erosion of resilience of Burundi's farming systems (exacerbating land degradation). The lack of genetic diversity has led to a reduction in the capacity of agro-biodiversity to adapt to biotic and abiotic stresses in the environment. This limits current and potential utilization in crops, forest and livestock taxa, which is significantly impacting on food and nutrition security.

In many areas it is not the scarcity of calorie-rich foods that undermines the health and productivity of the poor, but rather a lack of micronutrients that are lost when agro-biodiversity declines. Micronutrient deficiency is often called the “hidden hunger” because it can occur even when diets include an adequate amount of energy (calories). The low levels of protein in diets are also of particular concern in Burundi (see Section 1.1.2 and Annex 14).

The factors that threaten the safeguard agro-biodiversity in agriculture and livestock are related to:

- low levels of awareness at all levels of the degradation of (agro)-biodiversity (and its impacts);
- lack of capacity for monitoring agricultural crops and livestock and their transboundary movement;
- low level of control of the loss of crop varieties and animal breeds and their wild relatives;
- low uptake of integrated management in the agricultural, livestock and forests sectors.

Loss of wild biodiversity²⁴

The country's biodiversity has drastically declined in recent years, mainly due to intense pressure from the human population resulting in the conversion of large areas of forest into agricultural land and extensive livestock farming. The protected areas of the country encompass little more than 5% of the total area of the country.

Much of Burundi's wildlife is threatened with extinction, due to poaching and habitat loss. Notably, gorillas and elephants are already completely extinct.

²⁴ See Section 1.1.1 and Appendix 9 for further details.

Accelerated deforestation

Deforestation is a major problem in Burundi and as a result, very little natural forest vegetation remains. The reduction in the extent and degradation of the remnant forest resources can be attributed to the following:

- ✓ The direct causes of deforestation include the high pressure on forest resources for fuel, construction etc., cultural clearing, bush fires, also poor management of woodlands and protected areas (NAP, 2011b).
- ✓ Due to a lack of alternatives, about 97% of the energy production in the country is derived from fuelwood and biomass products such as charcoal²⁵, leading to serious deforestation and opening formerly protected soils to degradation;
- ✓ Ten percent (10%) of the forest cover was lost between 1992 and 2010 because the population had taken refuge in the forests during the conflict and as a result of climate change (AfDB, 2011), including encroachment on protected parks.

There has been a declining trend in forest cover for several decades. According to an estimate by FAO in 2010 on the state of the world's forests, natural forests of Burundi cover approximately 103,000 ha (3.7 %) of the country, while exotic forest / woodlands covered 69,000 ha (2.5 %) of the country, a total coverage of 6.2%, whereas this total was 8% in 1993.

The NAP (GoB, 2011b) indicated that forestry and agroforestry resources occupy only about 155,000 ha (5.6% of the national territory) including 95,000 ha of public woodlands (mostly exotic species - *Eucalyptus*, *Pinus*) and more than 60,000 ha of agroforestry trees, fodder and fruits. Each year, at least 10,000,000 plants are produced for state plantations, but "maintenance does not follow due to lack of resources" (MEEATU, 2008), thus it may be concluded seedling survival rates are poor.

More than 90% of the urban households and almost 100% of the households in secondary urban centers use charcoal as an energy source, especially for cooking. Wood is a multifunctional product that deserves special attention for the sustainable management of forest areas that produce - but does not currently receive adequate priority.

The wood energy situation is complex because of the lack of legislation regarding its use in rural areas. The main actors involved are many and varied, including: owners of woodlands (state, municipality, private); charcoal makers; carriers; wholesalers; retailers; resellers for the wood energy sector. It is important to also include the larger consumers of woodfuel / charcoal (*inter alia* schools hospitals, bakeries, restaurants) for firewood. All these actors work without coordination and have no framework for consultation. Effort is needed to sustainably manage the woodfuel production site (especially for charcoal production), increase the efficiency of charcoal production kilns and to reduce demand for firewood and charcoal, through support for widespread use of energy efficient stoves (household and institutional levels)– and also use of alternative fuels for cooking and other purposes (solar, hydro etc.).

Despite the strong dependence of the population on forest resources, there is an imbalance between supply and demand. Indeed, the annual national wood energy supply has been estimated at between 1,300,000 and 2.9 million t / year, while the annual demand for wood energy has been estimated at between 3.3 million and 4.5 million t / year, so in a ratio of 1 to 3. The equivalent estimates given by the Ministry of Energy and Mines (2006) are respectively 5,000,000 t / year and 8.5 million tons / year.

According to the Ministère de l'Eau, de l'Environnement, de l'Aménagement du Territoire et de l'Urbanisme (2014), despite the efforts of the Government of Burundi to increase the national coverage, the reforestation rate remains lower than the deforestation rate, which is currently estimated at 2% per year.

Increasing weather variability, frequency of extreme events and climate change

²⁵ The balance is made up of : petroleum products - 2.5%; hydropower - 0.55%; peat - 0.05%

According to IFPRI (2103)

“Based on data from the past 60 years, Burundi has experienced alternating cycles of excess or deficit rainfall nearly every decade, as well as overall increased mean temperature, with the dry season getting longer. Past extreme weather events include severe floods in 2006 and 2007 and severe droughts in 1999–2000 and in 2005 (GoB, 2007). During this time, especially hard hit were the north-eastern provinces and the Bugesera depression, an area that supports a higher population density. These 4 events resulted in a high loss of annual gross domestic product (GDP), estimated between 5 and 17 % for each event (GoB, 2009a).

Heavier and more frequent rains can damage crops and would undoubtedly increase susceptibility to erosion and landslides, especially given the extreme topographical relief in Burundi. Roads and buildings could be damaged, and siltation could negatively affect hydropower infrastructure. People resettled close to lake edges or near lowlands and marshes are likely to be flooded. Areas most vulnerable to heavy rains are the Imbo plains, the steep slopes of Mumirwa, and the Bugesera depression. Excess rain can also increase the presence of pests or diseases affecting food crops, livestock, and human lives. Water-borne diseases such as dysentery and cholera would likely increase. On the other hand, aquatic and avian productivity is likely to improve with the flooding of marsh areas (GoB, 2009b).

Drought leads to lower levels of water in lakes and reservoirs and to decreased aquatic ecosystem productivity. According to the Institut Géographique du Burundi, the northern lakes have receded 1–2 meters within the past 5–10 years; but, given that the declines persist even in years of normal precipitation, there may be contributing factors beyond climate change, such as drainage and cultivation of marshes linked with water bodies and conversion of natural forests. Prolonged drought can lead to shortages of water for domestic and agricultural use, affecting crop and livestock production. Between 1998 and 2005, drought caused 35 % livestock mortality and a widespread food crisis” (GoB, 2009b).

The recent trend of increasing weather variability and increasing frequency of extreme events are all indicative of longer term climate change (see Table 11), including particularly increases in the frequency and intensity of droughts and floods, is also exacerbating the above threats, further challenging the resilience of food production systems, food security and livelihoods.

Table 11: Some evidence and impacts of increasing frequency of weather extremes and climate change across Burundi²⁶

Aspect of change	Areas Affected	Details
Rainfall	country-wide	A cyclic character of rainfall has been observed, alternating between periods of rainfall surplus and periods of deficits. Inter-decadal variability operates on periods of around 10 years. The water levels in all of the lakes have decreased.
	north-eastern regions	Observations from 1999-2006 show a shortening of the rainy season coupled with an extension of the dry season The rainy season experiences more heavy rains, thunder and lightning.
	Bugesera	Since 1999, the region of Bugesera has experienced a delayed onset of rainfall
	Imbo region	Excessive dryness that has caused a decrease in water resources Tendency towards desertification in this region.
	central plateaus region	Since 1999, there has been an increase in seasonal variability with a tendency towards a longer dry season from, 5-6 months instead of the normal 4 (June-September).

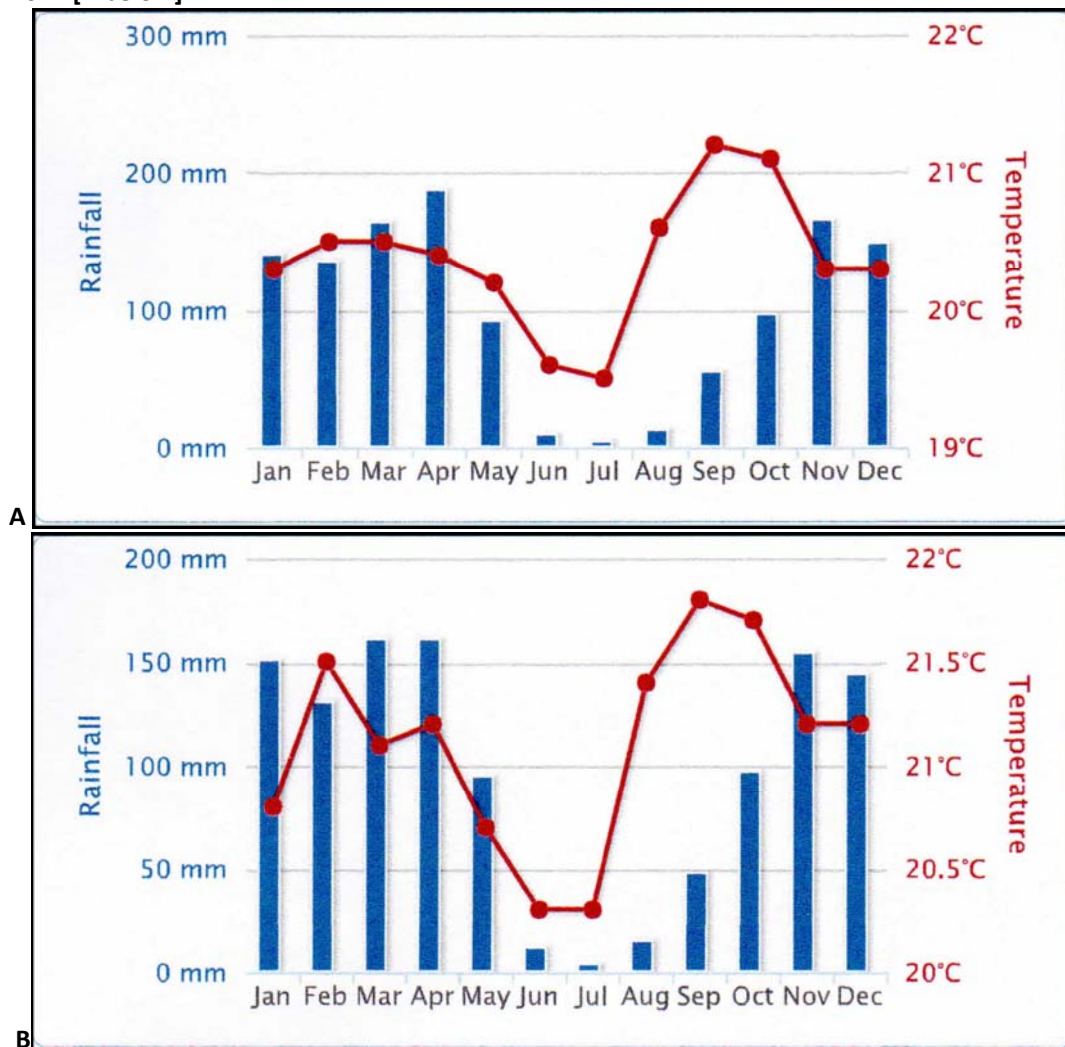
²⁶ Source : Adapted from

http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country_profile&CCode=BDI&ThisTab=ClimateBaseline

Temperature	country-wide	Mean temperature has increased by 0.7-0.9°C since the 1930s.
	central plateaus	Malaria has spread since 1990 into areas previously malaria-free, due to excessive temperatures.

The graphs in Figure 6 show that on average across the country rainfall totals were lower in the 1990-2012 period than 1960-1990, particularly in March, April and November. Concerning temperatures, the graphs show that in every month temperatures were higher in the recent period (graph A) than in 1960-1990 (graph B).

Figure 6: Graphs showing average rainfall and temperatures across Burundi 1960-1990 [A top] and 1990-2012 [B below]²⁷



[Note differences in scales for both rainfall and temperature on y axes between graphs.]

Studies conducted for the initial national communication on climate change and the evolution of climate parameters in Burundi through to 2050, based on the general circulation model, show that the average annual temperature will increase by 1°C to 3°C. Rainfall will rise by roughly 10% and the

²⁷ Source: http://sdwebx.worldbank.org/climateportal/index.cfm?page=country_historical_climate&ThisRegion=Africa&ThisCCode=BDI

precipitation regime will be disrupted such that there will only be two seasons remaining, each lasting six months: a rainy season (November to April), followed by a dry season (May to October).

These climate changes will engender multiple risks associated with the following phenomena:

- (i) season creep;
- (ii) flooding of swamps and lowlands;
- (iii) land degradation and loss of soil fertility;
- (iv) shortage of groundwater resources;
- (v) extreme weather events (hail, violent showers, strong winds etc.);
- (vi) changes to the growing seasons affecting crops, forests, also livestock (e.g. diseases);
- (vii) unpredictable movements of pests.

The cumulative effects of these trends are the degradation of natural resources and ecosystems, leading to the compromise of the delivery of ecosystem services across Burundi (Table 12), increasing food insecurity and vulnerability of the population to climate change and other shocks.

Table 12: Major impacts relating to climate change in Burundi²⁸

Sector	Impacts
Water	<ul style="list-style-type: none"> ➤ Drying up of lakes and other waterways, and disappearance of aquatic flora ➤ Deterioration of surface water quality ➤ Increased rainwater erosion and silting of certain rivers ➤ Decline in production by hydroelectric power plants ➤ Increased competition for the use of unpolluted groundwater resources
Energy	<ul style="list-style-type: none"> ➤ Complete silting of certain dams due to heightened erosion caused by more intense precipitation and runoff in watersheds leading to the complete shutdown of the most endangered hydroelectric power plants: Marangara, Buhiga and Kayenzi ➤ More frequent shutdowns of some active hydroelectric power plants because of <ul style="list-style-type: none"> ○ exceeding operating thresholds due to insufficient rainfall and prolonged drought ○ more frequent flooding of electricity production infrastructure like in Mugere ➤ Major fluctuations in electricity production due to stresses on the water supply system and changes in rainfall and hydrological patterns ➤ A larger deficit in the electricity sector leading to real electrical power supply problems in the country's various socioeconomic domains ➤ Widespread scarcity of firewood and wood charcoal due to heightened pressure from human activities, combined with rising temperatures and change in biomass growth rates.
Agriculture and livestock farming	<ul style="list-style-type: none"> ➤ Declines in yields of food and cash crops (including coffee), aggravated by more prolonged and frequent drought with likelihoods of occurrence of 40% to 60% ➤ Reduced productivity of cattle, goats, sheep and poultry (meat, dairy, eggs) ➤ Reduced fish production in the event of droughts ➤ Lightning appearing during storms / tornadoes will increase, causing additional livestock deaths in mountainous areas ➤ Decline in the quality and quantity of pastureland
Health	<ul style="list-style-type: none"> ➤ Increased number of cases of malaria
Landscapes	<ul style="list-style-type: none"> ➤ Risk of more frequent, larger scale flooding of lowlands ➤ Escalation of soil erosion in the watersheds of the Mirwa Mountains ➤ The levels of Lakes Cohoha, Rweru, Rwihinda and Kanzigiri in the Bugesera Depression could further decrease with droughtintensification, with their waters retreating (which has already been seen) and shallower lakes are at risk of completely disappearing ➤ The level of Lake Tanganyika is expected to rise due to heavy rainfall and silting

²⁸ Adapted from GoB (2007) [Burundi NAPA]

Sector	Impacts
Terrestrial ecosystems (forests)	<ul style="list-style-type: none"> ➤ Disappearance of the sub-alpine zone which starts at an elevation of 2,450 m ➤ Disappearance of certain plant species and aggravation of erosion and bush fires ➤ Degradation of the groves in Bugesera and the forests of <i>Hyphaene</i> palm trees on the Ruzizi Plain, with an increased vulnerability to bush fires

1.2.2 Baseline initiatives

The Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD), the World Bank (WB) and other international partners have supported the Government of Burundi (GoB) in watershed management and sustainable agricultural production for natural resources management and food security and improved livelihoods. This is supporting a shift from a reactive to a more proactive approach linking food security, land rehabilitation, biodiversity conservation and climate change adaptation (CCA) and mitigation (CCM).

The GEF incremental investment will be firmly rooted in significant baseline investments (main co-financing sources of the project) made through the following government programmes and initiatives;

- IFAD's Value Chain Development Programme – Phase II (PRODEFI – II)
- World Bank Coffee Sector Competitiveness Project / (Le Projet d'Appui pour la Compétitivité de la Filière Café - PACDC)
- World Bank Productivity and Development of Agricultural Markets (PRODEMA)
- World Bank Lake Victoria Environmental Management Programme (LVEMP-2)
- FAO Integrated approach to sustainable intensification of agriculture through efficient use of resources - Strategic support in Burundi and Niger
- FAO Institutionalization of Field Schools in Eastern Africa
- FAO Reduce Rural Poverty through information, participatory communication and social mobilization for rural women, men and youth.

IFAD's Value Chain Development Programme – Phase II (PRODEFI – II)

The current and future efforts of the FAO led-baselines will be effectively linked to the PRODEFI-II project supported by IFAD. Led by the Ministry of Agriculture and Livestock, PRODEFI and the IAP-FS project use a similar approach based on capacity development through farmer field schools and watershed management for enhancing natural resources management, productivity and income. However, PRODEFI has a stronger focus on investing in the development of selected food value chains.

The second phase of Value Chain Development Programme (PRODEFI II) (2016 – 2021) aims to strengthen the achievements of the first phase of the programme (which operated from 2010-2016) in the Provinces of Bubanza, Cibitoke, Gitega, Karusi, Kayanza, Muramvya, Ngozi and Muyinga. PRODEFI II was designed and approved in 2015 and is financed by an IFAD complementary grant, under the Adaptation for Smallholder Agriculture Programme (ASAP). It has a budget of US \$41.6 million plus co-financing from the Government of US \$3.1 million and a contribution in kind and money from beneficiaries in the order of US \$ 0.3 million.

The **overall objective** of PRODEFI II will be to help increasing incomes and improving food security of poor households in the programme intervention areas.

Development objective. PRODEFI II aims to increase the productive physical capital, increasing the resilience of production systems and rural households to climate change, intensify agriculture and animal husbandry including improving the processing and the marketing of products by smallholders and improving nutritional status. For sustainability, building on phase I, PRODEFI II is structuring and strengthening milk and rice sectors and increasing youth employment and strengthening the capacity of farmers' organizations through training, particularly in natural resource management.

The programme will develop financial services products to finance production, processing and the storage facilities. It will increase physical productive capital by building the resilience of production systems to climate change and through supporting:

- (i) marshland development;
- (ii) the development of productive capital in watersheds upstream of rice fields.

The programme is designed to benefit 33,534 rural households. It is estimated that at least 30% of the beneficiaries will be women including those who head households and 30% young people.

It is an opportunity to combine good practices and lessons learned from the FAO/GEF Kagera TAMP intervention that was conducted under the TerrAfrica/Strategic Investment programme (2010-2014), with selected food value chains (milk, rice, also beans and maize) in order to increase food security and resilience through integrated investment on the ground.

PRODEFI II has three main components:

Component 1: Sustainable Growth of productive capital and institutional capacity building. The objective is to improve food security and nutritional and household incomes through increased crop and livestock productivity through i) irrigation schemes and infrastructure, adaptation to climate change, agricultural intensification, community structures and the fight against acute and chronic malnutrition.

Component 2: Development and strengthening value chains: The objective is build support for the production and recovery of the entire value chains of the two main sectors - rice and dairy - and other related value (beans, maize, bananas)and Improving sustainable and decent employment for rural youth by strengthening specialized structures

Component 3: Accompanying structures, knowledge management and facilitation through capacity building of local and regional stakeholders and project facilitation, coordination and management
The project follows an integrated approach to community development to intensify production, protection of land and building value chains through a platform of actors and institutional support (very similar to the IPA-SA project so it would ensure complementarity). IFAD implements the actions on the ground using a service provider - International ACCORD.

The GEF incremental investment will leverage and strengthen the focus on SLM / INRM in the PRODEFI FFSs, including provision of training and technical materials for enhancing capacity of Master Trainers and Facilitators, thus scaling-up the impact of the GEF investment for transformational change. In turn the IAP-FS-FS project will link and benefit from the PRODEFI investments in developing and strengthening value chains – as the new FFS and cooperatives will be able to more readily sell produce, such as milk and rice, through benefitting from storage and other infrastructure where they are located in neighbouring watersheds as well as accessing advice and training for being able to benefit from the improved value chains. There will also be beneficial exchange of experiences between PRODEFI and IAP-FS in regard to component 2, as well as synergies in Component 3 on developing harmonised monitoring and evaluation tools. Moreover the multi-stakeholder policy platforms and knowledge sharing mechanisms for SLM / INRM developed by IAP-FS under Component 1 will be advantageous for all partner interventions due to enhanced cross-sectoral coordination at national, provincial and landscape levels.

World Bank (International Development Association) Productivity and Development of Agricultural Markets (PRODEMA) project ([see http://www.prodema.gov.bi/](http://www.prodema.gov.bi/))

PRODEMA is a development project of the Government of Burundi in partnership with the International Development Association (IDA) to support the strategy and activities of the Strategic framework for the Fight against Poverty (CSLP) to contribute to economic growth and creating jobs in rural areas. PRODEMA aims to improve food security through increased production and improved market access for agricultural and livestock products important for domestic consumption.

The overall objective of the project is to improve the productivity of small producers and their market access to value chains (chains) targeted in the project area. These are to be achieved through activities under the following Components and Sub-components:

- Component 1: Support to agricultural productivity and access to markets (30.08 million US \$)
 - 1.1: Support to productive investments (26,880,000 US \$)
 - 1.2: Capacity building, institutional support and facilitating access to the market (3.20 million US \$)
- Component 2: Development of irrigation and rehabilitation of access roads (9.58 million US \$)
 - 2.1: Expansion of irrigation (5.58 million US \$)
 - 2.2: Improvement and Rehabilitation of access roads (4.00 million US \$)
- Component 3: Management and coordination of project activities (5,540,000 US \$)

The IAP-FS will leverage incremental benefits from Component 2 of PRODEMA to Component 2 of the IAP project.

Component 1 will promote the adoption of new technologies through the establishment of sub production projects. These investments will cover specific activities of the value chain targeted (to the levels of production, post-harvest and storage, and marketing), as well as the integration of these activities throughout the different stages of the value chain. Component 1 will also improve organizational and technical capacities in the targeted value chains through advisory support and training (sub-component 1.2).

The infrastructure developments under Component 2 will also provide incremental benefits to the IAP-FS project.

World Bank Coffee Sector Competitiveness Project / (le Projet d'Appui pour la Compétitivité de la Filière Café - PACDC) (2016 -2022)

The development objective of the PACDC is to increase coffee productivity and improve its quality among small-scale coffee growers in Burundi. The target areas are located mainly in six provinces, namely: Kayanza, Ngozi, Karuzi, Gitega, Muyinga and Kirundo. They will target around 300,000 small coffee producers who grow between 150 and 250 trees. The total cost of the project is US \$ 72.25 million, with a commitment of US \$55.00 million.

[The project contributes to the World Bank's FY13-FY16 Country Assistance Strategy for Burundi, which *"aims to support the country's development as an increasingly stable, competitive and diversified economy with enhanced opportunities for productive employment and improved standards of living"*.]

The specific objective of the project is to increase coffee production in quantity and quality through improving the productivity of the coffee tree orchards.

Component 1 - institutional strengthening and value chain governance component, will streamline the sector's governance structure by: (i) reviewing and adapting the current institutional framework to improve its effectiveness and efficiency; (ii) improving the dialogue among the main public and private actors so that they resolve value chain bottlenecks; (iii) strengthening the capacity of the key organizations overseeing the sector so that they can provide the needed services to their members and promote an enabling business environment; (iv) enhancing the position of women and youth in the coffee sector value chain; and (v) establishing an information/management system for the sector.

Component 2 - coffee growers' productive capacity enhancement component, is to enhance, on an economic and sustainable basis, the productive capacity of small coffee growers so as to increase coffee production, reduce the cyclical swings of production and improve cherry quality. The services

of the territorial administration will also be enlisted for the general sensitization and outreach campaigns.

Component 3 - coffee quality improvement and market access component, will finance technical assistance, training, infrastructure and goods to promote quality enhancement along the entire value chain (field, washing station, dry mill, quality control laboratories, storage, etc).

Component 4 – Coordination, monitoring and knowledge management

The GEF incremental investment will leverage a focus on SLM / INRM in the PACDC, scaling-up the adoption of the knowledge sharing mechanisms established under Outcome 1 of the IAP-FS, notably the SLM Learning Alliance. The IAP-FS will benefit from the PACDC focus on the coffee sector in some of the pilot areas, particularly the aspects of Component 3 (see above).

World Bank Lake Victoria Environmental Management Programme (LVEMP-2)

The LVEMP II funded by the World Bank aims to contribute to improving the joint management of transboundary natural resources of Lake Victoria basin among the partner states. Specifically, it aims to harmonise the shared resource management policies in the Lake Victoria Basin, fight against point source pollution and support integrated management watershed. In Burundi, with a budget of US\$ 15 million LVEMP II activities are conducted in the identified watersheds, Ruvyironza and Ruvubu Rivers in the Provinces of Gitega and Mwaro. They are also carried out on Lake Rweru (Kirundo Province), focusing on the removal of water hyacinth and protection of its buffer zone.

The four project components are:

1. Strengthening the institutional capacity for joint management of water and fishing resources
2. Monitoring and forecasting of point source pollution
3. Watershed management
4. Coordination and project management

Apart from other actions, LVEMP II is continuing the approach developed by the FAO implemented Kagera TAMP Project, supporting contour terracing, setting-up a 5 metre wide *Pennisetum* and bamboo buffer along rivers and wetlands, agroforestry with fruit trees and native drought resistant species. The project also organizes field visits for members of parliament, to raise awareness of the actions of communities.

The GEF IAP-FS project will benefit from the institutional capacity for water management and investment in integrated watershed management as well as buffer zone management that build on Kagera TAMP experience.

Three ongoing FAO projects which include FFS activities and social mobilization provide the FAO baseline upon which the proposed project will build the Outputs 1.2, 2.2, 3.2, and 3.3, notably:

An integrated approach to sustainable intensification of agriculture through efficient use of resources - Strategic support to Country Programming Framework in Burundi and Niger

This FAO project (NTE Dec. 2017 – 800,000 USD) has the objective of mainstreaming resource use efficiency into national policies and processes, in line with documented country programming needs as well as in harmony with expressed targets of selected Initiatives of the Organization for the Africa Region. It includes three project components:

Component 1 - Local community capacities to intensify and diversify production systems and manage resources, including time, sustainably are strengthened through FFS methodology, with a specific focus on land and water management and agro-forestry, fish/aquaculture and crop-livestock integration;

Component 2 - Initiatives are developed and promoted to reduce the impact of environmental degradation leading to food insecurity;

Component 3 - Integrated initiatives are developed to improve livelihoods of people with limited land access and to improve nutrition of school children (a main cause of food insecurity and malnutrition in Burundi).

The GEF incremental investment will leverage a focus on SLM / INRM in the FFSs FAO project, including endowment of training materials for the capacity building of facilitators and producers and implementation of FFS. In turn the IAP-FS project will link and benefit from the FAO project in developing and strengthening fish/aquaculture and crop-livestock integration and improved nutrition of school children through integrated “kitchen gardens and chickens units” and junior FFS and school gardens.

Institutionalization of Field Schools in Eastern Africa (GCP/SFE/002/SWI)

This FAO project (NTE Nov. 2017 - 990,000 USD) aims at contributing to increased capacity of vulnerable farmers and agro-pastoralists to enhance their livelihoods and productive capacity. The FAO project includes the following project outcomes and outputs:

Outcome 1: Public and private FFS service providers have access to quality information on FFS and are actively engaged in peer networking and knowledge sharing.

- Output 1.1. A regional FFS knowledge hub established.
- Output 1.2 A regional FFS knowledge sharing platform operational.
- Output 1.2. Key gender sensitive guidelines and training tools developed to support quality FFS practice.

Outcome 2: Enhanced levels of Institutionalization, in policy and practice, of the FFS approach in the region.

- Output 2.1. FFS clearly embedded in extension policy and frameworks in four countries.
- Output 2.2. Nationally owned multi-stakeholder FFS coordination platforms and mechanisms initiated in Kenya and Ethiopia.
- Output 2.3. FFS approach embedded in extension education of at least one national or regional training institution.

This project will provide a fundamental orientation to the Output 1.5 IAP-FS project regarding the institutionalization process of the FFS approach into national strategy. Indeed, a strong link and sharing of experiences with other Eastern Africa countries (Ethiopia, Kenya, Rwanda, South Sudan, Uganda), which are developing a similar institutionalization process, will be assured by this FAO project. In turn the IAP-FS project will provide to the other Eastern Africa countries the Burundi’s efforts regarding the harmonization process of FFS approaches based on the existing harmonization strategy document designed by FAO.

Reduce Rural Poverty through information, participatory communication and social mobilization for rural women, men and youth (FMM/GLO/113/MUL)

This FAO project (NTE Dec. 2017 - 2.8 million USD) aims at enhancing the opportunities for the poorest to improve their access to information, products, services and income generating activities. Through its participatory communication approach, based on Community Listeners' Clubs (CLCs), the Dimitra project contributes to increase the visibility of rural women as agricultural producers, their access to information and their economic and social empowerment to join producers’ organizations.

As a social mobilization and empowerment tool and process, CLC's work as follows: women, men or mixed groups meet regularly to discuss their development issues and challenges, make informed choices and take collective actions to solve their problems. Community radio stations are used to relay information, increase the communication flow and raise awareness on specific issues identified by the club members themselves (e.g. agricultural practices, food security, gender unequal workloads, access to water, land, sanitation, health, nutrition, etc.). The club members also interact with each other and with other clubs using cellular phones and through radio programmes which they listen to thanks to solar-powered and wind-up radio sets.

Based on experience developed in other countries, the complementarity of the FFS approach and the CLC approach resulted in a "methodological alliance", which reinforce each other and assure a very good impact on farmers. Main aspects of this alliance are:

- Community mobilization around the FFS through listening clubs to ensure access to information, the active involvement of the whole community and the understanding of agricultural and rural development processes;
- The transfer and adoption of best practices, wider application, emulation beyond the FFS, through discussions and activities through the clubs and radio shows;
- The continuity and sustainability of the FFS learning process is favoured by the mobilization, continued dialogue and action in listening clubs.

Consequently, the GEF incremental investment will reinforce the focus on SLM / INRM in the Community Listeners' Clubs (CLCs) project, and in turn the IAP-FS project will benefit from the CLCs project to ensure access to information through listening clubs and radio, the active involvement of the whole community, the wider transfer and adoption of best practices, and the sustainability of the FFS learning process.

[See Annex 19 for details of closely related and synergistic projects, with which the IAP-FS will link.]

Additional Government baseline

The MINAGRIE coordinates and provides support services through its national branches and Provincial Directorates of Agriculture and Livestock (DPAE) as well as the Institut des Sciences Agronomiques du Burundi (ISABU) for agricultural research and the Centre National de Technologie Alimentaire (CNTA) for the promotion of technological innovation in the agricultural sector. Also the DPAE with local authorities help to mobilise community involvement in development and investment activities and projects with support of partner NGOs and CSOs. Specific intervention areas include

Incentive mechanisms related to SLM and improved agricultural production

In order to succeed in the challenge of sustainable land management, the Government has taken and continues to take initiatives contributing to the adoption and sustainability of sustainable natural resource management technologies.

The National Fertilizer Subsidy Programme was approved in August 2012 by the Council of Ministers, its objective is the liberalization of agricultural (inorganic) fertilizers, which aims to open the market sector to private participation, allowing the market to set prices and ensure that adequate volumes of certified products are effectively distributed across the country from importing to the small farmer.

The current system of fertilizer marketing in Burundi is partly managed by the Government, which buys and distributes subsidized fertilizer. Only subsidizing fertilizers distributed by the state, this system creates a parallel to the original market of unfair competition which penalizes the private sector.

The new policy on fertilizers aims to address this situation through the liberalization of the sector and includes a grant programme for fertilizers through the use of vouchers. A technical support programme for the National 2-year Grants Programme for Fertilizers in Burundi (PAN-PNSEB - October 2012 to September 2014) was recently submitted by the Ministry of Agriculture and Livestock to the Embassy of the Kingdom of the Netherlands in Burundi (see Section 1.1).

A National Selected Seed Grant Programme is being set-up by MINAGRIE to complement the national fertilizer subsidy programme. Once approved and funded, the new seed programme will make quality selected seeds more accessible in greater quantity.

Within the Livestock Restocking Programme, a legal framework has been prepared especially relating to the import conditions for animals. Thus, according to the guidance note on agricultural intensification policy based on regionalization of crops in Burundi (MINAGRIE, 2015), to repopulate livestock, animals are imported and distributed to farmers through agri-supply chain for community solidarity. From 2007 to 2014, 32,045 cattle were distributed to farmers including 31,941 Friesian crossbred cattle and 104 purebred cattle imported from Europe. Also, in the context of increasing agricultural production, 57,622 goats, 9,988 pigs and 846,423 chickens were distributed.

Agro-biodiversity research and recent developments

Conservation and genetic improvement in agriculture in Burundi is carried-out by research institutions. These institutions regularly receive genes from other gene banks worldwide. Institut des Sciences Agronomiques du Burundi (ISABU) has a gene bank for food and feed crops. The Institute of Research on Agriculture and Zootechnic (IRAZ), as a regional research institution between Burundi, Rwanda and Democratic Republic of Congo, is responsible for the collection of genes of plants and animals in the region of the Great Lakes. The private sector has also invested in micro-propagation of vegetatively propagated crops. Two Bujumbura-based companies are operational: The Agrobiotechnology Laboratory (AGROBIOTECH), which handles micro-propagation for banana cultivation and Phyto-technology Laboratory (PHYTOLABU), which works with both banana and potato.

Access to seed was problematic before a certification system was devised, but recently a new body was recently set-up, the National Control Office and Seed Certification (ONCCS) under Decree N0 100 / 305 of 19 November 2012. The ONCCS is responsible for the approval and registration in the national catalog of species and varieties approved for production and seed certification, control and certification of seeds, with the aim of guaranteeing that seeds produced or introduced into Burundi meet the quality standards.

For animal breeding, the National Artificial Insemination Centre is the state body responsible for the National Artificial Insemination programme. The Centre regularly receives genes from several European countries. Cattle genetic resources are still today mainly represented by the local breed "Ankole". With a good hardiness, the Ankole has "modest reproductive parameters and low performance of production". Several initiatives have been taken for genetic improvement including introduction of exotic races (*inter alia* Holstein, Jersey, brown Swiss, Sahiwal²⁹) cattle for milk, also the introduction of the Boer goat breed for meat. Also noteworthy is the introduction of exotic breeds in pigs (large white, Piétrain), the use of hybrid strains for laying (chicks 1 day) in semi-intensive and family poultry farms and the introduction of new animal production systems stemming from imported rabbits, ducks and guinea fowl³⁰.

²⁹ A breed of Zebu cattle which primarily is used in dairy production, Sahiwal originated from the Sahiwal District of Punjab Province, Pakistan

³⁰ <http://bi.chm-cbd.net>

Other possible baseline interventions on which the IAP-FS will build include for example climate adaptation and renewable energy support of GIZ and others supported by the Norwegian refugee council.

1.2.3 Remaining barriers

Even with the baseline projects and other initiatives, a number of barriers remain that constrain the ability of the local government and communities in the interventions areas (and elsewhere in the highlands of Burundi) to address food insecurity and environmental degradation. The GEF incremental investments via the IAP-FS project will leverage actions to address the following barriers.

Inadequate political and legislative framework

Non-Functioning Co-ordination Mechanisms

The management of natural resources is a priority concern for all development actors where a multitude of structures are concerned. The multiplicity of structures, however, poses the problem of coordination, despite the existence of several interdepartmental commissions and committees.

The National Environment Commission (CNE) and the Agriculture and Rural Development Sectoral Working Group (GSADR) as national coordination bodies remain the frameworks that pool efforts. However, it is clear that these structures have difficulty working well. Barriers include the lack of sustainable financial resources, also lack of legal texts governing their creation and operation (e.g. GSADR).

Currently, the committees operate with limited state budgets or unsustainable support from technical and financial partners. For example the operation of GSADR and sub-commissions (working groups) depends on technical and financial partners for financial support. In any financial year, once they have used their limited budget, activities are stopped, so the logistics missions and expenses of members are not assured. As a consequence of these uncertainties, the operation of the group is characterized by low availability and dynamism of the Chairmen and Co-Chairs of WG. GSADR is so poorly organised that some thematic groups' offices are incomplete and meetings are irregular. Finally, this group lacks an action plan, which would enable it to assess its performance.

Other weaknesses include:

- In terms of overall planning, lack of a land use plan and a national policy for sustainable land use.
- The institutions responsible for the management of forest resources (OBPE and Forestry Department) suffer from inadequate management tools such as management plans and forest resource management for most forest plantations and natural forests. For those which exist, they are poorly or rarely applied.
- Weak coordination in the overall planning. Both at national and communal / local levels, development interventions are planned in a fragmentary way, with development partners targeting interventions to their chosen sector. Without provincial schemes / communal land use plans, there is no single framework for the development and any integrated approach that allows environmental and climatic constraints facing food production systems to be taken fully into account.
- Strategy documents are not shared with stakeholders to serve as references. Very few policies and strategies are communicated to partners for discussion and if necessary the modalities for implementation.
- The implementation of certain strategies and action plan is not subject to monitoring and evaluation in order to learn before developing the second generation strategies.
- Most texts of laws on SLM are developed by professionals with limited knowledge in the field.
- National legal texts are unknown by administration and the wider the population, often lacking the implementing legislation and the accompanying action plans to translate them into national language and to popularize. (e.g. The Environmental Code adopted in 2000 has no implementing legislation and is not adequately popularized, as the text is in French. The Land Code and the Forest Code which are, in principle, the basis for the management of land and forest resources are available but ignored by the very people who should enforce them.) Thus, the laws on SLM that exist are often ignored and not respected
- The legal framework at the local level is insufficient to support the sustainable management of resources, resulting in a lack of implementation of national policies (e.g. absence of a law on incentives for the management of natural resources, lack of certain laws / Act on agrobiodiversity conservation; lack of a law on access and benefit sharing arising from the sustainable use of natural resources; absence of a law on incentives for the involvement of local communities in the management of woodlands).

Human capacity development needs

Limited Operating Skills

There is insufficient technical capacity of staff in SLM across all involved organisations. Notably, state institutions involved in land management reveal weaknesses in the numbers and capacity of human resources. For example, within MEEATU, staff are not sufficiently skilled in watershed management.

Concerning human capacity, there are several universities (one state, others private) and secondary educational institutions which provide land management training for technicians and managers in Burundi. However, the country's National Action Programme to Combat Desertification (NAP) (GoB, 2011b) recorded an increased lack of certain capabilities in specialized areas such as hydrology, meteorology, climatology, soil science, etc.

At the commune level, natural resource management is entrusted to the agronomists, foresters or agricultural engineering technicians. Often those staff have not received any specific training on integrated approaches. It follows that on the one hand these technicians can provide only limited explanations on the benefits of SLM and are constrained in their abilities in applying appropriate planning techniques, for example not adequately involving the land users people, or offering only top-down "undiversified techniques and technologies".

Major constraints to smallholder farm production include dwindling extension services and inadequate links between research, extension and farmers, which is critical at this time of changing weather, climate and other external pressures. In terms of land management, there has been a low level of training of farmers and low capacity of agricultural extension structures (MINAGRIE). Many zone / commune level staff have been in post for many years, so were trained before the awareness-raising, bottom-up, learning-by-doing, FFS approaches and community planning existed, so are accustomed only to offer land users top-down sector-based recommendations., rather than advice on how to manage nested micro-catchments sustainably in the face of the many challenges (see Sections 1.1.1 and 1.2.1).

Regarding agricultural research and extension services, although such activities are financed by the Government (8.6 and 7.6% of the Government agricultural budget in 2011 respectively), they are generally of poor quality. Furthermore, there are few linkages between research services and extension, preventing farmers from receiving information and training on the latest outcomes of research, thus limiting the benefits accruing from the research.

Civil society institutions (associations in land management) also lack operating skills. These are young organisations; often with low levels of capacity in skilled human resources to understand all land management issues. These are often opportunistic associations, which have been created specifically when there is a job opportunity offered a donor / or development project, thus particularly they lack the tools and resources to ensure effective supervision. Moreover, their lifespan is related to the financing term.

Analysis by a national consultant during the development of the project (PPG) in consultation with the government provincial offices, IFAD, WB and farmers' representatives, etc. identified the following priority training needs to support sustainable food production, enhanced food security, climate resilience and to scale-up SLM / INRM in Burundi. (These currently represent barriers to SLM / INRM etc.). Training through IAP-FS will complement investments in value chains and sustainable agriculture by partner projects such as PRODEFI-II.

National level

- Training of decision makers and technical services in framework approaches, including techniques and technologies for sustainable land management (participatory planning, selection of appropriate technologies and techniques, monitoring and evaluation of outcomes and impacts) for the technical services of the Ministry of Agriculture (Departments of Agricultural Engineering, Extension, Monitoring and Evaluation) and Ministry of Environment.
- FFS Masters training oriented to SLM / INRM using the landscape approach.

Provincial level

- Training of facilitators from the technical services of MINAGRIE, MEEATU, Associations of Civil Society and producer organisations) in participatory rural development related to sustainable land management.
- Training of technical services in assessing the status and trends in land resources (land degradation, improvement and in assessing resilience of ecosystems and human livelihoods e.g. in the use of LADA-WOCAT tools and HH-BAT).
- Support institutions using remote sensing and GIS such as IGEBU, OBPE in the use of spatial data for M & A.
- Support to provincial forest staff in undertaking forest inventories.

Commune level

- Training of technical services of the municipalities in planning and participatory management of watersheds.
- Technical training and appropriate agroecosystem-specific SLM technologies.
- To promote the emergence of FFSs and organization of networking towards cooperatives.

- Provide guides / training of trainer books (including bee-keeping, nursery management, watershed management, FFS facilitation, INRM - including picture books).³¹
- Supporting implementation of Plans Communaux de Développement communautaires PCDC (Component TDM).
- Facilitate networked producer organisations in INRM.

Cells (actors like CDC monitors / communities)

- Training / retraining of agricultural monitors and FFS members in several themes related to SLM [*inter alia* planning and participatory management of watersheds; diversification and management of forage species (legumes), appropriate SLM technologies and mechanisms for adaptation to climate change].
- Training of communities on the management techniques of watersheds, water harvesting, irrigation and drainage; permanent housing; use of woodfuel saving technologies (improved stoves, biogas), techniques to restore soil fertility.
- Awareness and environmental education of communities on land degradation issues and on the use of alternative energy sources to protect ecosystems.
- Testing and experimentation of missing or endangered agricultural species (cocoyam, *Eleusine* etc.).
- Participatory M & A.

Knowledge and information needs on SLM / INRM

The paramount remaining barrier is the lack of cross-sectoral and multi-stakeholder outreach knowledge sharing mechanism, combining financial / agricultural / environmental concerns, in order to increase the institutional capacity to scale-up the wider adoption of demonstrated best practices and landscape-level management efforts.

Lack of an application guides for SLM

The SLM / natural resources management requires the application of diverse and complementary technologies and techniques related to soil conservation management, fertility, forest management, etc. In the project area, except for IFAD, which advocates an integrated approach (conservation of soil development, fertility, livestock farming integration), most others limit the development of BV to digging ditches and erosion control and the payment of communities beneficiaries without any monitoring mechanism and support and thus the durability of structures is compromised.

Extension services lack easy-to-use, appropriate agroecosystem specific teaching materials in Kirundi / pictorial versions (illiteracy is around 80% among land users in project area) which they could use to support appropriate technologies and techniques related to SLM (erosion control, fertility, fertilizer application, choosing appropriate agroforestry species, alternative legumes (food and fodder / forage), crop-livestock integration etc.), understanding of climate change and linking production to value chains to develop resilient livelihoods. For example, a recent study in Burundi (FAO, 2015d) found non-leguminous *Tithonia diversifolia* "outperforms in nutrient releases compared to the commonly known leguminous agroforestry shrubs and trees".

³¹ Note – these will not all need to be designed specifically for the project, they could be existing materials – or revisions tailored for Burundi

Lack of a guide to support participatory planning for the integrated management of micro-catchments

Successful action SLM requires effective planning methods that actively involve the beneficiaries of interventions. Unfortunately, with little knowledge, although the watershed development approach is currently adopted by several project / programme implementing teams as an intervention approach, it is not understood and applied consistently. Existing development planning frameworks are not fully inclusive and communities often face development decisions being made without their being fully consulted. Indeed, most of the players reduce the information they provide to that specifically relating to allocation of tasks to the beneficiaries. Most technicians have no participatory planning support, instead of participating in the planning and accountability processes, local people are merely used to labor rather than actively contributing to micro-catchment level land use planning.

Lack of a harmonized framework for monitoring and assessment (M & A)

Monitoring and assessment (M & A) of SLM practices and their impacts is essential to take advantage of the wealth of accumulated knowledge: traditional, innovative experiences, projects, research and lessons learned, successes and failures. Effective M & A can lead to major and highly beneficial changes in approaches and technologies, as these are adapted to specific local situations.

As key players, land users should actively participate in M & A. Their knowledge and opinions, particularly their opinions for or against SLM interventions, are crucial. More investment is needed in training and capacity building for M & A, particularly to improve knowledge management skills and decision support.

In the project area, the M & A systems of natural resource management activities is characterized by the following weaknesses: weak participation of beneficiaries and administration, lack of impact assessment indicators and impact monitoring and a focus on physical achievements (km linear performed, number of trees produced and planted, number of composters etc.); lack of tools and technical measures, different development standards for watersheds, inconsistent units .

Limited means of communication

In Burundi, the population especially the rural people/farmers are 80% illiterate. This is a handicap and a major barrier in the use of communication tools. The written press is relatively weak in the public education sector and thus booklets etc. written to support behavior change in land use, even if written in Kirundi, have limited reach. However, posters could assist. Furthermore, in all ecological zones, there are small numbers of innovative / model farmers, who can serve as teaching agents to educate the rest of the population. The FFS process is improving the situation through farmer learning by doing and exchange but deserves to be scaled up to reach many more farmers.

In terms of information, training and environmental education, the basic situation in the region is characterized with limited communication channels on the radio. In the intervention area, there are local radio stations (*inter alia* Star FM, FM Humuriza, and national radio), also televisions. Much more information on agriculture and livestock, weather forecasts etc. could be delivered using these tools.

Note that the two concerned Ministries (MINAGRI and MEEATU) have communication groups, which can be supported to improve their provision of information system in SLM.

Constraints on access to credit in rural areas

Another major constraint to smallholder farm production is poor access to credit for land users to invest in their enterprises to boost production – and avoid resorting to degrading land management practises.

The low level of credit dedicated to agriculture is a mayor bottleneck for development: the government budget has not financed agricultural credit for several years while commercial banks' lending to agriculture is extremely low, only around 1% of total lending. In this regard, the government

has recently approved a fund for agricultural micro-credit with an initial Burundian Franc (BIF) 2 billion, for providing loan guarantees.

Lack of appropriate mechanisms for mobilizing financial resources

Work to support SLM and INRM continues to face multiple problems related to recent reductions in the budgetary resources allocated – which limit the capabilities of extension and other staff, including due to lack of field tools, data collection equipment and funding to reach land users in their fields.

Although the management of natural resources is included in the municipal development plans, budgets of local governments often fail to provide sufficient resources to fight against the degradation and environmental concerns. The technical and financial partners through projects and NGOs have relayed on the ground DPAE providing additional resources and using the skills available. The current situation is marked by the fact that the substantial financial investment in the management of RN and development are made organizations, foreign donors and NGOs.

Innovative sources of funds are urgently needed to support SLM / INRM and diversified value chains in Burundi. The project will look to examples of successes elsewhere in eastern and southern Africa for inspiration (*inter alia* payments for ecosystem services; alternatives to using costly inorganic inputs to boost crop yields).

Innovative funding does not obviate the state from its duty to increase mobilization of financial resources to implement a national investment strategy for the fight against land degradation and the development of a system of financial resources mobilized by the private sector and civil society (associations national) to specifically support sustainable land management interventions.

Undeveloped value chains

In Burundi, all players in the agricultural sector are convinced that the development of Burundi's agricultural sector can only be achieved with the support of agribusiness, which inevitably passes it through the development of value chains and increased investment in the area.

During the PPG, a national consultant completed a detailed inventory and analysis of the potential value chains in Burundi, identifying them and performing a SWOT analysis (strengths, weaknesses, opportunities and threats). The study also identified the capacity and interests of existing farmer field schools / inter-cooperative networks and other producers' organizations (POs). [Annex 18 presents a summary of the NC's results, including results of pairwise ranking among stakeholders of the key crops (for food security, climate resilience, protection of the environment, household income / profitability, market potential and nutritional value) and the SWOT analyses for five key crops].

There is a proliferation of associations of farmers / producers (POs), but these are poorly organized, thus currently value chains are not organised at the local or national level.

Notable barriers include:

- Limited / non-existent access to quality planting materials (including disease resistant varieties);
- Fragmented of supply of agricultural inputs, thus small producers have limited access to commercial inputs and must pay often prohibitively high distribution costs.
- Loss of knowledge of the importance of orphan crops (notably taro and finger millet – see Annex 21);
- Limited numbers of small livestock;
- Beekeeping present but not organised;
- Land users not familiar with the benefits of sorting, cleaning and packing to improve the quality of their products for marketing;
- Lack of storage facilities for crops (maize, beans, potatoes, vegetables);

- Lack of post-harvest processing facilities, which would provide value addition to crops, including:
 - Fruit juice processing;
 - Chip processing unit;
 - Various processing options for the banana value chain (drying for chips and flour; “matooke”; cookies; pasta, bread and cakes). The inedible parts of the banana can be used to make livestock feed and compost, or handicrafts from banana fibre, such as hats, bags and wallets. From the leaves, the women already produce tablemats, picture frames, earrings and gift boxes, which are sold via intermediaries to local markets or on order, mainly to tourists.
- No systems for bulking small harvests into quantities of raw material to improve bargaining strengths. This could be used to negotiate contracts for land users to supply bananas to the existing juice processing plants and banana winery located in Kayanza Province (IMENA SA) and in the Gitega Province (common Makebuko, Unit Agakura).
- Absence of packaging facilities.

Increasing pressures on small land users to adopt unproven quick fixes to resolve poor production

The dominant Green Revolution narrative in continental and regional agricultural frameworks³² is that:

“... poor soils are linked to poor yields, which are linked to problems of hunger and poverty. The proposed solution of these frameworks is to increase farmers’ access to and the use of synthetic fertilisers and improved hybrid seed. Theoretically this will increase yields and allow small-scale farmers to earn more—and this will eventually reduce poverty because these farmers will move to commercial production and become self-sustaining in a globalised world. Synthetic fertilisers thus are positioned as one of the necessary ‘radical and innovative interventions’ that will increase agricultural productivity in Africa.” (ACB, 2016b)

This theory is increasingly echoed in national agricultural plans, which are adapted to align with CAADP investment plans (ACB, 2016a) and specifically the Burundian National Fertiliser Subsidy Programme (Programme National de Subvention des Engrais au Burundi - PNSEB) is supporting this approach.

It is still relatively early in the progress of the PNSEB in Burundi (started in 2012), but experience elsewhere in SSA is demonstrating that FISPs necessary to enable farmers to buy inorganic fertilisers (synthetic) *“have not alleviated food insecurity or rural poverty to any significant extent, nor have they created a demand for synthetic inputs on a commercial scale. What they have done is expose small-scale farmers to synthetic fertiliser and encourage its utilisation in countries such as Tanzania and Malawi, to the point where Malawian farmers believe that farming is ‘impossible’ without synthetic fertilisers.” (ACB, 2016b).*

Across SSA, it seems *“The increase in production has come at the cost of a crippling dependency that forces small-scale farmers onto a technological treadmill governed by external actors and controlled by a remote global market. Benefits seem to accrue to political parties (that have ‘bought’ favour); better-off farmers; politicians able to divert fertiliser; beneficiaries who leak fertiliser onto secondary*

³² Member States of the African Union signed the Maputo Declaration in 2003, committing to allocating at least 10% of their national budgets to agriculture, and adhering to the 2004 Comprehensive Africa Agriculture Development Programme (CAADP), which set a target of 6% annual agricultural sector growth (ACB, 2016a). CAADP is based on an economic growth model with extensive private-sector involvement and a focus on increasing access to and the use of synthetic inputs (ACB, 2016a). The 2006 Abuja Declaration calls on countries to increase their average fertiliser use to 50 kilogram kg/ ha if necessary through ‘smart’ subsidy programmes (ACB, 2016a). This thinking is carried through to regional frameworks and interventions, such as the Southern African Development Community’s (SADC) Regional Indicative Strategic Development Plan (ACB, 2016a) and the Regional Agriculture Inputs Programme of the Common Market for Eastern and Southern Africa (COMESA).

markets for private gain and input suppliers who win procurement bids but who are not responsible for the administration or distribution costs of the subsidy schemes.”

Furthermore, ACB (2016b) concludes: *“Acceptance of the Green Revolution ideology has led to a series of decisions and actions that ignore the particular cultural, environmental and economic context of African small-scale farmers”.*

It is concluded during the project preparation (PPG) that it is not in the interests of food insecure Burundian land users to accept top-down technical solutions imposed on their complex social-agricultural systems (ACB 2016b forthcoming). Attention must remain focused on the use of SLM / INRM, including for example reduced tillage, agroforestry, conservation agriculture and grain-legume intercropping to build up soil health, with if necessary limited additions of inorganic fertilisers to support traditional (compost and manure) and non-traditional local materials. This is the opposite to the broad push from some quarters to increase use of inorganic fertiliser³³ and other synthetic inputs through assisting with their purchase, if necessary using ‘smart’ subsidy programmes (ACB, 2016b), which will serve to reduce resilience by encouraging land users to grow monocrops, most commonly of maize – risking the livelihoods of the rural populations – and also the food security of Burundi’s few urban areas, which depend on food supplies from the rural areas.

Rather than promoting the increased use of synthetic inputs to restore soil fertility (ACB 2014) and *en route* providing direct support to the establishment of agro-dealer networks, the IAP-FS project will support training and provision of information for government agricultural extension officers and others (NGOs and other projects, including co-financiers) to empowered them as transfer agents of technical knowledge and resources (ACB 2015b). This will increase production in a sustainable manner – and avoid such an increase in production having to come at the cost of a crippling dependency that forces small-scale farmers onto a technological treadmill: declining soil quality must be countered with a greater application of subsidised fertiliser, which leads to a further decline in soil quality, which leads to further debt.

The project will recommend retaining and supporting the local agrobiodiversity – which remains high in the intervention areas, supporting land users and their advisers in countering pressure to change to dominant hybrid maize systems, which the ensuing loss of agrobiodiversity and dietary diversity, lower yields obtained over time, and the associated costs of production.

1.2.4 Project problem tree

Following identification of the causes, analysis of the core problems and their impacts in the project area during the many consultations, a problem tree has been developed with the agreement of the stakeholders (Figure 7). The impacts further translate into higher level risks of accelerated rural exodus / migration to cities and abroad in the search for employment and increasing pressure of urban expansion onto productive land and civil conflict or strife.

³³ Abuja Declaration, which calls for countries to increase their average fertiliser use to 50 kg/ha (ACB 2015c)

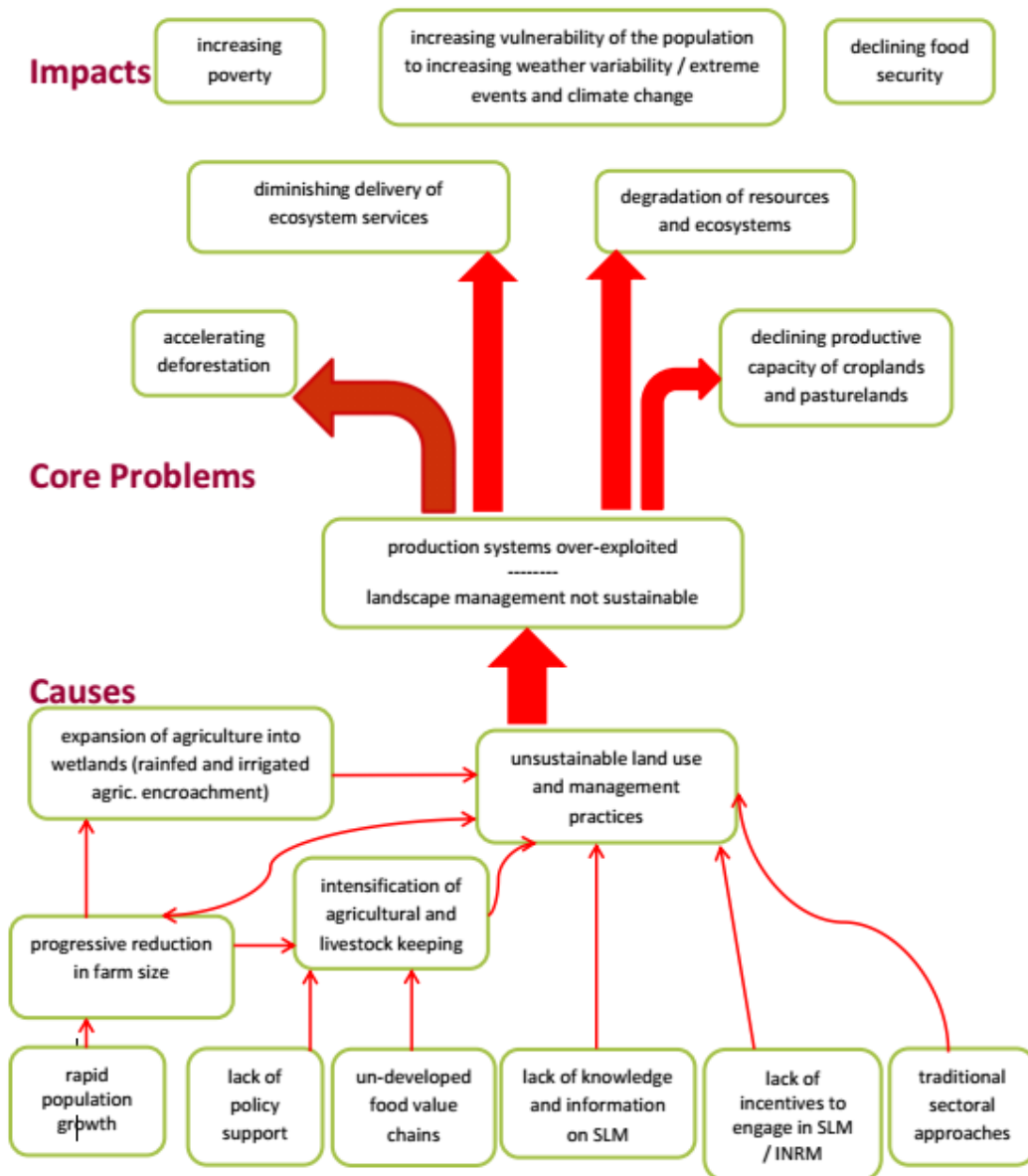


Figure 7: Problem tree for food security and climate resilience in the highlands of Burundi

This project is based on the recognition that reducing food and nutrition insecurity and climate vulnerability requires an approach which integrates a range of elements that combine to lead to an increase in food production and availability, also improvements in the livelihoods of local people.

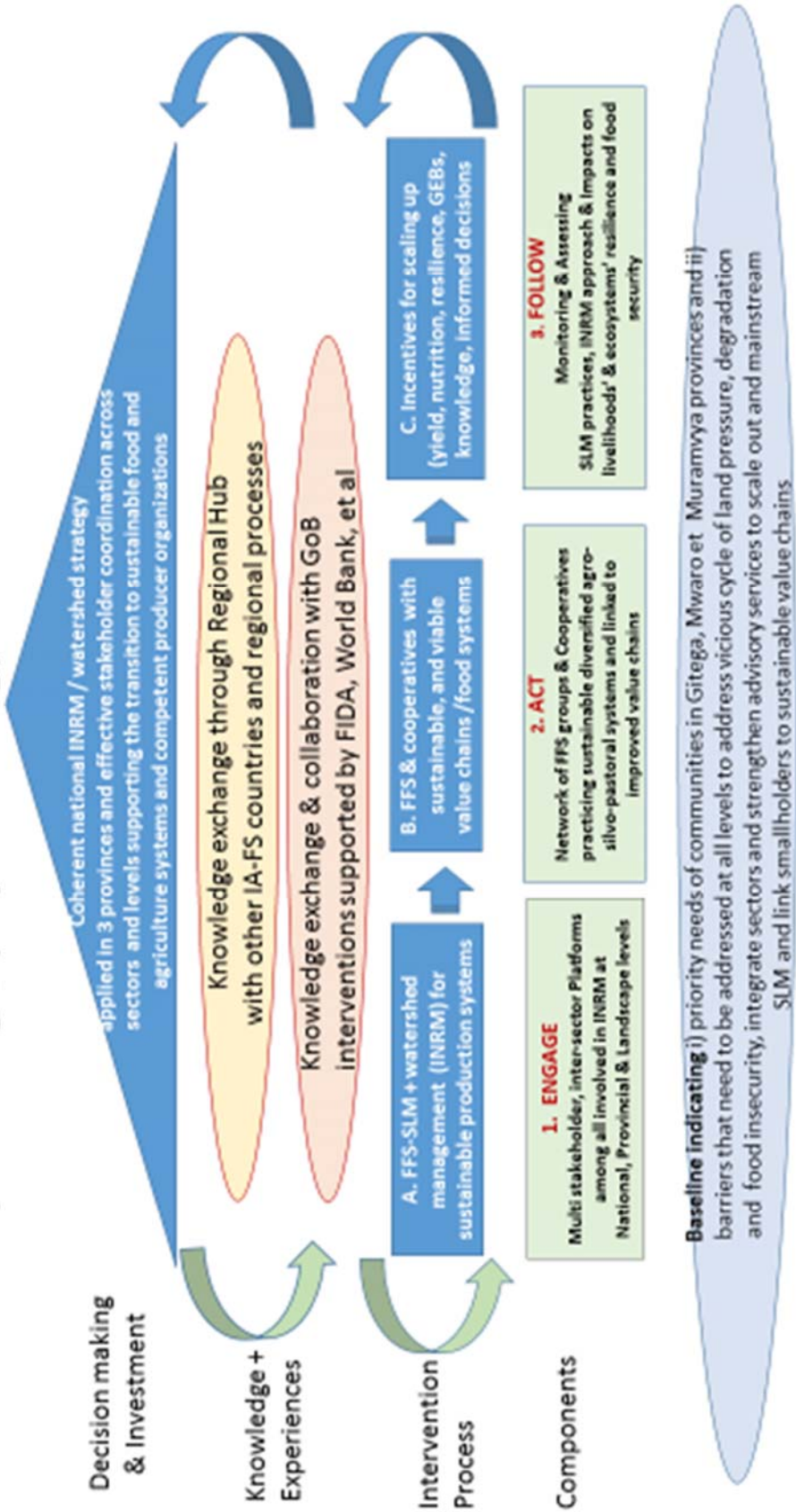
1.3 The GEF Alternative

1.3.1 Project strategy

The project's theory of change (Figure 8 and Annex 4) has been developed from the project's problem tree (Section 1.2.4 and Figure 7). It is founded on the recognition that reducing food and nutrition insecurity and climate vulnerability requires a multi-dimensional approach that leads to an increase in food production and availability and a diversification of livelihoods options. In addition to addressing fundamental causes of low crop and livestock yields and in order to achieve the project's overall objective, a number of enabling and supporting interventions are also necessary in order to remove various barriers. This includes addressing the main drivers of environmental degradation and reversing ecosystem services loss, providing an enabling institutional and policy framework for development, also supporting a vast increase in the availability of knowledge at all levels, while supporting the development of value chains to enlighten land users of the benefits of linking their production to markets. The project therefore addresses the environmental, socio-economic, and institutional barriers to increased food availability. While the partnership with other IFAD and WB projects and NGOs will also support the scaling out and mainstreaming of FFS on SLM and watershed/landscape management approaches as well as enhanced access of producers organizations and cooperatives to more efficient value chains.

Figure 8: Burundi IAP-FS project's theory of change (see following page)

Theory of change/ project strategy of IAP-FS in Burundi



The project has been designed to benefit from using the following proven approaches to attain the project objective:

Sustainable land management technologies /integrated natural resources management approach

The integrated natural resources management (INRM) approach is advocated by the overall Integrated Approach Pilot on Food Security Programme (IAP-FS) of which this project is part. This approach has no universally accepted definition, but is understood as *“the responsible and broad-based management of the land, water, forest, and biological resources base (including genes) needed to sustain agricultural productivity and avert degradation of potential productivity”*.

Sustainable land management (SLM) has been defined as *“the adoption of land³⁴ use systems that, through appropriate management practices, enables land users to maximize the economic and social benefits from the land while maintaining or enhancing the ecological support functions of the land resources”* (TerrAfrica, 2005). SLM is crucial to minimizing land degradation, rehabilitating degraded areas and ensuring the optimal use of land resources for the benefit of present and future generations.

SLM is based on four common principles:

- land-user-driven and participatory approaches;
- integrated use of natural resources at ecosystem and farming systems levels;
- multilevel, multi-sectoral and multi-stakeholder involvement;
- targeted policy and institutional support, including development of incentive mechanisms for SLM.

These two approaches also encompass:

- ✓ climate smart agricultures (CSA) *“is an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate. CSA aims to tackle three main objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions, where possible.”*³⁵
- and
- ✓ soil and water conservation (SWC) includes a range of physical, biological and agronomic measures for preventing erosion and degradation of soil and water resources, which also enhance productivity and help adapt to climate change e.g. water harvesting.

Landscape (watershed) management³⁶

A landscape approach deals with processes in an integrated and multidisciplinary manner, combining natural resources management with environmental and livelihood considerations. INRM has largely been developed through an integrated watershed management approach (ABV) in Burundi however has not been successfully scaled-up across wider landscapes. This approach recognizes that the root causes of problems may not be site-specific and may come from competition over different land uses and users, thus a sustainable development agenda requires multi-stakeholder process to negotiate and implement actions. The landscape approach helps to identify and develop positive externalities (including ecosystem services) and reduce negative impacts, especially from individual land users. Placing human well-being and needs at the centre of the land use decision-making process, the rights and cultural values (including religion) of involved communities and minority groups are respected alongside their land use objectives. This involvement helps ensure local commitment to solutions and the long-term success of sustainable development initiatives.

³⁴ Land, as defined by the UNCCD “comprises soil, vegetation, other biota, and the ecological and hydrological processes that operate within the system.”

³⁵ Source: <http://www.fao.org/climate-smart-agriculture/en/>

³⁶ Adapted from <http://www.fao.org/docrep/016/ap402e/ap402e.pdf>

It is widely accepted that the most efficient way to improve resilience of the agro-ecosystems and the associated human vulnerabilities is to plan and implement natural resources management interventions on both a whole catchment and an ecosystem basis, taking into account ecological and human interactions at relevant scales. The specific landscapes identified as project intervention areas are micro-catchments (of the Nile River basin) because of the very high population density and need to directly involve and engage the land users in the planning and management activities.

The Landscape, People, Food and Nature (LPFN) partnership³⁷ through a workshop in June 2016 organized by Ecoagriculture partners and IUCN at the Rockefeller Foundation Bellagio Centre in Italy, with a diverse group of leaders from business, government, and civil society created a four-pronged action agenda to advance the impact and prevalence of landscape partnerships with strong private sector engagement. These key steps are considered important to leverage the benefits of landscape approaches at the scale necessary to promote both sustainable development and successful agribusinesses around the world:

1. Develop and communicate a case for businesses to invest in landscape approaches to encourage private sector leaders to consider landscape partnerships as a valuable tool and support them in achieving their sustainability goals.
2. Increase access to sustainable finance in integrated landscape management by promoting collaboration on advising and facilitating landscape project finance, including blending public and private investments.
3. Mobilize governments to incorporate landscape management into development and investment strategies to advance more coherent, supportive policies and coordination frameworks.
4. Improve tools, methods and skills for convening, facilitating, designing and implementing landscape initiatives to accelerate knowledge-sharing, support businesses in assessing landscape partnerships, and improve landscape outcome metrics.

Agro-ecological principles

SLM / INRM approaches by definition are grounded on agroecological principles - working with nature to restore ecosystem services. This is vital as ACB (2016b) notes:

“The only viable future for African agriculture is an agro-ecologically based approach that uses indigenous and context-specific knowledge, takes into account social relations, relies on locally available materials as inputs and encourages a participative, inclusive approach to production (ACB 2016b forthcoming). Agro-ecology is not a new concept to small-scale farmers; rather, it builds on the traditional soil and water management techniques that African farmers have used for centuries (ACB 2016b forthcoming). ACB supports cooperative, collective farmer enterprises, based on shared technologies and knowledge that is generated through participatory processes, which acknowledge and honour the traditional role of farmers (ACB 2015d; 2016b forthcoming).”

Farmer field school approach

This project will use the farmer field school (FFS) approach as an alternative to traditional extension service approaches, which tended to be top-down, with extensions agents instructing land users what to do etc. This methodology, which is already widely proven across Asia and many parts of sub-Saharan Africa, including demonstration in Burundi under the Kagera TAMP, uses trained local facilitators, themselves trained by national “master trainers” to support farmer practical learning and study to seek solutions to problems and support timely decision making .

FFSs provide structured opportunities and space where all land users (here both crop farmers and crop-livestock farmers) can co-create and adapt knowledge, science and technical tools; they are active participants in the process. In FFSs, land users’ are upheld and respected as custodians of their agroecosystems and local knowledge. Their experience and thoughts are valued by the group and in

³⁷ Source: <http://ecoagriculture.org/blog/news-release-landscape-partnerships-a-path-forward-for-sustainable-agribusiness/>

their communities—a new experience for many, particularly among the women participants. These farmers and their communities make better choices; facilitate innovations and adaptation of alternative solutions when facing new problems (such as the impacts of climate change). FFS programmes bring together different actors in farmers' fields, from local scientists to local governments to community organizers, working together with small producers to analyse and address complex problems and increase resilience of local production and local communities. FFSs are tailored for land users to understand and track local agro-ecosystems and, based on their understanding of these technical monitoring tools, improve their understanding of options and their decision-making. These also provide fora for learning about far more than when and how to plant a crop, they can and should be wide-ranging in scope (*inter alia* SLM, INRM, soil nutrient cycling, traditional and new crop varieties, pest and disease regulation, rainwater capture and storage, pollination – also crop storage, and eventually linking to value chains).

FFSs are proven to be successful in accelerating the dissemination of appropriate production practices. The aim of FFS approach is to provide capacity building and support smallholder farmers (males females and youth), and rural communities to work together across catchments in the adoption of resilient agricultural technologies and livelihoods practices (linked to the landscape approach – see above). FFSs provide a platform for validating and up-scaling of already identified crop, livestock and natural resources management practices/technologies in an integrated way and supporting diversified and resilient production systems, as well as other measures farmers are interested in to promote sustainable agriculture, livelihood security and diversification.

FFSs are flexible in that they can respond to local demands or problems as they are identified. They are based on an “experiential learning cycle” (with a minimum duration of one and half years or more, during which farmers' groups are followed and supported on a weekly basis), where groups of farmers are encouraged to assemble at regular intervals to go through a pre-determined number of FFS sessions in the fields to identify a problem, consider different options for problem solving and implement the best option. The method of interaction is non-formal and based on field observations and group discussions, as well as simple experiments, drawings, models, fables and other tools. The experimental, learning-by-doing approach facilitates the adaptation of the technologies to local agro ecological contexts, including climate risks and production practices and the adoption by farmers in the wider area. Farmers participating in FFS gain organizational skills, knowledge and practical skills that carry over beyond the end of the project. Moreover, due to the comprehensive planning processes, they are able to define the critical broader challenges faced in their livelihoods, as well as strategies to mitigate the challenges. The FFS process is guided by a dual systematic problem–solution identification process that guides consequent actions, thus setting a solid base for sustainability. The FFS will thus be vital entry points for the scaling out of actions as well as reinforcing the watershed management approach defined below.

Sustainable food value chains

The value chain approach aims to drive economic growth with poverty reduction by integrating all actors from input suppliers to end market and buyers, thus creating new opportunities for smallholder farmers to connect with private sector firms dealing products locally and regionally.

In Burundi, as elsewhere across Africa, where agriculture is the backbone of the economy, agricultural value chains (CVA) are important not only to strengthen the competitiveness of exports, but also to develop sustainable agricultural systems, the fight against poverty and promote financial inclusion, particularly to benefit poor people in rural areas.

Recently, the agricultural sector value chain approach has become commonly adopted in new agricultural development projects (*inter alia* IFAD, World Bank). Even the local and international organizations, which supported “in time” production, are changing to a strategy based on “chains of supply”.

Previous interventions have shown that treatment of problems with individual links does not necessarily increase the performance of a value chain. Indeed, bottlenecks on other links are able to annihilate the expected benefits. The IAP-FS project will adopt the value chain approach based on an integrated diagnosis and interventions covering all the links (from production to marketing). This vertical approach tends to more effectively motivate the players, unlike past interventions which have mostly focused on the intensification of production rather than the eradication of constraints in managing the processing, transportation, marketing and distribution.

Inter-sectoral approaches

There is widespread acceptance that integrating decisions across all land-use sectors (i.e. agriculture, forestry, aquaculture and their supporting ecosystem services) is crucial for sustainable development, to reduce conflicts between the policies, strategies and goals of each sector.

Greater environmental and socio-economic benefits that can be obtained from more integrated land use systems and better resource management practices (i.e. improved efficiency and ecological functions of sustainable, diversified systems generating improved productivity and income with reduced inputs and costs) while contributing to the conservation of resources, restoration of degraded lands and maintenance of ecosystem services.

This is even more the case when, as in this project, the goal is to address the multiple underlying causes of food and nutrition insecurity. The implementation of joint strategies and actions is crucial in accelerating progress toward better nutrition.

Incremental reasoning

The GEF incremental investment will build on and complement the baseline and co-financing projects/programmes (PRODEFI supported by IFAD, PRODEMA ; the coffee competitiveness project and LVEMP supported by the World Bank as well as FAO and GoB activities– see details in Section 1.2.2). It will address the barriers (see Section 1.2.3) to improve food security and address the pervading unsustainable land management systems by strengthening intersectoral approaches and supporting the development of policies conducive to sustainable food production and reduced land degradation (see Table 13). The project will also leverage knowledge sharing mechanisms at all levels and thus ensure land users are equipped to plan and manage their land using INRM approaches – and that communities become self-reliant to plan and manage their environment using landscape approaches to support restoration of ecosystem services. The GEF incremental investments will also support land users to participate in all aspects of value chains, *inter alia*: accessing inputs / improved seeds and planting materials; post-harvest processing; storage; bulking to achieve better prices in new markets; and market information. This will improve and strengthen communities’ resilience and adaptive capacities.

Table 13: Baseline and the GEF Alternative Scenario

Outcome	Baseline Scenario	GEF Alternative Scenario
Outcome 1: Multi-stakeholder and multi-scale platforms operational in supporting policy, institutional and knowledge sharing mechanisms for	There is an array of remaining barriers for SLM / INRM mainstreaming in the institutional, policy and legal framework at national and provincial levels, also the lack of an effective knowledge sharing system. Notably, this includes the lack of an effective intersectoral framework and process, limited sharing of knowledge on SLM best practices and INRM approaches for promoting integrated land use /production systems and scaling up	GEF financing will support effective cross-sectoral coordination at national, provincial and landscape levels through the establishment of multi-stakeholder policy platforms for SLM / INRM, with a focus on scaling up through integrated landscape management and sustainable food and agricultural systems, also the development of knowledge sharing mechanisms. The project will support, enhance and make more effective the existing multi-sectoral decision making platforms at different levels, notably the

Outcome	Baseline Scenario	GEF Alternative Scenario
<p>scaling out of sustainable agriculture systems and integrated natural resources management approaches.</p>	<p>and the currently poorly supported agricultural extension system.</p>	<p>Agriculture and Rural Development Working Group at national and provincial levels, also integrated watershed management at landscape level bringing together local actors (NGOs, producer organizations and state services -agriculture, environment, health), to support SLM / INRM and the development of value chains for food and nutrition security in the three intervention provinces.</p> <p>The GEF incrementality will particularly be the development of an inter-sectoral knowledge sharing mechanism at national and provincial levels - an “SLM Learning Alliance” - which will identify, document and develop options and recommendations on SLM / INRM for different agroecosystems (which have already been successfully tested in the targeted agro-ecological zones (building on Burundi and wider experiences, inter alia Kagera TAMP, other TerrAfrica SIP and IAP-FS projects and partners via the regional Hub project). These information products and awareness will be shared via a wide range of stakeholders from national to local levels, including technical staff / decision makers in the project intervention areas, also between the project area and other parts of Burundi (notably the intervention areas of the co-financing projects) for transformational impact at national level. Specifically, the project will ensure there is an adequate budget for guidelines / teaching tools and that these are tailored for the target beneficiaries, avoiding the trap of producing vast arrays of information on the internet – or in glossy booklets written in English. Simple materials will be produced in local language “Kirundi” – also in pictorial forms, while local communications experts / NGOs will be used to develop radio, video, songs, dramas etc. to disseminate more effectively messages. This will reinforce mainstreaming of SLM / INRM and knowledge of the many synergistic benefits of SLM technologies.</p> <p>The project will facilitate the documentation of experiences by local practitioners through the UNCCD-WOCAT database of SLM best practices, which could include short videos as well as photos. In addition, the project will pilot the use of “Digital Green” innovative video-enabled media approach in Burundi for improved communications. Digital Green is a not-for-profit international development organization that uses an innovative digital platform for community engagement to improve lives of rural communities across</p>

Outcome	Baseline Scenario	GEF Alternative Scenario
		<p>South Asia and Sub-Saharan Africa (Gandhi et al, 2009). Digital Green has refined over 10 years' an approach to work with extension service providers to share knowledge on improved agricultural practices, livelihoods, health, and nutrition, using locally produced videos and human mediated dissemination. Community members will play an active role and will be given a voice through the process. Feedback and adoption data will be collected to better target programming and communication work with public, private and civil society partners towards social behavioural change for nutrition and environmental health</p> <p>Experiences and lessons will also be shared more widely with other IAP-FS country projects via the regional hub project.</p> <p>The total value of incremental costs of this outcome is 5,958,864 US\$.</p>
<p>Outcome 2: Increased land area and agro-ecosystems under integrated natural resources/ landscape management and SLM best practices and supported by sustainable value chains for increased production and sustainable livelihoods</p>	<p>There is insufficient technical capacity of staff in SLM across all involved organisations. Notably, state institutions involved in land management reveal weaknesses in the numbers and capacity of human resources. For example, within MEEATU, staff are not sufficiently skilled in watershed management.</p> <p>Concerning human capacity, there are several universities (one state, others private) and secondary educational institutions which provide land management training for technicians and managers in Burundi. However, the country's National Action Programme to Combat Desertification (NAP) (GoB, 2011b) recorded an increased lack of certain capabilities in specialized areas such as hydrology, meteorology, climatology, soil science, etc.</p> <p>At the commune level, natural resource management is entrusted to the agronomists, foresters or agricultural engineering technicians. Often those staff have not received any specific training on integrated approaches. It follows that on the one hand these technicians can provide only limited explanations on the benefits of SLM and are constrained in their abilities in applying appropriate</p>	<p>In the alternative GEF scenario, the project will catalyse large-scale scaling-out of improved landscape management / SLM technologies through boosting awareness and knowledge of SLM / INRM technologies and approaches to address sustainable agriculture and food security issues at all levels (provincial and local extension services to land users). SLM / INRM technologies are being implemented in Burundi catalysed by previous projects – but due to the barriers identified in Section 1.2.3, notably limited skills and knowledge, the practices have limited uptake and thus the scale of benefits achieved is limited. Currently there are virtually no functioning value chains – in part due to the lack of production surpluses. By boosting crop, livestock and biomass production, the project will create the need for and support the development of a small number of key VCs (complimenting those supported by the cofinancing project PRODEFI II). The project investments will address the main drivers and begin the process of reversing land degradation and biodiversity loss, which are increasingly leading to the loss of ecosystem services. Significantly increasing the land area that is under integrated natural resources management will besides safeguarding resources for future generations will support increased production and productivity of the vital food crops and livestock products in the intervention micro-catchments by the small-scale near subsistence land users. In turn, this will improve the</p>

Outcome	Baseline Scenario	GEF Alternative Scenario
	<p>planning techniques, for example not adequately involving the land users people, or offering only top-down “un-diversified techniques and technologies”.</p> <p>Major constraints to smallholder farm production include dwindling extension services and inadequate links between research, extension and farmers, which is critical at this time of changing weather, climate and other external pressures. In terms of land management, there has been a low level of training of farmers and low capacity of agricultural extension structures (MINAGRIE). Many zone / commune level staff have been in post for many years, so were trained before more recent awareness-raising, bottom-up, learning-by-doing, FFS approaches and community planning, so are accustomed only to offer land users top-down sector-based recommendations., rather than empowerment and advice on how stakeholders can plan and manage nested micro-catchments sustainably in the face of the many challenges (see Sections 1.1.1 and 1.2.1).</p> <p>Civil society institutions (associations in land management) also lack operating skills. These are young organisations; often with low levels of capacity in skilled human resources to understand complex and interrelated land management issues. These are often opportunistic associations, which have been created specifically when there is a job opportunity offered a donor / or development project, thus particularly they lack the tools and resources to ensure effective supervision. Moreover, their lifespan is related to the financing term.</p> <p>The paramount remaining barrier is the lack of cross-sectoral and multi-stakeholder outreach /knowledge sharing mechanism, combining financial / agricultural / environmental concerns, in order to increase the institutional capacity to scale-up the wider adoption of demonstrated best practices and landscape-level management efforts.</p>	<p>foundations of food security and contribute to possible surpluses to enter value chains, which will be developed to support enhanced livelihoods and reduced levels of poverty.</p> <p>Capacity development at all levels for INRM / SLM is of paramount importance to Component 2 of IAP-FS-FS, which will include training (of technical staff, Master Trainers, FFS Facilitators) in INRM / SLM and improved production systems to improve household livelihoods, nutrition, food security and resilience to climate change. Guidance on integrated planning at watershed/catchment level backed up by FFS will also support adoption of SLM on a large scale for increased and sustainable productivity of land resources, food security and resilience of communities and restoration of resources and the maintenance of ecosystem services benefitting wider society. This will vastly scale-up the numbers of land users trained and implementing SLM / INRM technologies across the target microcatchments – but also more widely across Burundi via the knowledge sharing (Component 1).</p> <p>The IFAD PRODEFI II project and World Bank projects in the pilot provinces and more widely in their implementation areas beyond the IAP-FS intervention provinces (see Section 1.2.1), will be important partners to the IAP-FS to achieve the vital scaling-up. These three investment projects have complementarity objectives on the ground and have agreed as part of co-financing to use IAP-FS training materials, also sharing of same FFS facilitators, master trainers that benefit from IAP-FS knowledge products (revised training curricula and best practice approaches). In the PRODEFI intervention areas, the IAP-FS beneficiaries will be able to benefit from better access to market mechanisms and infrastructure established by the IFAD project including roads, milk collection centres, storage facilities and processing units. The IAP-FS will in turn enhance access to training materials and methods for FFS-SLM and watershed management. This will mobilize wider adoption of SLM practices for productivity, resilience and restoration of natural resources and landscape. This is the key entry point to ensure that SLM is adapted at larger scale.</p>

Outcome	Baseline Scenario	GEF Alternative Scenario
	<p>The SLM / natural resources management requires the application of diverse and complementary technologies and techniques related to soil and water conservation, soil fertility management, biodiversity management, crop, livestock and , forest management, etc. In the project area, except for IFAD, which advocates an integrated approach (conservation of soil development, fertility, livestock farming integration), most others limit the development of BV to digging ditches and erosion control and the payment of community beneficiaries without any monitoring mechanism and support and thus the impacts are not known and durability of structures is compromised.</p> <p>Extension services lack easy-to-use, appropriate agroecosystem specific teaching materials in Kirundi / pictorial versions (illiteracy is around 80% among land users in project area) which they could use to support appropriate technologies and techniques related to SLM (erosion control, fertility, fertilizer application, choosing appropriate agroforestry species, alternative legumes (food and fodder / forage), crop-livestock integration etc.), understanding of climate change and linking production to value chains to develop resilient livelihoods. For example, a recent study in Burundi (FAO, 2015d) found non-leguminous <i>Tithonia diversifolia</i> "outperforms in nutrient releases compared to the commonly known leguminous agroforestry shrubs and trees".</p> <p>Successful action SLM requires effective planning methods that actively involve the beneficiaries of interventions. Unfortunately, although the watershed development approach is currently adopted by several project / programme teams as an intervention approach, it is not understood and applied consistently. Existing development planning frameworks are not fully inclusive and communities often face development decisions being made without their being fully consulted. Indeed, most of the players</p>	<p>The total value of the incremental costs under this outcome is 32,312,000 US\$.</p>

Outcome	Baseline Scenario	GEF Alternative Scenario
	<p>reduce the information they provide to that specifically relating to allocation of tasks to the beneficiaries. Most technicians have no participatory planning support, instead of participating in the planning and accountability processes, local people are merely used to provide labour rather than actively contributing to microcatchment level land use planning and monitoring.</p>	
<p>Outcome 3: M&A framework in place and capacity of relevant institutions built to carry out monitoring activities, communicating experiences and impacts.</p>	<p>In the baseline situation, there is a lack of a harmonized framework for monitoring and assessment (M&A) and lack of capacity in the relevant institutions to carry out participatory M&A. In the project area and for natural resource management the M&A systems showed several weaknesses: weak participation of beneficiaries and administration; lack of impact assessment indicators and impact monitoring, with a focus on physical achievements (kms of contouring performed, number of trees produced and planted, number of compost heaps/ pits etc.); lack of tools and technical measures;; different development standards for watersheds, inconsistent units.</p> <p>Furthermore, the population especially the farmers are 80% illiterate. This is a handicap and a major barrier in the use of communication tools. The written press is relatively weak in the public education sector and thus booklets etc. written to support behaviour change in land use, even if written in Kirundi, have limited reach. However, posters and videos could assist. Furthermore, in all ecological zones, there are small numbers of innovative / model farmers, who can serve as teaching agents to educate the rest of the population. The FFS process is improving the situation through farmer learning by doing and exchange but deserves to be scaled up to reach many more farmers and ensure sustainability.</p> <p>In terms of information, training and environmental education, the base-line situation in the region is characterized by limited</p>	<p>Under the incremental scenario, the GEF funds will be used to support M & A of SLM practices and their impacts. This will enable to take advantage of the wealth of accumulated knowledge: traditional, innovative experiences, projects, research and lessons learned, successes and failures. Effective M & A can lead to major and highly beneficial changes in approaches and technologies, as these are adapted to specific local situations.</p> <p>As key players, the diverse groups of land users will actively participate in M & A as their knowledge and opinions in regard to various SLM options and interventions are crucial. The project will invest in training and capacity building for M & A, particularly to improve knowledge management skills and decision support.</p> <p>The project will develop a prototype M & A system for INRM and value chains to enhance participation of beneficiaries and administration. It will develop impact assessment indicators and methods/ tools to monitor effects and impacts and train local actors in their use The M&A system will be shared with partners as a basis for developing harmonised standards for watersheds BVs and ensure the use of consistent units as a basis for contributing to monitoring the SDGs in particular targets 2.4 and 15.3, in regard to land degradation, sustainable agriculture and food security.</p> <p>The total incremental cost of activities under this outcome is 6,779,864 US\$.</p>

Outcome	Baseline Scenario	GEF Alternative Scenario
	communication channels on the radio. In the intervention area, there are local radio stations (inter alia Star FM, FM Humuriza, and national radio), also televisions. Much more information on agriculture and livestock, weather forecasts etc. is needed and could be delivered using appropriate tools.	

1.3.2 Project objective, outcomes and outputs

The project's objective is *"to increase adoption of resilient, improved production systems for sustainable food security and nutrition through integrated landscape management and sustainable food value chains"*.

This will be achieved through the scaling-up of sustainable land management (SLM) technologies/ integrated natural resource management (INRM) across the target landscapes, an approach which has already been proven at small-scale in Burundi. The project will work in 9 micro-catchments of three provinces in Burundi's highlands, in order to demonstrate impact and the potential for further scaling out of SLM in different agro-ecological zones. [The Government decided that the project should focus on on-the-ground interventions in three provinces (Gitega, Muramvya and Mwaro) (see Map 1), to avoid over-extending and consequently risking dispersing the project's resources too thinly.] The aim is to ensure that by concentrating on-the-ground activities across these landscapes, the project will be able to demonstrate meaningful impacts and multiple benefits. The intervention catchments were selected on the basis of seven criteria (see Section 1.1.2) then validated in the field, at stakeholder workshops held in each province in May 2016 – the final validation workshop at national level was held in October 2016.

The project will include establishing sustainable food value chains, where effectively none exist at present; also the conservation and sustainable use of agro-biodiversity at species and agro-ecosystem level.

The project will seek to realize its objective through three interlinked components, with three planned outcomes and fourteen (14) outputs, which will be achieved through a wide ranging suite of indicative activities (full details in Annex 1) at local, provincial and national levels. The GEF funded intervention will complement in particular the baseline interventions being implemented by IFAD's PRODEFI II project on value chains development and three World Bank projects – PRODEMA, LVEMP and the coffee sector project as well as FAO and GoB interventions. The partner projects will benefit from sharing experiences and knowledge, thus the IAP-FS would benefit from in-kind cofinancing support in the form of training, expertise and advice and linkages to existing value chains while providing training materials and expertise for scaling up of FFS on SLM and INRM at watershed level. The Government baseline and cofinancing will provide institutional support and will encourage participation of beneficiaries at community, zone, sector, communal and provincial levels.

The objective level indicators (associated baseline and targets) to measure success and to capture the change that has been achieved by the project are as follows:

Indicators: (1) % households suffering from moderate and severe food insecurity in intervention microcatchments; (2) % increasing dietary diversity among project community households (% households daily consume (a) at least 5 different food groups, (b) animal protein); (3) IAP TT LD-1 (i): Land area under effective agricultural, rangeland and pastoral management practices and/or supporting climate-smart agriculture.

Baseline: (data collected through HH-BAT survey): (1) Moderate food insecurity: 74% (male led HH), 76% (female led HH), Severe food insecurity: 2 % (male led HH), 2% (female led HH); (2) (a) 23% (male led HH), 16% (female led HH), (b) 5%; (3) 0 ha

Targets: (1) Moderate food insecurity: 65% (male led HH), 65% female led HH), Severe food insecurity: 0% (male led HH), 0% (female led HH); (2) (a) 40% (male led HH), 35% (female led HH), (b) 15%; (3) 30,079 ha (including (i) 8,000ha of increased trees in cropping systems/agroforestry plus reforestation of LD hotspots, (ii) 15,000 ha annual crops; and (iii) 7,079 ha perennial crops).

Component 1: Strengthened Institutional Framework and Support Mechanisms

The purpose of this Component is to overcome many of the remaining barriers for SLM / INRM mainstreaming in the institutional, policy and legal framework at national and provincial levels, also the lack of an effective knowledge sharing system (see Section 1.2.3). Notably, this includes the lack of an effective intersectoral framework, limited sharing of knowledge on SLM / INRM and the currently poorly supported agricultural extension system.

GEF financing will support effective cross-sectoral coordination at national, provincial and landscape levels through the establishment of multi-stakeholder policy platforms for SLM / INRM, including integrated landscape management and sustainable food and agricultural systems, also the development of knowledge sharing mechanisms. Particularly, it will support, enhance and make more effective the existing multi-sectoral decision making platforms at the different levels (the Agriculture and Rural Development Working Group at national and provincial levels), also including watershed management at local landscape level bringing together NGOs, producer organizations and state services (agriculture, environment, health) to support SLM / INRM and development of value chains for food and nutrition security in the three intervention provinces.

The GEF incrementality will particularly be the development of an inter-sectoral knowledge sharing mechanism at national and province levels - an "SLM Learning Alliance" - which will identify, document and develop options and recommendations on SLM / INRM for different agroecosystems (which have already been successfully tested in the targeted agro-ecological zones (*inter alia* Kagera TAMP, also other TerrAfrica SIP projects). These information products and awareness will be shared via a wide range of stakeholders from national to local levels, including technical staff / decision makers in the project intervention areas, also between the project area and other parts of Burundi (notably the intervention areas of the co-financing projects) for transformational impact at national level. Specifically, the project will ensure there is an adequate budget for guidelines / teaching tools and that these are tailored for the target beneficiaries, avoiding the trap of producing vast arrays of information on the internet – or in glossy booklets written in English. Simple materials will be produced in local language "Kirundi" – also in pictorial forms, while local communications experts / NGOs will be used to develop radio, video, songs, dramas etc. to disseminate more effectively messages. This will reinforce mainstreaming of SLM / INRM and reinforce knowledge of the many synergistic benefits of SLM technologies.

In addition to documentation through the WOCAT database of best practices and experiences by local practitioners, which could be include short videos as well as photos, the project will pilot the use of "Digital Green" video-enabled media approach in Burundi for improved communications. Digital Green³⁸ is a not-for-profit international development organization that uses an innovative digital platform for community engagement to improve lives of rural communities across South Asia and Sub-Saharan Africa (Gandhi et al, 2009). Digital Green (DG) partners with local public, private and civil society organizations to share knowledge on improved agricultural practices, livelihoods, health, and nutrition, using locally produced videos and human mediated dissemination. Digital Green trains service providers to: produce localized videos to improve messaging; facilitate screenings among community groups; and collect individual-level feedback and adoption data to better target

³⁸ <https://www.digitalgreen.org/>

programming. By enabling rural community members to play an active role in creating and shaping the content in an iterative feedback process, it gives even isolated communities a voice. In a controlled evaluation, the approach was found to be ten times more cost-effective and uptake of new practices seven times higher compared to traditional extension services. DG has refined its video-enabled approach over the last 10 years working with agricultural extension service providers. It has already partnered with public health organizations to extend the approach to social behavior change communication in health and nutrition.

Experiences and lessons will also be shared more widely with other IAP-FS country projects via the regional hub project.

The interventions will take advantage of existing regulatory frameworks (such as the Burundi pre-cooperative law) to ensure gender sensitive policies and SLM approaches that recognize the importance of women and youth in agriculture.

The SLM tools and guidelines will particularly be aligned with a small number of pre-selected food value chains (fruit and vegetables most in demand by informants in the PPG – see Annex 18, also likely leguminous food and fodder crops) and mainstreamed into policy frameworks and/or action plans.

During the Inception phase of the project under this Component, the project team will conduct stakeholder consultations using participatory negotiated territorial development (PNTD) approaches to identify and seek ways to resolve actual and potential conflicts over natural resources. This will include consultation with the Batwa people living in the intervention areas, to ensure they fully understand the project and are able to benefit equally (or more) from the project as the Hutu and Tutsi (majority) groups, in the expectation of securing Free, Prior and Informed Consent (FPIC) [see Annex 17].

The planned Outcome, Outputs and indicative Activities of Component 1 are:

OUTCOME 1.1: Multi-stakeholder and multi-scale platforms operational in supporting policy, institutional and knowledge sharing mechanisms for scaling out of sustainable agriculture systems and integrated natural resources management approaches.

Output 1.1.1: Agriculture and Rural Development Sector Working Groups (GSADR) at national (1) and provincial (3) levels strengthened and watershed management committees and multi-year plans in place at project sites (9)

At national level (N) and in particular in the 3 provinces (P):

- **Conduct capacity needs assessment** of existing groups (GSADR) at national (1) and provincial (3) levels and identify mechanisms for enhancing intersector collaboration and knowledge sharing for scaling out SLM/INRM for enhancing resilience to climate change and food security
- **Develop and put in place a capacity development strategy to scale-out SLM practices and INRM approaches** at all levels, including support in decision making, planning, implementation, evaluation and investment.
- **Establish/strengthen technical and organizational capacity of inter-sectoral platforms at local landscape level** including management of inter communal watersheds
- **Review and strengthen the roles and capacities of watershed committees** in planning and management, and their links to other institutions, organisations and technical services (elected leaders, producers organisations- male and female farmers, livestock keepers and foresters, FFS groups, committees that manage water resources and hydraulic structures)
- **Advocate for mobilising resources for implementing watershed management plans** with the support of policy makers and investment programmes at communal, provincial (DPAE) and national levels (SIPMRD, PNIA, NCCP)

Output 1.1.2: Functioning multi-stakeholder knowledge sharing mechanism in place at national (1) provincial (3) and local (4) levels, and promoting exchange of experiences and lessons learned (successes and failures) on scaling out of SLM / integrated natural resources / landscape management

- **Establish a National SLM Learning Alliance (ACCESS-SLM)** to produce, validate, exchange and distribute appropriate tools and thereby strengthen capacity of technical sectors and field projects (i.e. technical briefs, training modules targeted to different levels and actors, SLM action-research on SLM, INRM, FFS, sustainable agriculture and food security),
- **Facilitate the participation of SLM Learning Alliance members in IAP-FS regional hub** activities and solicit exchange visits/ workshops/ policy dialogue between countries on priority themes such as
 - Climate smart agriculture (CSA) and the conservation and efficient management of rainwater (study tour in 2 countries)
 - Adapted genetic resources (study tour to identify opportunities with ISABU, Biodiversity International and ICRAF)
 - Improved value chains (workshop)
 - Organization of FFS networks and platforms (workshop)
 - Innovative financing and incentive measures for SLM/INRM scaling out at watershed/ landscape scale (workshop)
- **Raise awareness of actors on key UNCCD, UNFCCC, CBD and FAO decisions and promote knowledge sharing** tools notably the use of WOCAT global database on SLM and the Science Knowledge Brokering Portal (SKBP) and the Economics of land degradation (ELD) knowledge base.
- **Train and support actors on the ground/ partner projects in assessing and entry of SLM best practices** (locally identified technologies and approaches) in the WOCAT global database
- **Support exchange visits /events between FFS and their communities** to exchange innovations and good practices and analyse impacts (open days, producers' fora etc.)
- **Collaborate with universities/agricultural schools to develop case studies** to show the results and impacts of sustainable integrated agricultural systems/ INRM and support their integration in programmes and curricula.
- **Develop and use audiovisual materials to share innovative practices and their benefits** through training and communications (e.g. Digital Green) with partner projects and actors (advisory services, NGOs, state services and private sector) (linked to Output 3.3)

Output 1.1.3: Legal and regulatory frameworks on SLM, sustainable use of agrobiodiversity and agricultural and environmental strategies and plans are better known at national (1) and provincial level (1) and taken into account and applied in communal development plans and watershed management plans (number of plans tbd)

- **Develop educational material on key elements of the policy and legal framework** relating to land degradation/management, sustainable agriculture, agro-biodiversity and climate change (notably NAIP, NAPA, UNCCD, CBD, UNFCCC strategies, policies and action plans) (P,L)
- **Conduct information events and support the application of relevant instruments for SLM/INRM including FAO Voluntary Guidelines** (soil management, tenure, pastoral, responsible agricultural investments) (N, P)

- **Facilitate the conception and application by watershed management committees of local rules and by-laws** through their watershed action plans to address priority problems related to access, control and management of natural resources and raise awareness of local authorities for their wide application through communal development plans (PCDC).
- **Catalyse a participatory review at provincial level of status and performance of the country strategic investment framework for SLM** to update and share lessons learnt
- **New Pilot national and provincial dialogues to develop a consensual approach and tools** for implementation of the Watershed and wetland planning/development strategy, the recent MINAGRIE Erosion Control Protocol and Action Plan and other relevant instruments

Output 1.1.4: Community consultations through a participatory negotiated territorial development process (PNTD) and Free prior informed consent process (FPIC) conducted

- **Identify actual and potential conflicts regarding governance and management of natural resources** and ecosystem services through consultations among actors, including the most vulnerable using a PNTD approach.
- **Undertake dialogue and consultation with the « Batwa » people** through representatives in the project areas, to obtain their FPIC:
 - Document geographic and demographic information through participatory mappings
 - Design a participatory communication plan and carry out iterative discussions over which project information will be disclosed in a transparent way (linked with Output 3.3)
 - Reach consent and document indigenous peoples' needs that are to be included in the project (this then to be transformed into M&E with beneficiaries).
- **Train and support local actors in strengthening local governance** to enhance the autonomy and voice of marginal and vulnerable groups (women, youth and Batwa) and improve access, control and management over **natural** resources and conflict resolution (PNTD approach)

Output 1.1.5 National strategy for harmonisation of FFS-INRM operationalised in the 3 provinces with particular attention to resilient and sustainable food and agricultural systems

- **Support operational mechanisms for the national strategy for harmonisation of FFS-INRM** (Steering committee, national consultation platform, field operational units) and facilitate exchange on FFS animation, innovation, planning, quality control, monitoring and evaluation
- **Develop FFS operational guides to facilitate learning-research-action on SLM** practices, sustainable agro-silvo-pastoral systems, agrobusiness, nutrition, governance and gender.
- **Establish a permanent network of FFS facilitators and master trainers** to support the scaling out of SLM practices and watershed management approach by partner projects (PRODEMA, coffee project and LVEMP of the World Bank, PRODEFI of IFAD and PSADR-IM of EU and others)
- **Organise and fund exchange visits and meetings of FFS network members** (producers) in the 3 provinces and with partner projects and the regional Hub
- **Mainstream the FFS approach** into provincial programmes, institutions and service providers to support sustainable and resilient food and agriculture systems

Component 2: Improved livelihoods and food security through integrated watershed management, competent producers' organizations and sustainable food systems

The purpose of this Component is to catalyse large-scale scaling-out of improved landscape management / SLM technologies through boosting awareness and knowledge of SLM / INRM technologies and approaches to address sustainable agriculture and food security issues at all levels (provincial and local extension services to land users). SLM / INRM technologies are being implemented in Burundi catalysed by previous projects – but due to the barriers identified in Section 1.2.3, notably limited skills and knowledge, the practices have limited uptake and thus the scale of benefits achieved is limited. Currently there are virtually no functioning value chains – in part due to the lack of production surpluses. By boosting crop, livestock and biomass production, the project will create the need for and support the development of a small number of key VCs (complimenting those supported by the cofinancing project PRODEFI II). The project investments will address the main drivers and begin the process of reversing land degradation and biodiversity loss, which are increasingly leading to the loss of ecosystem services. Significantly increasing the land area that is under integrated natural resources management will besides safeguarding resources for future generations will support increased production and productivity of the vital food crops and livestock products in the intervention micro-catchments by the small-scale near subsistence land users. In turn, this will improve the foundations of food security and contribute to possible surpluses to enter value chains, which will be developed to support enhanced livelihoods and reduced levels of poverty.

Capacity development at all levels for INRM / SLM is of paramount importance to Component 2 of IAP-FS-FS, which will include training (of technical staff, Master Trainers, FFS Facilitators) in INRM / SLM and improved production systems to improve household livelihoods, nutrition, food security and resilience to climate change. This training will also support adoption of SLM on a large scale for increased and sustainable productivity of land resources, food security and resilience of communities and restoration of resources and the maintenance of ecosystem services benefitting wider society. This will vastly scale-up the numbers of land users trained and implementing SLM / INRM technologies across the target micro-catchments – but also more widely across Burundi via the knowledge sharing (Component 1).

The IFAD PRODEFI II project and the World Bank projects (PRODEMA, LVEMP-2 and PACDC) in the pilot provinces and also more widely in their implementation areas beyond the IAP-FS intervention provinces (see Section 1.2.1), will be important partners to the IAP-FS to achieve the vital scaling-up. These three investment projects have complementarity objectives on the ground and have agreed as part of co-financing to use IAP-FS training materials, also sharing of some FFS facilitators, master trainers that benefit from IAP-FS knowledge products (revised training curricula and best practice approaches). In the PRODEFI intervention areas, the IAP-FS beneficiaries will be able to benefit from better access to market mechanisms and infrastructure established by the IFAD project including roads, milk collection centres, storage facilities and processing units. They could also benefit from access to imported seed, cooperatives and micro finance mechanisms. The IAP-FS will in turn enhance access to training materials and methods for FFS-SLM and watershed management. This will mobilize wider adoption of SLM practices for productivity, resilience and restoration of natural resources and landscape. This is the key entry point to ensure that SLM is adapted at larger scale.

A number of key approaches will be used to ensure the achievements of Outcome 2: Increased land area and agro-ecosystems under integrated natural resources/landscape management and SLM best practices and supported by sustainable value chains, namely:

- ✓ Integrated sustainable land management (SLM) / integrated natural resource management (INRM) (inter-sector; multi-stakeholder and multi-scale);
- ✓ Farmer field schools (FFSs) for resilient agro-silvo-pastoral systems;
- ✓ Landscape (watershed) management ; governance ; incentives for ecosystem services);
- ✓ Agroecological (quality inputs-products, optimising biodiversity and ecosystem functions - reducing costs).

The planned interventions will enhance agro-biodiversity (particularly raising awareness of neglected / orphan crops – see Annex 21 and leguminous species), increase resilience to impacts of climate change - extreme weather events and increasing variability (diversified adapted systems; soil and water conservation) and enhance C sequestration through land use systems that increase woody biomass (tree planting, also reduced wood use through improved cook stoves and charcoal kilns – including through working in synergy with the SAFE project) and increase soil organic matter (greater application of compost / manure).

A significant co-financing from PRODEFII II and PRODEMA is targeted at biological and physical investments for sustainable food production intensification and the generation of enhanced ecosystem services through *inter alia*: soil and water conservation for erosion control; improved blue and green rainwater management (*inter alia* water harvesting and retaining on roofs / rocks / slopes; reduced run-off; increased infiltration; harvesting on slopes for storage and use in irrigated cropping systems in valley bottoms); greater use of innovative sources of materials to increase crop yields (compost, manure etc.); increased inclusion of multi-purpose trees and shrubs in farming systems for shade / wood / timber / fruits / medicinal products / fodder; promotion of a wider range of legumes (food and fodder).

The IAP-FS will enhance the tree cover of the micro-catchments, diversifying the currently depleted range of species grown (mostly exotics and bananas) – where feasible encouraging crop-tree-livestock and agroforestry / evergreen agriculture systems, including local fruits or fruits of the region which organisations such as ICRAF have worked to domesticate.

Specifically in the vicinity of Kibira National Park, the project will make specific efforts to reduce the pressures on Kibira NP and promote sustainable use of the biodiversity. Many species with socio-economic and high ecological value will be developed by the IAP-FS ex-situ (*inter alia* *Prunus africana*, *Myrianthus* spp., *Markhamia lutea*, *Draceana* spp. and bamboo). These plants will be planted on community lands and on riverbanks for protection of the banks and to reduce pressure on Kibira's dwindling bamboo. In addition, improving livelihoods of the riparian communities is another way of reducing the pressure on Kibira Natural Park. A value chain of passion fruit associated with bee keeping will contribute to alleviating the poverty of local communities and improve the sustainability of the protected area by reducing threats to biodiversity.

The range of activities in Component 2 will catalyse behaviour changes in the communities in order to evolve /transform their current unsustainable land use systems towards wide scale adoption of sustainable land management (SLM) technologies, replicating the positive lessons and successes of the Kagera TAMP and other FFSs projects – including supporting FFS networks and watershed committees across the intervention catchments.

The component also addresses the very low levels of food security and nutrition in the intervention areas (the FIES result from the HH-BAT showed only 1% of HHs have no food insecurity), through a range of activities which via different routes will enhance the diets and nutritional status of local people (refer to Section 1.2 and Annex 14 for more information). This will include increasing the availability of disease resistant / more nutritious crops (see Annex 21), help land users boost their livestock keeping (via community solidarity chains), building storage facilities and supporting post-harvest processing for value addition, increasing market access, also a range of other NR-linked income generating activities for enhanced access to food. Producer organisations (FFSs, FFS networks and pre-cooperatives) and their advisory services will be empowered – leading to increased flows of investment in INRM.

The project will catalyse innovations to assist farmers to participate in value chains for portfolios of products rather than focusing on single value chains, as this will offer “prospects for less risky commercialization pathways” (Vorley et al, 2012) and more resilient diversified farming systems .

The planned Outcomes, Outputs and indicative Activities of Component 2 are:

OUTCOME 2.1: Increased land area and agro-ecosystems under integrated natural resources/ landscape management and SLM best practices and supported by sustainable value chains for increased production and sustainable livelihoods

Output 2.1.1: Micro-watershed management plans developed and implemented (9) using combined appropriate SLM technologies and a harmonised integrated natural resources management approach

- **In 9 micro-watersheds undertake a participatory diagnostic** on the state of natural resources and livelihoods, both on the ground and through analysis of satellite imagery, (e.g. LADA-Local, WOCAT, ROAM, Collect Earth tools to assess and map land use, degradation and SLM practices)
- **Organise exchange visits for professional staff, community representatives and local leaders to existing watershed interventions** (Kagera TAMP, LVEMP, IFAD etc.)
- **Conduct practical training for technical teams at communal and zonal levels** on diverse adapted technologies, their comparative advantages (benefits) and how they are combined in a watershed (using WOCAT fact sheets and available manuals, see Output 1.1.2)
- **Support the development of 9 watershed plans** and train watershed management committees in planning, management, review of progress and partner collaboration (see Outputs 1.1.1 and 3.1.2)
- **Support the implementation of watershed plans and assessment and documentation of SLM technologies and approaches** (using WOCAT tools) with a focus on:
 - Restoration of degraded soils and gully rehabilitation using combined structural and biological technologies (SWC with agroforestry; forage and perennial species)
 - Adaptive management of agrosilvopastoral systems for increased productivity and resilience (soil fertility, stall-fed livestock, diverse annual and perennial crops, multiuse leguminous trees and shrubs and fruit trees)
- **Encourage experience sharing between communities and watersheds and promote wide adoption** (research-action activities, incentive measures, open days and competitions /prizes)

Output 2.1.2: FFS master trainers (25) and facilitators (100) trained on the job with 318 FFS groups and practicing SLM/INRM at farm and watershed scale, and national FFS curricula (1) updated.

- **Develop updated curricula for training FFS experts/master trainers and facilitators** in sustainable agriculture, integrated land /natural resources management, links to markets and nutrition
- **Conduct practical and refresher training** of at least 100 facilitators and 20 selected FFS experts, and provide intensive coaching to the latter so as to establish a group of highly competent master trainers to support various projects.
- **Strengthen at least 49 existing FFS groups and develop action plans with 269 new FFS** to develop capacities of some 318 FFS (totalling 8,000 male and female producers) on sustainable agriculture, nutrition, SLM /INRM and market linkages
- **Train the farmers over a full year (rainy and dry seasons) on SLM activities at farm and watershed scale and improved livelihoods** (including use of perennial species, soil, water and biodiversity management, conflict resolution, marketing, enterprise development, local savings and credit, monitoring)

- **Encourage the scaling out of FFS in neighbouring communities and watersheds** and through networking with partner projects and investment programmes in Mwaro, Muramvya et Gitega provinces

Output 2.1.3: Network of (pre) cooperatives/producer organizations and FFS groups supported and demonstrating improved access to food value chains

- **Conduct a diagnostic study and selection of (pre) cooperatives/producers organisations** for developing new food value chains and/or accessing those set up by partner projects (IFAD, World Bank and other);
- **Support feasibility studies and formulate business plans for FFS groups/producer organisations** to develop food value chains in partnership with NGOs/CSOs (in particular, honey making at Mukuzi and Muhanda and other products for nutrition and value addition– such as fruits and vegetables, orphan crops and processing activities)
- **Develop training material and train staff of advisory services to support groups in improved value chains** (processing, storage, marketing, as well as access to small equipment, community micro-credit and savings, self-financing, revolving funds and warehouse receipt systems)
- **Support the participation of members of (pre)cooperatives and producers organisations in policy-dialogue activities** under Component 1
- **Support local/national initiatives to promote sustainable local food systems and value chains, and to raise awareness of consumers** and support sustainable agricultural labelling (bio, agroecology, territory.)
- **Raise awareness of communities, FFS and (pre) cooperatives on the nutritional and other benefits of diversified food systems**, through communication events (on nutrition and healthy diets, setting up school gardens and integrating basics of nutrition in FFS. (linked with Output 3.1.3)

Output 2.1.4: An *in situ* seed bank system established and farmer-produced adapted varieties promoted as a basis for local food systems and improved nutrition

- **Train partners in a pilot site in each province in conducting a genetic diversity assessment** through study tours, field visits and workshops (from diagnostics, to data collection, analysis and monitoring)
- **Mobilise research to undertake a study of wild plant relatives** in project study areas and in the buffer zone for Kibira national park.
- **Organise biodiversity fairs (3 sites x 2 times) and establish and support demonstration gardens (3)** to provide diverse species/varieties to farmers according to interests and preferences
- **Support the functioning of community seed banks** including quality control, intercountry visits and exchange of seed and germplasm
- **Train FFS members and youth groups (male and female) as seed multipliers** with support of ISABU, MINAGRIE and the Bugarama seed centre
- **Support use of healthy high quality germplasm and promote adapted new and preferred varieties** [such as fruits, vegetables, coffee, corn and manioc] in collaboration with ISABU, IRAZ and laboratories for in vitro propagation
- **Promote diversified systems with orphan crops, diverse legume species, fruits and vegetables** to enhance nutrition, through awareness raising, complementary training and school gardens

Output 2.1.5: Steep slopes and highly degraded areas rehabilitated through tree planting, with attention to indigenous species, to increase biodiversity, productivity and resilience and to reduce pressure on woody material.

- **On steep slopes and degraded sites identified on watershed management plans for restoration**, increase the cover and diversity of woody/forest species through natural regeneration and tree planting, with a focus on indigenous and fast growing species.
- **Promote forest management techniques** to enhance plant survival, productivity and multiple use as well as water conservation and runoff management to reduce erosion, landslides and flooding in valley bottoms
- **Enhance the forest genetic resources in terms of indigenous species** through management of existing stands and creation of new stands for seed and support the organisation of a network of seed collectors
- **Support the establishment of seedling nurseries** to produce and make available diverse species selected for agroforestry, fruits, medicinal products, timber and bamboo (800,000 plants /year/ province = total of 9,600,000 plants over 4 years)
- **Provide advice on the sustainable use of valley bottoms and flood plains and the stabilisation river banks and lakeshores** (300 km) with bamboo and other perennial species to improve water quality, conservation and management through efficient irrigation and permanent access by local populations.
- **Promote and train community groups on the use of appropriate energy saving technologies** and the assessment of their benefits for men and women (such as energy saving stoves, solar tools, biogas and briquettes for example with CNTA).
- **Train in the efficient production of charcoal** youth groups and members of forest management groups

Component 3: Monitoring and Assessment of Global Environmental Benefits and Socio-Economic Impacts to Inform Decision Making

The purpose of this Component is to set-up a system through which development decisions at all levels are provided with and taken on the basis of comprehensive, up-to-date scientific information (linked to the knowledge platforms developed under Output 1.1.2). This will help create a feedback loop to the local planning frameworks and will help inform national development policies of direct relevance to the intervention areas

Output 3.1.1 will strengthen the capacity of staff in Government at all levels, also a range of institutions, to monitor the project's local and global environmental benefits (GEBs), including tools and systems for monitoring of SLM impacts on food and livelihood security and ecosystem services and thus be able to

incorporate resilience (climate variability, natural disasters and market fluctuations) into future project / programme designs and implementation. A specific attention will be paid to ensuring staff at local and national levels have the skills to assess and monitor the following key global environmental benefits targeted under the IAP-FS:

Biodiversity - Global environmental benefits resulting from GEF's biodiversity financing via sustaining biodiversity in the production landscape including:

- Biodiversity mainstreaming (supporting biodiversity-friendly land use that remains productive but that does not degrade biodiversity;

- Spatial and land-use planning to ensure that land and resource use is appropriately situated to maximize production without undermining or degrading biodiversity;
- Improving and changing production practices to be more biodiversity friendly in both agriculture and forestry;
- Ecosystem restoration in specific locations where restoration is deemed essential to help ensure the persistence of globally important biodiversity in the production landscape, particularly in areas close to protected areas (Ruvubu and Kibira NPs).

Land Degradation - Global environmental benefits resulting from GEF's focus on land degradation focal area, specifically addressing desertification and deforestation, including:

- Improved provision of agro-ecosystem and forest ecosystem goods and services;
- Mitigated/avoided greenhouse gas emissions and increased carbon sequestration in production landscapes;
- Conservation and sustainable use of biodiversity in productive landscapes.

Importantly, Output 3.1.1 will also train beneficiaries to monitor local biophysical indicators and the impacts of SLM / INRM on biodiversity and ecosystem services (carbon balance-biomass and soil, water quality and flow, pest and disease regulation) and on their crop, livestock and overall farm productivity [i.e. various products per unit of land (food, fodder, energy) and taking into account inputs including labour]. This will include use of participatory approaches, to enhance participation and promote ownership among all groups in the local communities (men, women, youth and children – of all three ethnic groups).

To monitor and assess the project resilience and socio-economic benefits including food and livelihood security (Output 3.1.2), a range of open source tools will be used, including:

EX-ACT Carbon Balance Tool³⁹

The “Ex-Ante Carbon-balance Tool” (EX-ACT) is an appraisal system developed by FAO providing estimates of the impact of agriculture and forestry development projects, programmes and policies on the carbon-balance. The carbon-balance is defined as the net balance from all greenhouse gases (GHGs) expressed in CO₂ equivalent that were emitted or sequestered due to project implementation as compared to a business-as-usual scenario.

EX-ACT is a land-based accounting system, estimating C stock changes (i.e. emissions or sinks of CO₂) as well as GHG emissions per unit of land, expressed in tonnes of CO₂ eq/ha /yr. The tool helps project designers to estimate and prioritize project activities with high benefits in economic and climate change mitigation terms. The amount of GHG mitigation may also be used as part of economic analyses as well as for the application for additional project funds.

EX-ACT can be applied on a wide range of development projects from all Agriculture, Forestry and Land Use (AFOLU) sub-sectors, including besides others projects on climate change mitigation, sustainable land management, watershed development, production intensification, food security, livestock, forest management or land use change. Further, it is cost effective, requires a comparatively small amount of data, and has resources (tables, maps) which can help find the required information. While EX-ACT is mostly used at project level it may easily be up-scaled to the programme/sector level and can also be used for policy analysis.

Collect Earth⁴⁰

Collect Earth is a tool developed by FAO that enables data collection through Google Earth. In conjunction with Google Earth, Bing Maps and Google Earth Engine, users can analyse high and very high resolution satellite imagery for a wide variety of purposes, including:

- Support multi-phase National Forest Inventories;

³⁹ More information: <http://www.fao.org/tc/exact/ex-act-home/en/>

⁴⁰ More information: <http://www.openforis.org/tools/collect-earth.html>

- Land Use, Land Use Change and Forestry (LULUCF) assessments;
- Monitoring agricultural land and urban areas;
- Validation of existing maps;
- Collection of spatially explicit socio-economic data;
- Quantifying deforestation, reforestation and desertification.

Its user friendliness and smooth learning curve make it a perfect tool for performing fast, accurate and cost-effective assessments. It is highly customizable for the specific data collection needs and methodologies.

The data gathered through Collect Earth is exportable to commonly used formats and can also be exported to Saiku, a tool that facilitates data analysis.

Note- There are significant limitations in the application of this tool given the complex nature of the farming systems, with complex intercropping and major changes in crops grown between seasons – also issues of cloud cover – but it will be piloted for perennial / agroforestry etc.

SHARP / HH-BAT⁴¹

The “Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists” (SHARP) tool developed by the FAO is designed as an instrument to assess the resilience of farmer and pastoralist households to climate change.

In order to evaluate the level of resilience, SHARP combines a participatory self-assessment component with an academically rigorous, quantitative assessment of resilience based on agro-ecosystem resilience indicators. It uses a holistic approach to resilience, allowing farmers and pastoralists to express their perceptions on adequacy of and importance of different aspects of their livelihoods, and drives for locally customized adaptation strategies. It can be used to animate in-depth focus group discussions with farmer and agropastoral field schools (FFSs/APFSs).

SHARP works through a participatory survey developed for Android tablets spanning environmental, social, economic, governance and general agricultural practices. Each survey question cluster is used to assess the relative resilience of a specific aspect of the farm system.

Due to its nature as a self-assessment tool, it is a valuable addition for project design and as monitoring and evaluation tool, through the establishment of a resilience baseline at household level (HH-BAT) from which the impact of project interventions can be observed, measured and better targeted. A customized version of SHARP, known as HH-BAT, was used during the project design phase of the IAP-FS on Food Security in Burundi and is to continue being used during implementation.

Integrated Food Security Phase Classification (IPC)⁴²

The Integrated Food Security Phase Classification (IPC) is an innovative tool developed by FAO for improving food security analysis and decision-making. It is a standardized scale that integrates food security, nutrition and livelihood information into a clear statement about the nature and severity of food insecurity and implications for strategic response. It is based on consensus-building processes to provide decision makers with a rigorous analysis of food insecurity along with objectives for response in both emergency and development contexts. The IPC aims at providing:

- Technical consensus and a common language for classifying severity and causes of food insecurity situations;
- Transparency through evidence-based analysis;
- Communication for action;
- Current and early warning projections;

⁴¹ More information: <http://www.fao.org/in-action/sharp/en/>

⁴² More information: <http://www.ipcinfo.org/>
<http://www.ipcinfo.org/ipcinfo-countries/ipcinfo-eastern-middle-africa/Burundi>

- Quality assurance protocols.

The IPC has been introduced in Burundi in 2007 and the acute food insecurity analysis is conducted twice a year after each main agricultural season. It also assesses agricultural production. The IPC is hosted within the Ministry of Agriculture and Livestock with technical and Secretariat support from FAO. The national Technical Working Group counts 40 permanent members from different Government Departments, with participation from FAO, WFP and UNICEF. The IPC in Burundi has received direct financial support from EU, Sweden and Belgium.

LADA-WOCAT Tools ⁴³

The LADA –WOCAT toolset comprises a number of manuals, tools for assessing and mapping land resources status and trends (degradation/conservation/improvement) and SLM measures (type, extent, effectiveness) as well as the pressures/drivers of change, impacts on ecosystem services and livelihoods and response measures. The tools were developed through the FAO/GEF Land Degradation Assessment in Drylands project (2006-2010) with 6 pilot countries worldwide and several scientific/academic partners including the WOCAT Secretariat as a scientifically-based approach to assessing and mapping land degradation at different spatial scales – small to large territorial units– and at various levels – local to national. A global land degradation information and monitoring system was also developed (GLADIS). While the LADA project was initiated in drylands, nonetheless the LADA and WOCAT methods and tools have been developed so as to be widely applicable in all ecosystems and diverse contexts with minimal required adaptation. The tools include

- the WOCAT global database on SLM approaches and technologies that has been adopted as the UNCCD preferred database for country reporting on SLM best practices.
- the questionnaires on approaches (QA) and technologies (QT) and global databases for data entry, storage and free access to SLM approaches and technologies that have been assessed by practitioners worldwide and
- the mapping tool (QM) that can be used at various scales are available in many languages and are already used by over 25 countries worldwide.
- Tools to support decision making being developed through an ongoing GEF/FAO project that is supporting 15 countries in using the LADA-WOCAT tools and findings for informed decision making for scaling up and mainstreaming SLM (DS-SLM) from local to national levels.

Emphasis will be placed on using the mapping and assessment tools to help stakeholders to identify and understand the causes of land degradation and the impacts of current land use systems, including the effectiveness of current/recent response measures, thereby enabling adequate and sustainable land management solutions to be devised. It helps national multi-sectoral teams and partner agencies with land users at local level to identify and prioritize required national planning and policy interventions and actions on the ground for promoting the wide adoption of SLM.

Diversity Assessment Tool for Agrobiodiversity and Resilience (DATAR)

DATAR is an evolving multicomponent tool to describe agricultural biodiversity and resilience at landscape level. DATAR follows a heuristic framework to assess:

- Diversity of crop species and varieties, livestock breeds, and fish populations;
- Ability to access diversity and associated information;
- Extent of use of the available materials and information about them;
- Benefits obtained by the farmer and farming community from use of diversity;
- Community perspectives on social ecological resilience.

DATAR provides the information needed to support farming communities in the maintenance and use of traditional crop varieties, livestock breeds and fish populations to improve productivity and ecosystem resilience.

43 More information: <http://www.fao.org/3/a-i3241e.pdf>

The planned Outcome, Outputs and Indicative Activities of Component 3 are:

OUTCOME 3.1: M&A framework in place and capacity of relevant institutions built to carry out monitoring activities, communicating experiences and impacts.

Output 3.1.1: Government staff and extension workers trained (number tbd) and able to use relevant M&A tools and approaches, also archive data

- **Develop a participatory project M&E system In collaboration with IGEBU and ISEATU**, with a focus on impacts in target watersheds, including socioeconomic indicators and global environmental benefits (GEB) and their alignment with the Sustainable Development Goals (SDGs) (definition of indicators, methods, frequency and responsibilities)
- **Collaborate with universities to employ masters students to support data collection** on the ground with FFS and in the watersheds
- **Train experts, advisory service staff and selected students in data collection and monitoring, with support of OBPE and IGEBU**, and including data entry, participatory monitoring methods, satellite imagery analysis and presentation and reporting of results in particular:
 - LADA and DATAR tools (vegetation cover, agro- biodiversity, soil properties – soil organic matter/carbon and productivity)
 - HH-BAT/SHARP tool (household food security, resilience and nutritional aspects) [baseline completed during PPG – see Annex 14]
 - EX-ACT tools (project potential and impacts on the carbon balance across project sites (carbon sequestration and emissions of greenhouse gases)
 - Work with IGEBU to further support participatory rainfall and hydrological monitoring in pilot watersheds (community transmission using mobile phones) to assess land and water impacts of SLM plans (compared with a control watershed that is not being improved)
 - Collect Earth and LADA-WOCAT for the assessment and mapping of the status of natural resources (degradation, conservation, restoration) and impacts of different SLM interventions in the watersheds (natural resources, ecosystem services, household wellbeing) and the monitoring of key indicators aligned with the SDGs (notably targets 2.4, 15.3, 15.2, and 6.4)
- **Organise periodic meetings to analyse results and inform on progress**, the development of annual workplans and project reports (to the Government, FAO, GEF, project partners and stakeholders)
- **Support consultation with partners and institutions for the development of a systematic harmonised M&E system aligned with the SDGs** for the M&E of projects and initiatives on SLM/ INRM.

Output 3.1.2: Pre-cooperatives and FFS group members trained and able to use participatory impact monitoring tools and approaches (HH-BAT, FFS PM&E, LADA local).

- **Support FFS members and communities in the selection and participatory M&E of activities and results** using key indicators, appropriate tools and formats/templates for the collection, analysis and reporting in relation to the baseline study for example:
 - FFS capacities (organisation, experimentation, adaptive management, decision making capacity, access to support services, etc.)
 - Results of SLM activities and strengthening of value chains

- Resilience of households to climate change (HH-BAT/SHARP)
- Daily collection and transmission to IGEBU by mobile telephone of rainfall and hydrological monitoring
- **Support the use of integrated framework for the classification of food insecurity (IPC) for mid term and end of project analysis**

Output 3.1.3: Project results and experiences compiled, communicated widely and shared with the project regional hub and partner projects

- **Develop a project communication strategy and materials** (visual identity, brochures, posters, stickers, kakémonos – roll up posters), power point backgrounds, document folders etc.)
- **Produce policy briefs for decision makers and case studies** that document innovative approaches, experiences and impacts of the project
- **Develop partnership with the media, rural radio, Dimitra clubs, Digital green video development etc.** to disseminate the experiences and results of the project including collaboration with partners for scaling out of experiences at large scale (transformational)
- **Develop communication materials on study tours and workshops organised with the regional hub project** for sharing experiences with other countries and to enhance policy dialogue in Burundi on SLM/INRM and improved value chains and integrated food systems

Output 3.1.4 :Project progress reports prepared on time, mid and final review/evaluation conducted.

- **Six monthly Project Progress Reports (PPR)** - the PPR includes the project results framework with project output and outcome indicators, baseline, and six-monthly target indicators, the risk matrix monitoring, and identification of potential risks and mitigation measures for unexpected risks reduction.
- **Project Implementation Review (PIR)** - the PIR includes the project results framework with project output and outcome indicators, baseline and yearly target indicators, the monitoring of the risk matrix, and identification of potential risks and mitigation measures to reduce those unexpected risks.
- **Mid-term and final reviews/evaluations, also the terminal report**

[Section 3.5 provides further details on the project’s M&E arrangements, including roles and responsibilities.]

1.3.3 Project Stakeholders

During project preparation, many consultations were held with diverse stakeholders at all levels, particularly including local communities (informal meetings, FGDs and the HH-BAT surveys). Based on these consultations, a detailed stakeholder analysis was conducted and combined with the feedback received in the inception workshop (April 2016) and stakeholder workshops in each province (May 2016) to identify the stakeholders and the different roles they are expected to play in the project. The results are compiled in Table 14.

Table 14: Roles and responsibilities of stakeholders

Stakeholder Institution/Entity	Relevant roles/responsibilities related to the project implementation
Ministry of Water, the Environment, Land Management and Urbanization (MEEATU)	Key government stakeholder in implementation as Political and Operational focal point of UN Environment conventions such as: UNCCD, UNBD, UNFCC and international water. Also involved in implementing Bonn Challenge on which it is engaged to restore 2 million ha of landscapes, so the project will contribute on achieving this target.
Ministry of Agriculture and Livestock (MINAGRIE)	Main executing partner of the project as a government focal point on food security and nutrition. It will host the project and make available government staff to the project at all levels. It will contribute co- finance to the project in kind: project office, staff as project assistant, others human resources required and support physical activities in the ground.
Ministry of Human Rights, Social Affairs and Gender (MHRAG)	Key government stakeholder in implementation, which will highlight gender issues.
Burundian Office for the Protection of the Environment (OBPE)	Key government partner in implementation as specialized in natural resources management (NRM): soil, forestry, biodiversity and water.
Directorate General of Spatial Planning and Protection of Property Assets of MEEATU	For planning and land use, also renewable energy.
Ministry of Interior and Patriotic Education (Moi)	Key government stakeholder in implementation. Ministry intervenes through the decentralized communities organized into Communal Community Development Committees (CCDC) and Local Development Committees at the Cell. These elected bodies have the responsibility to take charge and control the local management in a transparent and participatory manner, including rational management of natural resources.
Ministry of Finance the Budget and of Privatisation (MF)	Ensures the mobilization of financial resources of the state both inside and outside, as well as the scheduling of all state spending. This Ministry will contribute to co-financing the project through the Annual Ministry of Agriculture budget.
Agriculture Sector and Rural Development Group (GSARD)	The main inter-sectoral body at the national and provincial level. GSADR is a national platform which provides a framework for technical discussions and support guidance to the sectors concerned (agriculture, environment, rural development) and should ensure that its activities contribute to the effective implementation of priority actions of the National Agricultural Investment Plan (NAIP). These multi-stakeholder and multidisciplinary platforms will provide the project with an opportunity to harmonize and ensure integrated landscape management.
National Aid Coordination Committee (CNCA)	CNCA provides the monitoring and evaluation for the strategic framework for growth and fight against poverty (CSLPII) and production related analysis. The project data will be transferred to the CNCA in order to evaluate the project's contribution to the CSLP II.
National Environment Commission (CNE)	Role in project to be decided
National Platform on Risk Prevention and Disaster Management (PNPRGC)	Key multi-stakeholder and multidisciplinary group involved in coordination, implementation and support for programs and actions related to the prevention of risks and disasters. This organization is present at national, provincial and communal level. This platform will contribute to the implementation of the project.
Institut Géographique du Burundi (IGEBU)	Key government partner in implementation: producing maps, hydrological monitoring at watersheds level, collecting and publishing data related to the impacts of SLM on improving water quality.

Stakeholder Institution/Entity	Relevant roles/responsibilities related to the project implementation
Institut des Sciences Agronomiques du Burundi (ISABU)	Key government partner in implementation: source / supplier of improved seeds, agrobiodiversity, innovative technologies on increasing food and fodder production, integrated soil fertility
University of Burundi	Key institution partner in implementation: monitoring and assessment, analysis of cost and benefits of the project interventions by using students etc.
Provincial Authorities	Main decentralized government authorities, which will play a role in facilitating the project implementation.
Local communities	The main beneficiaries of the project, including men, women, youth and children.
Local community groups / associations / committees	<p><i>Farmer field schools:</i> These are the main beneficiaries of the project and primary partners on the ground for capacity development through learning and adapting SLM technologies in crop, grazing and forest lands and thereby enhancing livelihoods and food security and nutrition.</p> <p><i>Other existing farmer groups:</i> they will be organised into producers associations and cooperatives around value chains depending on the various agroecosystem zones for improved food security and income.</p> <p><i>Watershed committees:</i> will be organized at catchment or small watershed level for land use planning and scaling up of SLM good practices at landscape level for enhanced ecosystem services</p> <p><i>Other relevant existing associations:</i> <i>inter alia</i> livestock keepers, water users associations, bee keepers, religious groups.</p>
Non-Governmental Organizations (NGOs) and civil society organizations (CSOs)	The project will collaborate with other organizations working in the food and agriculture/natural resource management sector both at national and local levels, to generate synergies where possible. These will include national service providers such as Vi-Agroforestry, and local SPs already in the target provinces such as ACORD, CAPAD, AVEDEC, ADISCO, ODAG, NBA, LCA, Dukingire Kibira, FCBN, IRAC, ODEB (Organization pour la Défense de l'Environnement), CONSEDI (Conseils pour le Développement Intégré), Réseau Burundi 2000+ .
International organizations	<p>The project will collaborate with other international organizations working in the food and agriculture/natural resource management sectors both at national and local levels, to generate synergies where possible. These will include agencies that are leading partner projects, notably IFAD, World Bank as well as others such as WFP, GIZ, Bioversity International, World Vision, etc.</p> <p>The IAP-FS regional hub activities and partners (<i>inter alia</i> IFAD, ICRAF, UNEP UNDP).</p>

1.3.4 Expected global environmental and adaptation benefits

By applying an integrated natural resources and landscape management approaches, also sustainable land management technologies at catchment scale, the project will reduce land resources degradation (soil, water, agrobiodiversity) in the targeted micro-catchments while improving sustainable agricultural productivity, supporting and restoring vital ecosystem services and enhancing resilience to climate change. By using the well-accepted farmer field school (FFS) extension approach, the project will support the wider uptake of locally adapted SLM-best technologies / practices and agro-ecological approaches that will restore healthy soils and make better use of water resources (increase soil organic matter, hence fertility and rainwater infiltration / storage) and agro-biodiversity on farm and at landscape level. The project will help to deliver the following global environmental benefits (GEBs):

- area under sustainable land management - 80,000 ha (including 49,921 ha through cofinancing project FFSs);
- increase in diversified crop land productivity – 20% of land users reporting increased in yields of key crops, associated trees and livestock and income from value chains (haricot beans/other pulses, vegetables and fruits)
- conservation and sustainable use of agro-biodiversity (genetic resources, species and habitat) – revival in growing *Colocasia esculenta* (taro), *Eleusine coracana* (finger millet), *Vigna unguiculata* (cowpea), *Cajanus cajan* (pigeon pea) – key neglected / orphan crops across intervention area.
- the project will generate carbon benefits by increasing the amount of biomass, soil organic carbon and the tree cover in project area. The direct benefits (over a duration of 5 years) are as follows: on-farm (increase in biomass/agri. crops): 28,213t CO₂ eq avoided, on-farm (increase of tree cover): 97,920t CO₂ eq avoided. The indirect benefits (over a capitalisation phase of 15 years) are: on-farm (increase in biomass/agri. crops): 564,266t CO₂ eq avoided, on-farm (increase of tree cover): 1,958,407t CO₂ eq avoided. Annex 24 provides further details.

1.4 Lessons Learned

Key relevant lessons learned from recent projects implemented in SLM / INRM / agriculture in Burundi and more widely in SSA, which have been considered during the design of this IAP-FS project are summarised below.

TerrAfrica Strategic Investment Programme (TerrAfrica SIP)

SIP lessons demonstrate that landscapes may be the most appropriate geographic areas or territorial units for which SLM projects should be designed for on-the-ground implementation.

Rather than advocating one technology alone, or a small number of structural technologies, the SIP portfolio demonstrated that more success is achieved by using combinations of agronomic, structural and biological technologies; ideally blending technologies with both rapid and long-term paybacks, bringing “quick-wins” and also sustained benefit.

Blanket approaches and top down processes should be avoided; and local actors need to be empowered in decision making over their resources and territories through management plans and decentralized governance mechanisms

Where projects were successful in including pro-SLM measures in national level policies (and laws), the chance of post-project sustainability is much higher.

The prospects for sustainability at local levels are also favoured when projects have ensured that pro-SLM by-laws and other local regulations have been enacted and are enforceable.

Projects and programmes to scale-up SLM need to remain flexible, able to react to changes in context and priorities, from local to global level, and from the design stage and throughout implementation. For example, through promoting farmer innovation, availability of multi-purpose agro-environment funds, and mid-term reviews to validate and adapt the project work plan and budget.

Concerted efforts are needed to address social considerations and inequities, including gender and tenure security, and to build ownership at community level, including targeting and empowering women and identifying opportunities for youth.

Scaling up of SLM/INRM practices need to create a win-win-win situation whereby productivity and livelihoods are improved, while ecosystem services, such as cycling of water, biomass and nutrients, are enhanced. Scaling up of SLM/INRM should also be linked to post-harvest storage, processing, and access to markets and credit. Vulnerable groups should be targeted, especially women and youth.

Demand-driven participatory approaches have completely changed perspectives on advisory services, which have been transformed into services available to farmers according to their specific needs and

requests. Scaling up of SLM/INRM should be based on bottom-up approaches such as Farmer Field School, which clearly showed its advantages with respect to top-down approaches.

Public Private Collaboration and Partnerships especially through inclusive agribusiness business model involving smallholders have shown promise and their scaling up needs to be supported. In particular linking and providing funding to both efforts to enhance production and productivity while promoting resilience and sustainability as part of public and private partnership collaboration should be prioritized.

Communication and dissemination of results and knowledge products should receive more attention, and material should also be produced in local languages.

Transboundary Agro-ecosystem Management Project for the Kagera River Basin (Kagera TAMP)

The GEF/FAO Kagera TAMP (2010-2015) invested an estimated USD 1.5 M in Burundi and USD 1.5M at regional/basin level) (land degradation focal area). Through this, the GoB has effectively supported capacity building and planning for the wide adoption of proven SLM technologies and approaches in target catchments in five provinces (Muramvya, Mwaro, Gitega, Karuzi and Kirundo). The project supported the evaluation and mapping of land degradation (type, extent severity) and the extent and effectiveness of various SLM practices at national level. SLM practices were studied and validated by 40 farmer and agropastoral field schools and scaled up through enhanced extension support and catchment management plans in 14 watersheds covering 4,600 ha, including bye laws and conflict resolution. A protocol for participatory hydrological monitoring in upstream catchments was developed with IGEBU with a target catchment. SLM adoption was promoted through access to quality inputs (adapted seed varieties, compost making and seedling nurseries), enhanced marketing and storage facilities and identification of incentive measures (cash for work, training, knowledge management and assessing impacts on ecosystem services (carbon, water, biodiversity) and livelihoods (food, income). The improved adapted practices in the target provinces were evaluated and documented and are available in the global World Overview of Conservation Approaches and technologies (WOCAT) database for larger-scale adoption⁴⁴ and a book of case studies “SLM in practice in the Kagera basin” is in development with the other three beneficiary countries. Moreover, under the Kagera TAMP, the cross-border food security and horticulture projects FAO/GoB have generated complementary experiences and successes in farmer organisation for enhanced marketing, value addition through processing and off farm employment.

The Kagera project developed an SLM strategy and approaches to tackle the interlinked issues of human pressures on natural resources; poor management practices and limited capacities; the implications in terms of widespread and escalating land degradation; biodiversity loss; and vulnerability to climate change and food insecurity. The SLM strategy for integrated ecosystem management and enhanced food security and livelihoods that was validated by the project over the five years lifespan highlighted the importance of eight main actions (eight point strategy for future projects, such as the Burundi IAP-FS):

1. The farmer field school approach on sustainable land management (FFS-SLM approach) for building farmers capacity for integrated natural resources management for the maintenance of ecosystem services and food and livelihood security;
2. Participatory catchment diagnostic (using LADA Local tools) for informing community action planning and management- and local mechanisms such as catchment/watershed committees, stakeholder dialogue and negotiation for conflict resolution and FFS - catchment linkages for scaling up proven practices;
3. Demonstrating how SLM brings win-wins, contributing to climate change adaptation/building resilience and mitigation (carbon sequestration and reduced GHG), reducing land degradation (vegetation cover, erosion control, nutrient cycling, restoring soil organic matter), enhancing

⁴⁴ www.wocat.net

- agro-biodiversity (genetic resources, species, habitat), as well as socio-economic benefits/livelihoods (yield, income, nutrition and food security, resilience and risk);
4. Partnership and capacity development for improved support to farming and pastoral communities (1. Service providers; 2. Multi-sector SLM teams at local Government level);
 5. Leveraging of resources (micro-credit, income generating activities, small grants) and incentive mechanisms (PES, markets, etc.) for sustained actions and scaling-up;
 6. Documenting, assessing and sharing knowledge on SLM practices (tools and methods) including options and recommendations of SLM practices for specific land uses/agro-ecosystems in the basin [soil and water conservation on steep lands; crop-livestock-tree integration for food, energy and resilience (agro-silvo-pastoral systems); regenerating healthy rangelands systems through grazing and livestock management, protecting river and lake margins];
 7. Cross border diagnostics and collaboration for conflict resolution and management of transboundary issues (erosion-sedimentation, livestock movements, pest and disease outbreaks, etc.);
 8. Integration of SLM into policies, planning and legislation at local, district/province and national levels through creation of multi-sector national SLM teams, synergy and partnerships with other projects and programmes (LVEMP, NBI, TerrAfrica, etc.) mainstreaming SLM into plans and budgets and implementing food and agricultural strategies, Rio conventions, etc.

FAO Sustainable food and agriculture (MAW) project (2015 - 2016), with 300,000 USD funding from the Belgium Cooperation via FAO, the project operated in the Province of Mwaro as an extension of the Kagera TAMP interventions for sustainable land management, capacity building for cooperatives and continuing support for the new FFSs created by Kagera TAMP. Specifically, it supported producers in: integrated watershed management; promotion of small livestock to improve food and nutrition security including dissemination of goats (particularly improved breed of goats), pigs and chickens; installation of integrated fish ponds; input supply; fodder supply; diversification and improvement of horticulture; strengthening market gardening; school micro-gardens; and promoting growing mushrooms.

World Bank Lake Victoria Environmental Management Project (LVEMP II) (Feb 2012 – June 2017)

LVEMP II is an initiative of the States of the East African Community funded by the World Bank. The project aims to contribute to improving the joint management of transboundary natural resources of Lake Victoria basin among the partner states. Specifically, it aims to harmonise the shared resource management policies in the Lake Victoria Basin, fight against point source pollution and support integrated management watershed. In Burundi, with a budget of US\$ 15 million LVEMP II activities are conducted in the identified watersheds Ruvyironza River in the Province of Gitega and Mwaro and Karuzi in Ruvubu. They are also carried out on Lake Rweru (Kirundo Province), focusing on the removal of water hyacinth and protection of its buffer zone.

The four project components are:

5. Strengthening the institutional capacity for joint management of water and fishing resources
6. Monitoring and forecasting of point source pollution
7. Watershed management
8. Coordination and project management

Apart from other actions, LVEMP II is continuing the approach developed by the Kagera TAMP Project (FAO), supporting contour bench terraces, setting-up a 5 metre wide *Pennisetum* and bamboo buffer along rivers and wetlands, agroforestry with fruit trees and native drought resistant species.

The project organise field visits for members of parliament, an activity which is considered to be highly important to raise awareness of the actions of communities through this project.

PRODEFI

PRODEFI I and II have successfully been working with a wide range of CBOs to implement the two stages of this highly ambitious investment project, including: seed banks; farmers'/ fisherfolk group; listening clubs; FFSs; cooperatives/ producers' organizations; traders' association/ business groups; professional association; trade unions; credit/finance groups; water/waste groups; neighbourhood/village associations; a wide range of groups (civic / religious / political/ youth / women's / parents / sports); cultural associations; also school and health committees.

However, these projects do not include:

- any activities to catalyse inter-sectoral co-ordination;
- actions to improve co-ordination upstream-downstream in catchment;
- linking watershed committees to Ministry of Water structures and processes;
- restoration of degraded areas and to decrease/prevent LD (across sites, catchments and landscapes);
- crop diversification (e.g. legumes) and links to range of other crop value chains.

Thus the IAP-FS-FS project has been designed to complement PRODEFI by filling these gaps.

PRODEMA (World Bank)

This project includes promoting the livelihoods of Batwa communities by providing goats, small grants on crops such as sweet potatoes and cassava. Many houses have been also built in order to improve their well-being. The Batwa HHs were organized in associations. As this project worked in Mwaro and Muramvya in some cases in the same catchment with IAP-FS Food Security, this project will capitalize lessons learnt and Batwa community will also be integrated in FFS groups around value chains.

The most important lesson for the IAP-FS-FS project is that PRODEMA specifically contracted a consultant who prepared a detailed report "Cadre de planification en faveur des populations autochtones (CPPA) dans la plaine de la Rusizi et le long du Lac Tanganyika" (Planning Framework for Indigenous People in Rusizi Plan and along Lake Tanganyika) (Jan. 2016) to ensure the Batwa were fully integrated and benefit from the project. As the first priority activity of Output 2.1.2, this project will negotiate "Free, Prior and Informed Consent" (FPIC) with Batwa in intervention areas, to catalyse continuing close working with them to ensure that they are effectively involved and benefiting fully from the project.

Farmer Field School (FFS) Approach (L'approche Champ-Ecole-Paysan/Producteurs - CEP)⁴⁵

The FFS approach was introduced in Burundi in 2008 by IFAD with technical and methodological support of FAO, as many players use FFS CEP approach but in a very diverse and uncoordinated manner.

The main actors involved in using the FFS approach are projects and programmes of both FAO (Kagera TAMP) and IFAD projects and programmes (PRODEFI, PARSE, PAIVA-B and PAIOSA, PTRPC and PRODEMA). FAO and PARSE use the same methodology; PRODEFI, PAIVA-B, PTRPC, PRODEMA and PAIOSA have their own methodologies.

Among the strengths identified include:

- Existence of school field facilitators and expanded outreach in human resources;
- Exposure and experience in FFS across the country;
- Existence of producer organizations and dynamic agri-breeders, open to innovation, and interested in the FFS approach;
- Thematic richness of FFS supported projects that provide beneficiaries with learning about diverse issues and favor strengthening value chains of various agricultural and agro-industries;

⁴⁵ Source : GoB (2015b)

- Various donors have experimented with the approach CEP Burundi and a diverse portfolio ensures the long-term perspective required to achieve the full potential of the approach and contributes to its sustainability;
- Growing involvement in research. Research is involved in a restructuring to better meet the needs of crop farmers through: its presence on the ground and close to the livestock farmers, its availability to the FFS approach, its ongoing collaboration including three levels (training of master-trainers, curriculum development, joint research with producers), also its ability to contribute to the M & E and advocacy;

Reported weaknesses include the following:

- The duration of training for facilitators has been too limited in time for the development of a group of skilled facilitators. In Burundi, training for facilitators typically last 2 to 3 weeks for external facilitators and 1 to 2 weeks for internal facilitators, which does not guarantee proper control of all of the underlying principles and practices of the FFSs;
- The "cascade" training model noted in several projects carries the risk of impairment of the quality of training in cases where the external facilitators themselves have only received a short training;
- Surface treatment lessons: Technical subjects are treated as mini-lessons or even simple statements made by experts, instead of being addressed using the precepts of non-formal education;
- Low or no operational and technical documentation;
- Deficiency in numbers of Master Trainers in the country: Burundi has 9 including three Master Trainers who work in FAO, one for PRODEMA, two in the state sector, two working for NGOs and one independent consultant.
- Very limited involvement of technical services of the state at the central level and in the provinces (DGMAVA, ISABU and SEAD) in the implementation of the FFSs;
- The budgets for the training of facilitators and training producers are too limited to achieve quality results;
- Lack of attention to the sustainability strategy of the FFS activities.
- A weak bond between research and extension. The FFSs currently suffer from a lack of transmission of research results in terms of potential solutions to propose and compare with farmers' practices. For its part, the research finds it difficult to know and approach the challenges experienced by agri-producers;
- Limited resources are allocated to state services. The frames of DPAE find it difficult to make field visits to monitor and supervise facilitators in the establishment and conduct of FFSs, therefore, ownership of the FFS approach in the cadres of MINAGRIE is limited;
- A weak monitoring mechanism / evaluation and measurement of the impact of various FFS initiatives.

Elements of the Harmonisation Strategy

In order to harmonize the FFS approach, FAO, IFAD and the Government of Burundi have just developed a strategy for harmonizing the approach (GoB, 2015b). The harmonization strategy paper is based on the following areas:

- ❖ Institutionalization of FFS approach;
- ❖ Strengthening the capacity of actors;
- ❖ Availability of reference material on the FFS;
- ❖ Mechanisms to ensure sustainability of FFS activities.

The scheme's strategy should be implemented based on the following steps:

- ❖ Clarification of roles and responsibilities of different actors constituted by the research structures, extension, civil society organizations and the producer organizations;
- ❖ Defining the roles and responsibilities of different departments and DPAE services;

- ❖ The definition of mechanisms for coordination, consultation and monitoring and evaluation, flexible and effective;
- ❖ The training programme development for technicians and producers that meet the quality standards of field schools;
- ❖ Creating a network to support the implementation of the strategy;
- ❖ Provide a well-trained network for the supervision and implementation of FFS activities;
- ❖ Ensure good communication between the different actors involved in the implementation of the FFS with the holding of quarterly coordination meetings;
- ❖ Assist the implementation of the synergies involved between projects and programmes in the provinces;
- ❖ Participate in monitoring and evaluation missions of the PRC;
- ❖ Ensure the implementation of the guidelines on MINAGRIE FFS.

Support mechanisms for the implementation of the Strategy are available and are based on:

- ❖ the support of research through the establishment of regional committees and
- ❖ the development of a communication strategy to support the implementation of the strategy and make visible results.

One Acre Fund/Tubura (2012- present) is an international NGO which aims to support small farmers to become more prosperous. By 2014, One Acre Fund had already served more than 200,000 households in Kenya, Rwanda, Burundi and Tanzania. The NGO supported more than 27,000 households in Burundi during the first season crop in 2015 (17,953 in Muramvya, 6,152 in Gitega, 2,804 in Kayanza and 897 in Mwaro). The services provided by the NGO Tubura (the name for One Acre Fund in Burundi) include distribution of agricultural inputs, the financing of these inputs on credit, also training in sustainable agriculture. Moreover, the NGO offers other services such as the acquisition of solar lamps to minimize expenses related to energy, the acquisition of fruit and agroforestry trees, the acquisition of coffee inputs, the acquisition of improved cook stoves and the promotion of family planning.

As part of the anti-erosion measures, the NGO educates households on the importance of the fight against erosion through various training and the establishment of anti-erosive devices (constructing erosion control hedges and in the establishment of forage crops).

Relationship between farm size and productivity in Burundi

The conclusions from a recent detailed analysis of the relationship between farm productivity and farm size using a unique dataset from northern Burundi (Verschelde *et al*, 2013)⁴⁶ are considered pertinent for the project's targeting strategy.

The authors noted increased inequality in access to land, which results in an increased number of very, very small-scale farms (smaller than 0.5 ha). However, the authors "*could not reject the findings of an inverse relationship between farm size and productivity*" – candidly, the authors found that productivity increased with decreasing farm size. They found that yield (measured as the value of output per cultivated ha), was three times larger for the smallest quartile compared with the largest quartile. A range of reasons contribute to this overall conclusion. Notably, the analysis found that farm size, production strategy, crop productivity and farm production may be related, although not all effects tend in the same direction. "*Large farms show somewhat different land-use patterns compared with small farms. Larger farms tend to allocate a larger share of their total farm area to other non-production activities such as forestry and fallow land, whereas small farms use most of their land rather*

⁴⁶ Household data on farm activities were gathered in 2007 from two provinces in the north of Burundi. Ten villages were selected in each of the 16 municipalities of the two provinces (nine in Ngozi Province and seven in Muyinga Province), based on geographical distribution. [Average farm sizes 1.1 ha/hh; cultivated land 0.9 ha/hh; cultivated land/person 0.2 ha]

intensively for staple food production. As regards household food crops, small farms use a larger proportion of their total area for banana production, whereas large farms use relatively more land for beans.”

There were found to be many similarities between small and large⁴⁷ farms, including:

- share of production area dedicated to cash crops (i.e. coffee production);
- farm proportions dedicated to other important crops (notably tubers and cereals);
- agro-chemicals (fertiliser and pesticides) are used with the same, generally very low, intensity on both small and large farms.

However, the authors noted “*significant differences in farming practices and production methods*” noted between small and “*large*” farms, which also lead to differences in productivity.

Some significant differences identified included:

- crop diversification, which seemed to be greater on larger farms, making them less prone to crop failure risk compared with smaller less diversified farms; [Not considered to be an issue in the intervention areas – where land users seem to grow a very diverse range of crops.]
- allocation of labour seems to be closely related to farm size with larger farms allocating more family labour and spending more on hired labour;
- level of labour use per ha is significantly greater for smaller farms reflecting more family labour per ha;
- investments in agricultural production (i.e. on seed, agricultural material and chemicals) increases significantly with increasing production area, although smaller farms spend significantly more money per ha on seed and agricultural material [The cost of seed /ha for the lowest quartile is almost five times that of the highest quartile. Indivisibility of agricultural material, the lack of seed reserves as a result of severe food insecurity, and more intensive use of material and seeds to make maximum use of the very small production area are possible explanations for this finding.]
- likelihood of using chemicals is greater on larger farms;
- likelihood of using specific soil improving techniques (manure, compost, mulching) is greater on larger farms.

Although as discussed above small-scale farming can be optimal from a productivity viewpoint, from a food security viewpoint, it can be seriously problematic. Verschede *et al* (2013) found that there was “*a positive association between food security and farm size*” and thus “*smaller ones are characterized by (severe) food insecurity*”.

Two lessons are concluded from the above for very specific targeting of project interventions⁴⁸:

- ✓ for beneficiaries with access to “*large*” land areas – focus on increasing crop yields per ha (already proved possible on smaller farms);
- ✓ for beneficiaries with access to only small or very small land areas – focus on improving food security (e.g. goats / chickens for work; fish ponds; improved crop storage).

1.5 Strategic Alignment

1.5.1 Consistency with national development goals and policies

The project has been developed to be aligned to all relevant national development goals and policies, particularly:

Growth and Poverty Reduction Strategy Paper (2012)

The Government recognizes that for many years, Burundi has accelerated environmental degradation that has already resulted in the deterioration of livelihoods and lower production capacity, particularly

⁴⁷ Note – this is large in terms of Burundi - still on less than 1.5 ha (in 2007)

⁴⁸ In addition to other project interventions (*inter alia* FFSs, co-operatives, improved seeds / planting materials)

in the agricultural sector. With regards to the agriculture sector, the objective is to reduce its vulnerability to shocks and to boost its profitability. Agriculture development priorities include improving access to inputs, restoring forest cover, rebuilding livestock herds, introducing drought-tolerant crop varieties and supporting agricultural research and extension activities.

Burundi Vision 2025

Identifies the preservation of the environment and climate change as major priorities and attempts to deepen the link between poverty reduction and environmental conservation.

Vision of the Agricultural Sector

With an economy dependent on agriculture, investment in the sector is crucial. The government has made agriculture a priority, committing to increase spending on agriculture to at least 10% of the national budget as per the Maputo Declaration.

The vision includes have to transform from subsistence farming to family and commercial agriculture, ensuring a decent income for households based on environmentally sound and good resource management. This agriculture will be practiced on farms whose average size will reach 1 ha farm, compared to 0.5 ha⁴⁹ and whose soils have regained fertility sufficient to enable returns that are comparable to the best African performance. Farmers who participate in these profound changes will be organized with the support of the necessary technically qualified operators to carry out the mission of the agricultural sector ".

National Agricultural Strategy (2007-2015) – published in 2008

In the area of sustainable management of natural resources and land in particular, the National Agricultural Strategy 2007-2015 undertakes to work to combat land degradation through various activities, including:

- the adoption of integration crop-tree-livestock integration techniques in order to maximize productivity per unit area and per livestock unit by practiced good practices such as agroforestry, permanent stabling of animals, intercropping;
- restoration of soil fertility through an intensive programme of erosion control;
- corrective action on soil acidity and aluminum toxicity;
- controlling composting techniques.

Investment Strategy and Plan of Engagement for Financial Resources to Combat Desertification

Strategic Axis 1: Improving the enabling framework which aims to promote a planned and rational land use. Through this axis, pursuing the objectives are:

- integration of SLM into national policies, plans and programmes;
- strengthening of the coordination mechanism, capacity building of stakeholders SLM strengthening the monitoring system of desertification / land degradation;
- strengthening regional integration in the fight against desertification / land degradation.

Strategic Axis 2: Restoring and maintaining soil productivity and other ecosystem goods and services.

The selected objectives are:

- improving the fertility of agricultural soils;
- improvement of ecological conditions in areas of degradation;
- implementation of a land reform process of securing small farms.

Strategic Axis 3: Capacity building for sustainable land management. Assuming that the DGT requires competent human resources and operational institutions, the objectives for this axis are based on institutional capacity building and community capacity for land management.

Strategic Axis 4: Introduction of a financial mechanism for land management. Noting that the budget funding for SLM is still low, the chosen objectives are:

⁴⁹ Present average

- mobilization of internal financing resources;
- mobilization of external financing resources;
- mobilization of innovative financing resources.

National Adaptation Plan of Action to Climate Change (NAPA, 2007)

Burundi's NAPA identifies limited human and financial resources and inadequate institutional framework as the main obstacles to the fight against climate change. The IAP-FS project will contribute to supporting GoB to address these through investment in capacity building of human resources at all levels (*inter alia* land users, FFS members, provincial . national GoB technical staff) including awareness of the opportunities and indeed the necessity for wide adoption of SLM to adapt to climate change and reduce vulnerability.

The project will also contribute to all three of the strategic objectives in the NAPA to cope with the negative impacts of climate change, namely:

- Strengthen the institutional framework for addressing environmental and climate issues in sectoral programmes (agriculture, water, forestry, energy and rural development);
- Ensure a better knowledge and information sharing on the scientific, technical and economic impacts, vulnerability and options for adaptation to climate change;
- Integrating climate change into national policy for economic development and the fight against poverty;

Furthermore, the project will catalyse scaling-up of specific adaptation measures in some of the "most vulnerable sectors" identified in the NAPA (agriculture and livestock, wetland ecosystems, terrestrial ecosystems and landscapes including reducing deforestation and energy saving measures).

1.5.2 Consistency with national communications and reports to the United Nations Conventions

The project is consistent with the National action plan for implementation of the **United Nations Convention to Combat Desertification** (UNCCD) (2011), as elements of the strategy include:

- ✓ Burundi would reverse the land degradation trend and lead the whole Burundian community to undertake an effective and efficient concrete and lasting actions against land degradation;
- ✓ All segments of the population and strengthened commitment to take concrete action for protection and rational use of land for the well-being of present and future generations;
- ✓ to operationalize the UNCCD NAP a horizontal coordination structure of stakeholders in land management.

The project addresses some of the constrains and contributes to the new strategy in the National Strategy and Action Plan on Biodiversity 2013-2020 to the **Convention on Biological Diversity** (specifically concerning agrobiodiversity).

According to MEEATU in 2013, the major constraints to biodiversity are:

- ✓ low level of awareness for biodiversity conservation and sustainable use of biological resources;
- ✓ lack of tools and techniques to reduce pressures on the biodiversity;
- ✓ low level of overall representative safeguarding ecosystems, species and genes of the country;
- ✓ ignorance and low valuations of the benefits of biodiversity and the services provided by ecosystems;
- ✓ lack of a planning framework participatory, knowledge and capacity management.

The strategy on biodiversity is in line with the Aichi targets and is based on the following strategic areas:

- ✓ Managing the underlying causes of biodiversity loss through the involvement and commitment of all stakeholders at all levels;

- ✓ Reduction of direct pressures on biodiversity and biological resources;
- ✓ Improving the status of biodiversity by safeguarding ecosystems, species and genetic diversity;
- ✓ Valuation of the benefits of biodiversity and the services provided by ecosystems;
- ✓ Strengthening implementation through participatory planning, knowledge management and capacity building.

The project is also consistent with the Second National Communication to the **United Nations Framework Convention on Climate Change** and the Intended Nationally Determined Contributions (INDCs) (*September 2015*). Concerning adaptation to climate change, Burundi aims to strengthen its ability to cope with the adverse impacts of climate variability and change in the most vulnerable socio-economic sectors while ensuring sustainable development of its population. Thus, the adaptation plan and INDCs include the following strategic objectives:

- Strengthen the institutional framework for addressing environmental issues in sectoral programmes;
- Ensure better understanding and sharing of information on the scientific, technical and economic impacts, vulnerability and adaptation to climate change;
- Integrating climate change into national policy of economic development and fight against poverty;
- Run specific adaptation measures in the most vulnerable sectors such as water resources, energy, agriculture and livestock, wetlands and terrestrial ecosystems, landscapes and the health sector.

Burundi’s INDCs are aligned with and build on the NAP. Moreover, in line with Article 4 paragraph 2 of the Paris Agreement, Burundi has committed to prepare, communicate and maintain successive Nationally Determined Contributions (NDCs) that it intends to achieve through domestic mitigation measures and with financial support of donors. The IAP-FS could contribute to some of the programme areas identified by the GoB for implementation, subject to funding, as outlined in Table 15.

Table 15: Extract of National Strategy and Action Plan on Climate Change (GoB, 2012)

Programme	Components
Climate risk adaptation and management	<ul style="list-style-type: none"> ➤ Integrated water resources management by a small hydrological unit ➤ Protection of aquatic and land-based ecosystems ➤ Coaching of the population to develop their resilience to climate change ➤ Research on the vulnerability and adaptation of socio-economic sectors to climate change ➤ Establishment of functional monitoring and evaluation mechanisms for climate change, as well as knowledge management and information mechanisms ➤ Research and extension of drought-resistant forest species
Mitigation of greenhouse gas emissions and low carbon developments	<ul style="list-style-type: none"> ➤ Distribution and dissemination of improved ovens

The objectives of the IAP-FS are also fully in line with the **Sustainable Development Goals (SDGs)**, adopted by the UN General Assembly in September 2015. Due to its integrated nature, the IAP-FS will make a significant contribution towards achieving a number of SDGs in Burundi, in particular: SDG1: End poverty in all its forms everywhere; SDG2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture; SDG15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss – the IAP-FS will contribute to a wide range of targets under this

SDG pertaining to reduction of desertification and land degradation as well as biodiversity loss, and sustainable use and management of ecosystems. Finally, the IAP-FS, through its approach of using multi-stakeholder platforms to strengthen policy and institutional frameworks and to scale up good practices in integrated management of ecosystems, will also contribute to SDG17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

1.5.3 Consistency with GEF focal areas

This project is consistent with two GEF focal areas, namely land degradation and biodiversity. The project contributes to achieving the following focal area key results and indicators:

LD-1 - Agricultural and Rangeland Systems - Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods

Programme 1: Agro-ecological intensification

Programme 2: SLM for climate-smart agriculture

LD3 - Integrated landscapes - Reduce pressures on natural resources from competing land uses in the wider landscape Integrated landscapes

Programme 4: Scaling-up sustainable land management through the landscape approach

LD-4: Maximizing transformational impact: Maintain land resources and agro-ecosystem services through mainstreaming at scale

Programme 5: Mainstreaming SLM in development

BD-4 - Mainstream biodiversity conservation and sustainable use into production landscapes and seascapes and production sectors

Program 9: Managing the human-biodiversity interface.

Table 16: Links between IAP-FS Project, GEF Focal Areas Objectives / Programmes, Project Outputs and Sustainable Development Goals⁵⁰ (SDGs)

Focal Area Objective	Programme and SDGs	Focal Area Expected Outcomes and Indicators	Indicator(s)	Contributing Project Outputs
LD-1: Agricultural and Rangeland Systems -Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods	Programme 1: Agro-ecological intensification Programme 2: SLM for climate-smart agriculture SDG 1 SDG 2 SDG 15	Outcome 1.1: Improved agricultural, rangeland and pastoral management Outcome 1.2: Functionality and cover of agro-ecosystems maintained	Indicator 1.1 Land area under effective agricultural, rangeland and pastoral management practices and/or supporting climate-smart agriculture Indicator 1.2: Land area under effective management in production systems with improved vegetative cover	2.1.1 2.1.2 2.1.3 2.1.4 2.1.5
LD-3: Integrated landscapes - Reduce pressures on natural resources from competing land	Programme 4: Scaling-up sustainable land management through the	Outcome 3.1: Support mechanisms for SLM in wider landscapes established	Indicator 3.1: Demonstration results strengthening cross-sector integration of SLM	1.1.1 1.1.2 1.1.3 1.1.4 1.1.5 2.1.1

⁵⁰ Sustainable Development Goals (SDGs): 1 –no poverty ; 2-end hunger; 15-life on land

Focal Area Objective	Programme and SDGs	Focal Area Expected Outcomes and Indicators	Indicator(s)	Contributing Project Outputs
uses in the wider landscape	landscape approach SDG 1 SDG 2 SDG 15	Outcome 3.2: Integrated landscape management practices adopted by local communities based on gender sensitive needs.	Indicator 3.2: Application of integrated natural resource management (INRM) practices in wider landscapes	2.1.2 2.1.3 2.1.4 2.1.5
LD-4: Maximizing transformational impact: Maintain land resources and agro-ecosystem services through mainstreaming at scale	Programme 5: Mainstreaming SLM in development SDG 1 SDG 2 SDG 15	Outcome 4.2: Innovative mechanisms for multi-stakeholder planning and investments in SLM at scale	Indicator 4.2: Innovative mechanisms, institutions, legal and regulatory frameworks functioning to support SLM	1.1.1 1.1.2 1.1.3 1.1.4 1.1.5 2.1.1 2.1.2 2.1.3 2.1.4 2.1.5
BD-4: Mainstream biodiversity conservation and sustainable use into production landscapes and seascapes and production sectors	Programme 9: Managing the human-biodiversity interface SDG 1 SDG 2 SDG 15	Outcome 9.1 Increased area of production landscapes and seascapes that integrate conservation and sustainable use of biodiversity into management.	Indicator 9.1 Production landscapes and seascapes that integrate biodiversity conservation and sustainable use into their management preferably demonstrated by meeting national or international third-party certification that incorporates biodiversity considerations (e.g. FSC, MSC) or supported by other objective data.	1.1.1 1.1.2 1.1.3 1.1.4 1.1.5 2.1.1 2.1.2 2.1.3 2.1.4 2.1.5

1.5.4 Consistency with FAO's Strategic Framework and Objectives⁵¹

The project will directly contribute to FAO's Strategic objective SO2 "Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner" in particular the major areas of work on "Sustainable food and agriculture" (SFA) and on "Ecosystems services and biodiversity" (ESB) and the work stream on promoting Integrated landscape management (ILM).

Through capacity development for adapted, more reliable and diverse production systems and linking to value chains, it will also contribute to:

SO5 "increase the resilience of livelihoods to threats and crises" through reducing vulnerability to drought and other impacts of climate change.

SO4 "Enable Inclusive and efficient agricultural and food systems"

⁵¹ Based on <http://www.fao.org/burundi/programmes-et-projets/en/>

The project will indirectly contribute to SO1: eradication of hunger, food insecurity and malnutrition.

This project is specifically well aligned with the four main themes of the FAO country programming framework (CPF) in Burundi, which arise from the mandate of the organization, which is primarily to provide technical assistance to member countries in the agriculture, livestock, forestry, fisheries and the environment.

The project meets all four axes of the Burundi Country Programme Framework namely: (i) capacity building of Agricultural Producers Organizers; (ii) natural resource management; (iii) management and use of information; (iv) strategic planning and coordination.

In terms of professionalisation and intensification of agriculture, the project contributes to: strengthening the technical and organizational capacities of Agricultural Producers Organizations (OPA), the adoption of good practices of production and consumption of agricultural products, livestock and fisheries in respect of gender and the adoption of competitive value chains at the national and regional level and profitable for producers and the private sector.

As regards sustainable NRM, the project is will directly contribute where FAO has set itself the objective to support the Government in the introduction and appropriation by the population of technical and technological innovations to improve production and productivity in natural resources management by adopting innovative practices of use, conservation, protection and ecosystem rehabilitation in accordance with the legislative framework.

With regard to the management and use of information and agricultural statistics for decision making among the agriculture sector actors, livestock, environment, food security and nutrition, the project will enable the achievement of results for the collection, processing and publication of reliable data available to the communities and producers of relevant information for decision making.

Regarding the strategic planning and coordination, the project will help strengthen planning and coordination capacities at all levels.

The project is also well aligned with FAO's two Regional Initiatives for Africa and provides opportunities for linkage through the IAP-FS regional hub project for lessons learned from RI priority countries:

- Africa's Commitment to End Hunger by 2025 (RI1);
- Sustainable Production Intensification and Value Chain Development in Africa (RI2).

SECTION 2 – FEASIBILITY

2.1 Environmental Impact Evaluation

Annex 6 provides a full environmental and social screening of the project. Below is short summary of potential risks for unintended environmental and social impacts for each project outcome.

The project will undertake monitoring and evaluation (M&E) at the site and provincial levels and in terms of national policy and decision making results. This will include full monitoring of ecological, social and economic variables resulting from SLM/INRM and value chain activities. The project will develop and implement participatory monitoring, results of which will be disseminated upwards to national stakeholders through the project steering committee members and project reports to inform decision-making. Overall, this will support national capacity to monitor environmental and social impacts of integrated natural resources management and value chain activities.

2.2 Risk Management

Project risks have been identified and analyzed during the preparation phase and mitigation measures have been incorporated into the design of the project (see the Risk Matrix in Annex 5, also Annex 7). With FAO support and supervision, the Project Steering Committee will be responsible for the management of such risks as well as the effective implementation of mitigation measures. A

Monitoring and Assessment (M&A) System will serve to monitor performance indicators and outputs, project risks and mitigation measures. The Project Steering Committee will also be responsible for monitoring the effectiveness of mitigation measures and adjusting mitigation strategies as needed, and to identify and manage any new risks that were not identified during the project's preparation, in collaboration with project partners.

The Project Progress Reports (PPR) (see sub-section 3.5.3) are the main instrument for monitoring and risk management. PPRs include a section covering the systematic monitoring of risks and mitigation actions that were identified in previous PPRs. PPRs also include a section to identify new risks or risks that have yet to be addressed, their classification and mitigation actions, as well as those responsible for the monitoring of such risks and their estimated deadlines. FAO will monitor the project's risk management closely and will follow up as needed, lending support for the adjustment and implementation of mitigation strategies. Reports on the monitoring of risks and their classification will also be part of the Annual Project Implementation Review (PIR) prepared by FAO and submitted to the GEF secretariat.

2.2.1 Risks and mitigation measures

Table 17 and Annex 5 summarise the risks that were identified and analyzed during the project's preparation phase, the probability of their occurrence and proposed mitigation measures.

Table 17: Project risks identified during the preparation phase and proposed mitigation measures

	Description of risk	Impact ⁵²	Probability of occurrence	Degree of incidence	Mitigation actions	Responsible party
1	Climate contingency risk: Drought- may be so severe that it threatens crop and livestock survival, thus curtailing the basis for development of value chains appropriate for food security.	ML: The technical practices related to SLM implemented by the project become ineffectual over the course of the project	ML	amber	The project will mitigate this risk by implementing SLM activities, watershed management and CCA&M policies and measures to strengthen pro-active and coordinated responses, as well as by initiating multi-stakeholder, community-based capacity-building initiatives (i.e. FFS). Appropriate partnerships and collaborations with on-going emergency/post-emergency initiatives and with governmental programmes regularly supporting crop health will improve responses to those risks.	Project Steering Committee (PSC)
2	Climate contingency risk: Floods – may be severe and threaten crops and livestock survival, also damaging links to markets	MH: The technical practices related to SLM implemented by the project become ineffectual over the course of the project Also, links to value chains could be disrupted	MH	amber	The project should work to improve catchment planning to reduce flood risk, including SLMs which enhance rainwater infiltration and water storage. Project to improve food storage facilities in rural areas. Co-financing project working to improve roads.	PCU Executing Partners
3	Social risks: Lack of social acceptance of introduced INRM/SLM tools and practices by the target groups will threaten the project's impact and sustainability.	H: This is will severely affect all the aspects of the project implementation and delivery at the ground level, especially given the community-driven nature of the project	L	green	Cultural values (e.g. linked to food preparation/preferences) and traditions (such as agricultural production methods) in a rural set-up hardly change. In order to ensure social acceptance by target groups and eventual wide-scale adoption of improved crops and INRM/SLM tools and practices, the project uses participatory	PCU Executing Partners

⁵² H: High; MH: Moderately High; ML: Moderately Low; L: Low

	Description of risk	Impact ⁵²	Probability of occurrence	Degree of incidence	Mitigation actions	Responsible party
					<p>approaches such as the FFS and HH-BAT to ensure that interventions meet, not only the norm of the social system, but also the different needs of women and men.</p> <p>Moreover, communities have been consulted during the preparation of the project and have expressed their interest and willingness to participate in the project activities.</p>	
4	<p>Institutional risk: Limited involvement and weak cross-ministerial cooperation between the two involved ministries.</p>	<p>H: The project activities will take place in a compartmentalized manner and the project results will be severely affected. The positive results generated by the project will not be sustainable either</p>	ML	green	<p>Introducing greater resilience and sustainability into food production systems will require stronger links between the environment and the agriculture sectors at all levels. The project is therefore designed with the view of strengthening cross-sectoral collaborations by establishing multi-sectoral policy and knowledge platforms (the Agriculture and Rural Development Group)⁴. Here the stakeholders' common interests, the project's multi-scale benefits (evidence based) and appropriate incentive mechanisms for each party's involvement will be identified and elaborated on. Activities will hence be designed and implemented in a win-win manner for all parties involved.</p> <p>The project's steering committee will also comprise of senior members from the partner government agencies ensuring constant</p>	FAO / PCU PSC

	Description of risk	Impact ⁵²	Probability of occurrence	Degree of incidence	Mitigation actions	Responsible party
					involvement and coordination.	
5	Political risk: reduction in political will and decrease in support from the government	MH: This could influence the institutional priorities and support, specifically from the main government counterpart's side. This will affect all aspects of the project delivery.	ML	amber	The government has fully backed the development of the project and high level participation was ensured both at the project preparation and validation workshops. The project through its PSC will constantly coordinate with high level policy makers to keep them appraised and maintain their support for the project.	PCU, PSC
6	Security issues	ML: Current insecurity issues could escalate	MH	amber/red	Project cannot mitigate	

SECTION 3 – IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

3.1 Institutional Arrangements

3.1.1 Roles and responsibilities of main institutions

As implementing and executing agency, FAO will be the GEF agency responsible for supervising, monitoring and providing technical backstopping during project implementation. FAO's role and responsibilities are described in Section 3.2.1 below. In addition to FAO as GEF agency, the project will have the following executing partners.

At the national level

The Ministry of Agriculture and Livestock (MINAGRIE) will be the lead government counterpart and coordinating agency in this project working in close collaboration with the Ministry of Water, Environment, Spatial and Urban Planning (MEEATU). The MINAGRIE will ensure good overall project implementation. To this end, a focal point and deputy political focal point will be appointed to regularly monitor the implementation of the Project. These two technical persons will come from the two ministries mentioned above (one from each). They will also play the interface between the Government and FAO. These institutions will be responsible for facilitating meetings and work of Project Steering Committee, Annual Work Plan and Budget review and approval, regular visits of interventions on the ground with project partners to guide the project team, approaches and alignment with national policy and strategies and ensure the project is making good progress, valuable products and impacts in line with project targets and indicators, and to contribute to mid-term review/ evaluation and project terminal evaluation. [See Figure 9]

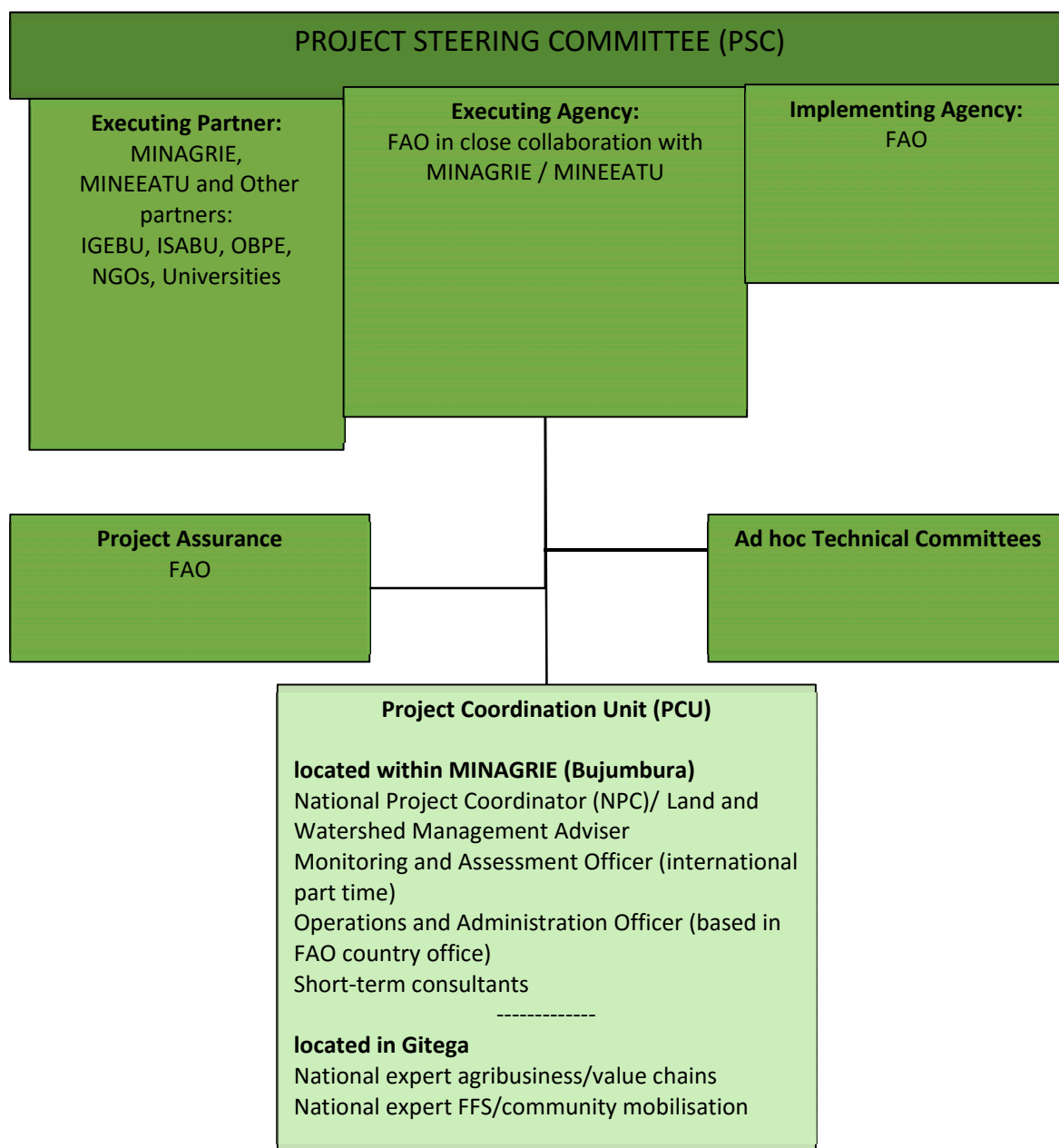


Figure 9: National level management / organisational structure of the project

At provincial level

The decentralized structures of the two leading ministries including Provincial Directorates of Agriculture and Livestock (DPAE) and the Burundi Office for the Protection of the Environment (OBPE) will be heavily involved at Executing Partners in the implementation of project. The Ministry of Agriculture and Livestock will also appoint a Provincial Facilitator (FPP) within each DPAE to support the project Coordination Unit (PCU) in following up on field interventions at Provincial level. At commune level, the project interventions will be supervised by the communal agronomist/Zonal Agronomist and report to Provincial Coordinator. Under communal agronomist, the FFS facilitators will be trained and after then participate on technical and organizational capacities building of FFS groups, cooperatives and watershed committees. Finally these two ministries will facilitate collaboration and synergies of the project activities

with those of other partners through multi-stakeholder and multi-sectoral platforms (Outcome 1.1). Figure 10 highlights the organizational structure of the project at local level.

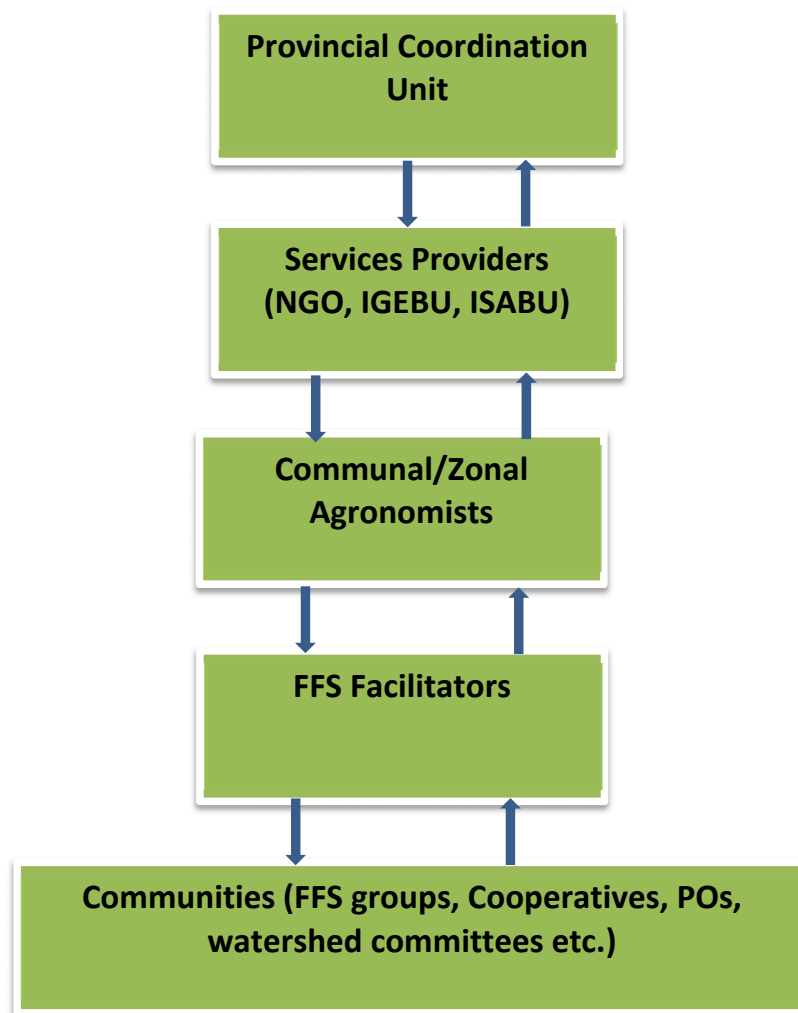


Figure 10: Organizational structure of the project at local level

The Project will also achieve a number of key outputs through letters of agreements (LoAs) that will be elaborated and signed between the FAO and collaborating partners (service providers). The LoAs will be administratively managed by the Budget Holder (FAO representative in Burundi). Funds received by the service providers under a LoA will be used to execute the project activities in conformity with FAO's rules and procedures. The respective LoAs are listed under the "Contracts" budget line of the project budget. Proposed and tentative partner institutions, with whom letters of agreement will be completed are summarized in Table 18. The responsibilities will be further elaborated and agreed through the project start-up activities, notably during the launch workshop and initial PSC meeting.

Table18: Executing Partners

Outcomes and Outputs	Partner institutions
OUTCOME 1.1: Multi-stakeholder and multi-scale platforms operational in supporting policy, institutional and knowledge sharing mechanisms for scaling out of sustainable agriculture systems and integrated natural resources management approaches.	
Output 1.1.1: Agriculture and Rural Development Sector Working Groups (GSADR) at national (1) and provincial (3) levels strengthened and watershed management committees and multi-year plans in place at project sites (9).	MINAGRIE, MEEATU, Ministry of Interior, Min of Communal development, Min. of Finance, DPAEs, TFPs (WB, IFAD, AfDB, Multi/bi lateral cooperation), NGOs, PCU
Output 1.1.2: Functioning multi-stakeholder knowledge sharing mechanism in place at national (1), provincial (3), and local (4) levels and promoting exchange of experiences and lessons learned (success and failure) on scaling out SLM /integrated natural resources/landscape management.	MINAGRIE, MEEATU, TFPs, FAO/PCU, ISABU, Universities, World Agroforestry, Bioversity International, PCU
Output 1.1.3: Legal and regulatory frameworks on SLM, sustainable use of agrobiodiversity and agricultural and environmental strategies and plans better known at national (1) and provincial level (1) and taken into account and applied in communal development plans and watershed management plans.	MINAGRIE, MEEATU, CNF, TFP, PCU
1.1.4: Community consultations through a participatory negotiated territorial development process (PNTD) and Free prior informed consent process (FPIC) conducted.	Ministry of Human Rights, Social Affairs and Gender (MHRG), Min of Communal development, DPAE, NGOs
1.1.5 National strategy for harmonisation of FFS-INRM operationalised in the 3 provinces with particular attention to resilient and sustainable food and agricultural systems	MINAGRIE, MEEATU, TFP, projects using FFS approach, PCU
OUTCOME 2.1: Increased land area and agro-ecosystems under integrated natural resources/ landscape management and SLM best practices and supported by sustainable value chains for increased production and sustainable livelihoods	
Output 2.1.1: Micro-watershed management plans developed and implemented (9) using combined appropriate SLM technologies and a harmonised INRM approach	DPAEs, FAO/PCU, TFPs
Output 2.1.2: FFS master trainers (25) and facilitators (100) trained on the job with 318 FFS groups and practicing on SLM/ INRM at farm and watershed scale, and national FFS curricula (1) updated.	MINAGRIE, MEEATU, DPAEs, PCU

Output 2.1.3: Network of (pre) cooperatives/producer organizations and FFS groups supported and demonstrating improved access to food value chains	MINAGRIE, MEEATU, DPAE, TFPs, PCU
Product 2.1.4 : An in situ seed bank system established and farmer-produced adapted varieties promoted as a basis for local food systems and improved nutrition	MINAGRIE, Bioversity International, NGOs
Output 2.1.5: Steep slopes and highly degraded areas rehabilitated through tree planting, with attention to indigenous species, to increase biodiversity, productivity and resilience and to reduce pressure on woody material.	MINAGRIE, MEEATU, DPAE, TFPs, PCU
OUTCOME 3: M&A framework in place and capacity of relevant institutions built capacitated in carrying-out monitoring activities and communicating experiences and impacts	
Output 3.1.1: Government staff and extension workers trained and able to use relevant M&A tools and approaches, also in archiving data	MINAGRIE, MEEATU, DPAE, PCU
Output 3.1.2: Pre-cooperatives and FFS groups trained and able to use participatory impact monitoring tools and approaches (HH-BAT, FFS PM&E, LADA local).	MINAGRIE, MEEATU, DPAE, PCU
3.1.3: Project results and experiences compiled, communicated widely and shared with the project regional hub and partner projects.	MINAGRIE, MEEATU, DPAE, PCU
3.1.4 Project progress reports prepared on time, mid and final evaluation conducted.	PCU in cooperation with relevant stakeholders

FAO and the executing partners will collaborate with the implementing agencies of other programs and projects in order to identify opportunities and mechanisms to facilitate synergies with other relevant GEF projects (see section 3.1.2), as well as projects supported by other donors. This collaboration will include: (i) informal communications between GEF agencies and other partners in implementing programs and projects; and (ii) exchange of information and outreach materials between projects.

3.1.2 Coordination with other initiatives

Relationship with other UN agencies programs and projects and technical partners

As the implementing agency FAO plays a fundamental technical role and coordination in line with its contribution to the GEF program for achieving global environmental benefits and other government commitment to environmental initiatives and development, such as TerrAfrica-Strategic Investment Programme, the implementation of the UN Convention to Combat Desertification (UNCCD) and the Comprehensive African Agriculture Development Programme (CAADP), the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). According to its mandate, FAO assists member countries and partners to develop and implement policies, strategies, programs and projects to improve food security, agriculture and sustainable rural development in the world and can draw on this wealth of experience and skills to support the integrated Pilot Project (IAP-FS) which focuses on integrated landscape management and strengthening value chains as a basis for improving the food security, nutritional status and livelihoods of communities living in the highlands of Burundi.

The FAO Land and Water Division, the lead technical unit (LTU) of the project, will contribute to "sustainable food and agriculture systems" and "sustainable management of natural resources" by providing the essential knowledge base for sustainable use of land and water resources through their efficient management, their development and their improved conservation, to increase local food security, reduce poverty and ensure a healthy environment in accordance with the objectives of sustainable development. Based on lessons learned in the context of the implementation of the GEF / FAO Kagera TAMP, the IAP-FS project intends to create conditions for improved food and nutrition security by supporting a multi-stakeholder process for the integrated management of watersheds and land resources planning all levels (community, municipality and province) and at the same time encouraging the adoption of sustainable land management practices on a large scale. This broad adoption will be possible through extension approaches and action-learning-research through the farmer field schools approach, also better access to markets for target produce value chains.

Linkages with other GEF projects

The project will collaborate with the GEF Small Grants Programme in Burundi, which is implemented by UNDP. The interventions of the programme take into account the management of natural resources (land, water and forest), food security and the livelihoods of communities. These links will be focused on the exchange of knowledge and know-how in integrated landscape management. The beneficiary communities will participate in the programmes of the platforms that will be organized within the targeted landscapes.

The project will ensure open and regular communication between it and the other ongoing GEF projects in Burundi, to share lessons learned and avoid duplication, which should be mutually beneficial. The relevant projects are summarised in Table 19.

Table 19: GEF projects in Burundi with which the IAP-FS will develop close interlinkages

GEF ID	Project Title	Synergies / focus of links	GEF Agency	Period
3701	Enhancing Climate Risk Management and Adaptation in Burundi (ECRAMB)	Links will be focused on the sharing of lessons learned and experience on improving the resilience of communities and the	AfDB	2013-2018

		integrated management approaches watershed.		
4631	Watershed Approach to Sustainable Coffee Production in Burundi	Aims to enhance, on an economic and sustainable basis, the productive capacity of small coffee growers	World Bank	2016-2022
4990	Community Disaster Risk Management in Burundi	Aims to sensitise communities to adopt measures to adapt to climate change, with information and training conducted regularly.	UNDP	2015 - 2019

Furthermore, the Burundi IAP-FS-FS will collaborate, share lessons and benefit from developing and maintain close links with the 11 other IAP-FS projects in SSA, also the umbrella / hub project. This will include participating in training and exchange visits, sharing knowledge and lessons learned.

3.2 Implementation Arrangements

3.2.1 FAO's roles and responsibilities

FAO's role in the project governance structure

FAO will be the GEF Implementing Agency of the Project as well as the financial and operational executing agency. As financial and operational executing agency, FAO will provide procurement services and financial management services for GEF resources. As the GEF Agency, FAO will supervise and provide technical guidance for the overall implementation of the project. The administration of GEF grants will be in accordance with FAO rules and procedures and in accordance with the agreement between FAO and the GEF Trustee. As the GEF agency for the project, FAO will:

- Administrate funds from GEF in accordance with the rules and procedures of FAO;
- Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers and the rules and procedures of FAO;
- Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;
- Conduct at least one supervision mission per year; and
- Report to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, on project progress and provide financial reports to the GEF Trustee.

At the request of the Government of Burundi, FAO will also be executing agency of GEF resources, including financial management, procurement of goods and contracting of services, according to FAO rules and procedures. As financial executor, FAO will provide to the Project Steering Committee semi-annual reports including a financial statement of project expenditures.

In accordance with the present Project Document and the AWP/B(s) approved by the PSC, FAO will prepare budget revisions to maintain the budget updated in the financial management system of FAO and will provide this information to the PSC to facilitate the planning and implementation of project activities. In collaboration with the PCU and the PSC, FAO will participate in the planning of contracting and procurement processes. FAO will process due payments for delivery of goods, services and products upon request of the PCU and based on the AWP/B and Procurement Plans that will be annually approved by the PSC.

FAO's roles in internal organization

The roles and responsibilities of FAO staff are regulated by the *FAO Guide to the Project Cycle, Quality for Results, 2015*, Annex 4: Roles and Responsibilities of the Project Task Force Members, and its updates.

The FAO Representative in Burundi will be the **Budget Holder** (BH) and will be responsible for the management of GEF resources. As a first step in the implementation of the project, the FAO Representation in Burundi will establish an interdisciplinary Project Task Force (PTF) within FAO, to guide the implementation of the project.

The PTF is a management and consultative body that integrate the necessary technical qualifications from the FAO relevant units to support the project. The PTF is composed of a Budget Holder, a Lead Technical Officer (LTO), the Funding Liaison Officer (FLO) and one or more technical officers based on FAO Headquarters (HQ Technical Officer).

In consultation with the LTO, the FAO Representative in Burundi will be responsible for timely operational, administrative and financial management of the GEF project resources, including in particular: (1) the acquisition of goods and contracting of services for the activities of the project, according to FAO's rules and procedures, in accordance with the approved AWP/B; (2) process the payments corresponding to delivery of goods, services and technical products in consultation with the PSC; (3) provide six-monthly financial reports including a statement of project expenditures to the PSC; and (4) at least once a year, or more frequently if required, prepare budget revisions for submission to the FAO-GEF Coordination Unit through the Field Programme Management Information System (FPMIS) of FAO.

The FAO Representative in Burundi in accordance with the PTF, will give its non-objection to the AWP/Bs submitted by the PCU as well as the Project Progress Reports (PPRs). PPRs may be commented by the PTF and should be approved by the LTO before being uploaded by the BH in FPMIS.

The **Lead Technical Officer (LTO)** for the project will be designated by the Land and Water Division (LTU) in close consultation with the BH and the FAO sub-regional and regional office and the coordinator of Strategic programme SP2. The role of the LTO is central to FAO's comparative advantage for projects. The LTO will oversee and carry out technical backstopping to the project implementation. The LTO will support the BH in the implementation and monitoring of the AWP/Bs, including work plan and budget revisions. The LTO is responsible and accountable for providing or obtaining technical clearance of technical inputs and services procured by the Organization.

In addition, the LTO will provide technical backstopping to the PT to ensure the delivery of quality technical outputs. The LTO will coordinate the provision of appropriate technical support from PTF to respond to requests from the PSC. The LTO will be responsible for:

- Review and give no-objection to TORs for consultancies and contracts to be performed under the project, and to CVs and technical proposals short-listed by the PCU for key project positions, goods, minor works, and services to be financed by GEF resources;
- Supported by the FAO Representation in Burundi, review and clear final technical products delivered by consultants and contract holders financed by GEF resources before the final payment can be processed;
- Assist with review and provision of technical comments to draft technical products/reports during project execution;
- Review and approve project progress reports submitted by the NPC, in cooperation with the BH;
- Support the FAO Representative in examining, reviewing and giving no-objection to AWP/B submitted by the NPC, for their approval by the Project Steering Committee;
- Ensure the technical quality of the six-monthly Project Progress Reports (PPRs). The PPRs will be prepared by the NPC, with inputs from the PT. The BH will submit the PPR to the FAO/GEF Coordination Unit for comments, and the LTO for technical clearance. The PPRs will be submitted to the PSC for approval twice a year. The BH will be responsible for the timely delivery of the PPR for approval by the PTF while the FAO GEF coordination unit will be responsible for uploading the approved PPR to FPMIS.
- Supervise the preparation and ensure the technical quality of the annual PIR. The PIR will be drafted by the NPC and LTO, with inputs from the PT. The PIR will be submitted to the BH and the

FAO-GEF Coordination Unit for approval and finalization. The FAO/GEF Coordination Unit will submit the PIRs to the GEF Secretariat and the GEF Evaluation Office, as part of the Annual Monitoring Review report of the FAO-GEF portfolio. The LTO must ensure that the NPC and the PT have provided information on the co-financing provided during the year for inclusion in the PIR;

- Conduct annual (or as needed) supervision missions;
- Review the TORs for the mid-term evaluation/review, participate in the mid-term workshop with all key project stakeholders, development of an eventual agreed adjustment plan in project execution approach, and supervise its implementation; and
- Review the TORs for the final evaluation; participate in the mission including the final workshop with all key project stakeholders, development and follow-up to recommendations on how to insure sustainability of project outputs and results after the end of the project.

The **HQ Officer** from the Plant Protection and Production Department (AGP) is an active member of the PTF. The HQ Officer has most relevant technical expertise - within FAO technical departments - related to the thematic of the project notable in regard to FFS approach and value chain development. The HQ Technical Officer will provide effective functional advice to the LTO to ensure adherence to FAO corporate technical standards during project implementation, in particular:

- Supports the LTO in monitoring and reporting on implementation of environmental and social commitment plans for moderate projects. In this project, the HQ officer will support the LTO in monitoring and reporting the identified risks and mitigation measures (Annex 4) in close coordination with the project partners.
- Provides technical backstopping for the project work plan.
- Clears technical reports, contributes to and oversees the quality of Project Progress Report(s) (PPRs – see Section 3.5).
- May be requested to support the LTO and PTF for implementation and monitoring.
- Supports the LTO and BH in producing the first draft TOR of the Evaluation team in for the Final Evaluation, review the composition of the evaluation team and support the evaluation function.

The FAO-GEF Coordination Unit will act as **Funding Liaison Officer (FLO)**. The FAO/GEF Coordination Unit will review the PPRs and financial reports, and will review and approve budget revisions based on the approved Project Budget and AWP/Bs. This FAO/GEF Coordination Unit will review and provide a rating in the annual PIR(s) and will undertake supervision missions as necessary. The PIRs will be included in the FAO GEF Annual Monitoring Review submitted to GEF by the FAO GEF Coordination Unit. The FAO GEF Coordination Unit may also participate in the mid-term evaluation/review and final evaluation, and in the development of corrective actions in the project implementation strategy if needed to mitigate eventual risks affecting the timely and effective implementation of the project. The FAO GEF Coordination Unit will in collaboration with the FAO Finance Division request transfer of project funds from the GEF Trustee based on six-monthly projections of funds needed.

The FAO Financial Division will provide annual Financial Reports to the GEF Trustee and, in collaboration with the FAO-GEF Coordination Unit, request project funds on a six-monthly basis to the GEF Trustee.

3.2.2 Decision-making mechanisms of the project

A multi-stakeholder **Project Steering Committee (PSC)** will be established to guide and oversee implementation of the project. The PSC will meet at least twice a year and its specific responsibilities will be:

- a) Provide guidance to the Project Coordination Unit (PCU) to ensure project implementation is in accordance with the project document;
- b) Review and approve any proposed revisions to the project results framework and implementation arrangements;
- c) Review, amend (if appropriate) and endorse all Annual Work Plans and Budgets;
- d) Review project progress and achievement of planned results as presented in six-monthly Project Progress Reports, Project Implementation Reviews (PIRs) and Financial Reports;
- e) Ensure that co-financing support will be available on time;

- f) Advise on issues and problems arising during project implementation;
- g) Facilitate cooperation between all project partners and facilitate collaboration between the Project and other relevant programmes, projects and initiatives in the country;
- h) Facilitate cooperation and involvement of the Burundi IAP-FS with the eleven other IAP-FS child projects and the IAP-FS hub project;
- i) Approve ToR for midterm and final evaluations.

The PSC chair will be nominated by MINAGRIE in consultation with other PSC members. The Committee's composition will include representation from the MEEATU, FAO Burundi, IGEBU, ISABU, the University of Burundi, partner NGOs, GEF focal points, etc. The PSC may co-opt *ad hoc* representatives from the other partners from related projects, other relevant government departments, private sector etc. as may be necessary. Draft ToR for this committee will be prepared in the first quarter of project implementation. The PSC will have the mandate and flexibility to establish site-specific management committees and appoint site coordinators.

The members of the PSC will each fill the role of focal point for the project in their respective agencies. As a result, and as such a focal point, they will ensure: (i) the technical supervision of the activities in their sector; (ii) a fluid two-way exchange of information and of knowledge between their agency and the project; (iii) coordination and communication between the activities of the project and the work plan of their agency; and (iv) the provision of co-financing for the project.

The Project Coordination Unit (PCU) will be located in MINAGRIE and will rely on the following human resources:

- GEF-funded (national full-time National Project Coordinator (NPC)/Land and Watershed Management Adviser; international (part-time) M&E officer)
- MOA-funded (1 full time National Focal Point with expertise in INRM / sustainable agriculture)
- Part time M&A officer to support project monitoring, assessment of impacts and progress reporting.

The Project Coordinator/Land and Watershed Management Adviser will take the overall responsibility and provide policy guidance to the project through his/her participation in the PSC.

A field project office will be established in Gitega, probably in the DPAAE, and will host the national full-time FFS Training/Institutionalisation Adviser and the national full time Agribusiness/Value Chain Adviser as well as the three Provincial Facilitators. The PMC will regularly visit and work with the national officers who will act as a team in supporting work in all three provinces.

The GEF-funded staff at the PCU will be recruited by the project and will report to the Budget Holder (BH) and will work in close collaboration with the main technical officer of the FAO (LTO). The PCU will be responsible for the daily operations of the project and will carry out their functions conforming to the rules of the FAO. ToRs of the GEF-funded consultants are provided in Annex 8. PCU staff will be supported by national and international consultants who will be recruited during project implementation as needed.

Some key functions of the PCU are:

- 1) technically identify, plan, design and support all activities;
- 2) liaise with selected consortia and municipalities and regularly advocate on behalf of the project;
- 3) prepare the Annual Work Plan and Budget (AWP/B) and monitoring plan;
- 4) be responsible for day-to-day implementation of the project in line with the AWP/B;
- 5) ensure a results-based approach to project implementation, including maintaining a focus on project results and impacts as defined by the results framework indicators;
- 6) coordinate project interventions with other ongoing activities;
- 7) monitor project progress;
- 8) be responsible for the elaboration of FAO Project Progress Reports (PPR) and the annual Project Implementation Review (PIR);
- 9) facilitate and support the mid-term and final evaluations of the project.

3.3 Planning and Financial Management

The total cost of the project will be US \$ 7,396,330 from the GEF and \$45,050,728 in cofinancing (in-kind).

3.3.1 Financial plan (by components and outcome)

Table 20 presents the cost per component, outputs and sources of funding and Table 21 shows the sources and types of confirmed cofinancing. FAO, as a GEF agency, will be responsible only for the execution of GEF resources and FAO co-financing.

Table 20: Financial plan (by components, outcomes and outputs)

Outcome	Output	Amount (\$s)	
		GEF	Co-Finance
Outcome 1.1: Multi-stakeholder and multi-scale platforms operational in supporting policy, institutional and knowledge sharing mechanisms for scaling out of sustainable agriculture systems and integrated natural resources management approaches.	Output 1.1.1: Agriculture and Rural Development Sector Working Groups (GSADR) at national (1) and provincial (3) levels strengthened and watershed management committees and multi-year plans in place at project sites (9).	1,437,000	5,253,500
	Output 1.1.2: Functioning multi-stakeholder knowledge sharing mechanism in place at national (1), provincial (3), and local (4) levels and promoting exchange of experiences and lessons learned (success and failure) on scaling out SLM /integrated natural resources/landscape management.		
	Output 1.1.3: Legal and regulatory frameworks on SLM, sustainable use of agrobiodiversity and agricultural and environmental strategies and plans better known at national (1) and provincial level (1) and taken into account and applied in communal development plans and watershed management plans.		
	Output 1.1.4: Communities consultations through a participatory negotiated territorial development process (PNTD) and Free prior informed consent process (FPIC) conducted.		
	Output 1.1.5: National strategy for harmonisation of FFS-INRM operationalised in the 3 provinces with particular attention to resilient and sustainable food and agricultural systems.		
Outcome 2.1: Increased land area and agro-ecosystems under integrated natural resources/ landscape	Output 2.1.1: Micro-watershed management plans developed and implemented (9) using combined appropriate SLM technologies and a harmonised INRM approach	4,049,124	35,422,728

management and SLM best practices and supported by sustainable value chains for increased production and sustainable livelihoods	Output 2.1.2: FFS master trainers (25) and facilitators (100) trained on the job with 318 FFS groups and practicing on SLM/ INRM at farm and watershed scale, and national FFS curricula (1) updated.		
	Output 2.1.3: Network of (pre) cooperatives/producer organizations and FFS groups supported and demonstrating improved access to food value chains (merged pre 2.3+2.4)		
	Product 2.1.4: An <i>in situ</i> seed bank system established and farmer-produced adapted varieties promoted as a basis for local food systems and improved nutrition		
	Output 2.1.5: Steep slopes and highly degraded areas rehabilitated through tree planting, with attention to indigenous species, to increase biodiversity, productivity and resilience and to reduce pressure on woody material.		
Outcome 3 M&A framework in place and capacity of relevant institutions built capacitated in carrying-out monitoring activities and communicating experiences and impacts	Output 3.1.1: Government staff and extension workers trained and able to use relevant M&A tools and approaches, also in archiving data	1,558,00	4,374,500
	Output 3.1.2: Pre-cooperatives and FFS groups trained and able to use participatory impact monitoring tools and approaches (HH-BAT, FFS PM&E, LADA local).		
	Output 3.1.3: Project results and experiences compiled, communicated widely and shared with the project regional hub and partner projects.		
	Output 3.1.4: Project progress reports prepared on time, mid and final evaluation conducted.		

Table 21: Confirmed sources of co-financing

Financial Plan	Available	Component 1	Component 2	Component 3	PMC
GEF Grant	7,396,330	1,437,000	4,049,124	1,558,000	352,206
Co-Financing					
Food and Agriculture Organisation	500,000	200,000	250,000	50,000	-
Govt of Burundi through IFAD loan portfolio (PRODEFI II)	21,440,000	1,253,500	16,162,000	4,024,500	-
Govt of Burundi (World Bank PRODEMA II)	6,000,000	0	6,000,000	0	-
Govt of Burundi (World Bank coffee project)	14,110,728	3,200,000	10,910,728	0	-

MINAGRIE + MEEATU + Targeted land users	3,000,000	600,000	2,100,000	300,000	-
Co-Finance Totals	45,050,728	5,253,500	35,422,728	4,374,500	-
Grand Total	52,447,058	6,690,500	39,471,852	5,932,500	352,206

3.3.2 GEF Contribution

GEF contributions will be distributed into all three components, focusing on: i) hiring a full time National Project Coordinator (NPC), full time FFS-expert, full time agri business/value chain expert, a part-time monitoring and assessment expert and part-time consultants that will form part of the PCU; ii) transfers of resources that will be made through Letters of Agreements (LoAs); iii) communications; iii) training; iv) travel and v) activities related to project monitoring and evaluation.

3.3.3 Government Contribution

IFAD PRODEFI Value Chain Development Programme – Phase II

The PRODEFI II contribution will be a total of US \$ 21,440,000 (in kind) in the form of strengthened institutions and support for the market access of agricultural products (Outcome 2) and collaboration with the IAP-FS to share information on the baseline and surveys conducted at household and FFS level (socio-economic benefits) and farm and watershed level (environmental benefits) (Outcome 3). The PRODEFI-II project will catalyse the transformational scaling-up of SLM / INRM via the large planned network of FFSs in Muramvya and Gitega and improved value chains. In particular, the IAP-FS beneficiaries will be able to benefit from better access to market mechanisms and infrastructure established by PRODEFI-II including roads, milk collection centres, storage facilities and processing units as well as access to imported seed, cooperatives and micro finance mechanisms.

World Bank – PRODEMA-II “Productivity and Development of Agricultural Markets” project:

PRODEMA-II will contribute parallel co-financing of US\$ 6,000,000 (in kind) towards improving livelihoods and food security through watershed /landscape management (Outcome 2)

World Bank “Support for improved productivity and competitiveness of the coffee sector”:

The coffee project will contribute a total of US\$ in 14,110,728 in parallel co-financing including some US \$ 3,200,000 (in kind) towards strengthening institutional and support mechanisms (Outcome 1) and some US\$ 10,910,728 towards improving livelihoods and food security through watershed /landscape management (Outcome 2).

3.3.3 FAO Contribution

FAO will provide in-kind contributions, some USD 500,000 in co-financing (in kind) including collaboration with technical experts from other FAO projects in Burundi and the region and support of the Burundi country Representation and regional and sub regional offices in Accra and Addis Ababa, to complement activities under Outcomes 1, 2 and 3. FAO contributions will also include office space and related services for project staff (including consultants) for the five-year duration of the project.

3.3.4 Inputs from other co-financiers

None anticipated

3.3.5 Financial management and reporting on GEF resources

Financial management and reporting in relation to the GEF resources will be carried out in accordance with FAO’s rules and procedures, and in accordance with the agreement between FAO and the GEF

Trustee. On the basis of the activities foreseen in the budget and the project, FAO will undertake all operations for disbursements, procurement and contracting for the total amount of GEF resources.

Financial records. FAO shall maintain a separate account in United States dollars for the Project's GEF resources showing all income and expenditures. Expenditures incurred in a currency other than United States dollars shall be converted into United States dollars at the United Nations operational rate of exchange on the date of the transaction. FAO shall administer the Project in accordance with its regulations, rules and directives.

Financial reports. The BH shall prepare six-monthly project expenditure accounts and final accounts for the project, showing amount budgeted for the year, amount expended since the beginning of the year, and separately, the un-liquidated obligations as follows:

1. Details of project expenditures on outcome-by-outcome basis, reported in line with Project Budget (Annex 3 of this Project document), as at 30 June and 31 December each year.
2. Final accounts on completion of the Project on a component-by-component and outcome-by-outcome basis, reported in line with the Project Budget (Annex 3 of this Project Document).
3. A final statement of account in line with FAO Oracle Project budget codes, reflecting actual final expenditures under the Project, when all obligations have been liquidated.

Financial statements: Within 30 working days of the end of each semester, the FAO Representation in Burundi shall submit six-monthly statements of expenditure of GEF resources, to present to the Liaison Committees and the Project Steering Committee. The purpose of the financial statement is to list the expenditures incurred on the project on a six monthly basis compared to the budget, so as to monitor project progress and to reconcile outstanding advances during the six-month period. The financial statement shall contain information that will serve as the basis for a periodic revision of the budget.

The BH will submit the above financial reports for review and monitoring by the LTO and the FAO GEF Coordination Unit. Financial reports for submission to the donor (GEF) will be prepared in accordance with the provisions in the GEF Financial Procedures Agreement and submitted by the FAO Finance Division.

Responsibility for cost overruns: The BH shall utilize the GEF project funds in strict compliance with the Project Budget (Annex 3) and the approved AWP/Bs. The BH can make variations provided that the total allocated for each budgeted project component is not exceeded and the reallocation of funds does not impact the achievement of any project output as per the project Results Framework (Annex 1). At least once a year, the BH will submit a budget revision for approval of the LTO and the FAO/GEF Coordination Unit through FPMIS. Cost overruns shall be the sole responsibility of the BH.

Audit

The Project shall be subject to the internal and external auditing procedures provided for in FAO financial regulations, rules and directives and in keeping with the Financial Procedures Agreement between the GEF Trustee and FAO.

The audit regime at FAO consists of an external audit provided by the Auditor-General (or persons exercising an equivalent function) of a member nation appointed by the Governing Bodies of the Organization and reporting directly to them, and an internal audit function headed by the FAO Inspector-General who reports directly to the Director-General. This function operates as an integral part of the Organization under policies established by senior management, and furthermore has a reporting line to the governing bodies. Both functions are required under the Basic Texts of FAO which establish a framework for the terms of reference of each. Internal audits of imprest accounts, records, bank reconciliation and asset verification take place at FAO field and liaison offices on a cyclical basis.

3.4 Procurement

At the request of the Government of Burundi, FAO will procure the equipment and services foreseen in the budget (Annex 3) and the AWP/Bs, in accordance with FAO rules and procedures.

Careful procurement planning is necessary for securing goods, services and works in a timely manner, on a “Best Value for Money” basis, and in accordance with the Rules and Regulations of FAO. It requires analysis of needs and constraints, including forecast of the reasonable timeframe required to execute the procurement process. Procurement and delivery of inputs in technical cooperation projects follow FAO’s rules and regulations for the procurement of supplies, equipment and services (i.e. Manual Sections 502 and 507). Manual Section 502: “Procurement of Goods, Works and Services” establishes the principles and procedures that apply to procurement of all goods, works and services on behalf of the Organization, in all offices and in all locations, with the exception of the procurement actions described in Annex A – Procurement Not Governed by Manual Section 502. Manual Section 507 establishes the principles and rules that govern the use of Letters of Agreement (LoA) by FAO for the timely acquisition of services from eligible entities in a transparent and impartial manner, taking into consideration economy and efficiency to achieve an optimum combination of expected whole life costs and benefits (“Best Value for Money”).

The FAO Representative will prepare an annual procurement plan for major items which will be the basis of requests for procurement actions during implementation. The plan will include a description of the goods, works, or services to be procured, estimated budget and source of funding, schedule of procurement activities and proposed method of procurement. In situations where exact information is not yet available, the procurement plan should at least contain reasonable projections that will be corrected as information becomes available.

Before commencing procurement, the NPC will develop the project’s Procurement Plan for approval by the Project Steering Committee. This plan will be reviewed during the inception workshop and will be approved by the FAO Representative in Burundi. The PC will update the Plan every six months and submit the plan to the FAO Representative in Burundi for approval.

The procurement plan shall be updated every 12 months and submitted to FAO BH and LTO for clearance, together with the AWP/B and annual financial statement of expenditures report for the next instalment of funds.

The BH, in close collaboration with the NPC, the LTO and the Finance Officer will procure the equipment and services provided for in the detailed budget in Annex 3, in line with the AWP and Budget and in accordance with FAO’s rules and regulations.

3.5 Monitoring and Reporting

The monitoring and evaluation of progress in achieving the results and objectives of the project will be based on targets and indicators in the Project Results Framework (Annex 1 and descriptions in Section 1.3.2. Project monitoring and the evaluation activities are budgeted at **USD 122,549** (see Table 22). Monitoring and evaluation activities will follow FAO and GEF policies and guidelines. The monitoring and evaluation system will also facilitate learning and replication of the project’s results and lessons in relation to the integrated management of natural resources.

3.5.1 Oversight and monitoring responsibilities

The monitoring and evaluation roles and responsibilities specifically described in the Monitoring and Evaluation table (see Table 22 below) will be undertaken through: (i) day-to-day monitoring and project progress supervision missions (PCU); (ii) technical monitoring of indicators to measure a reduction in land degradation (PCU and LTA in coordination with partners); (iii) mid-term evaluation/review and final evaluation (independent consultants and FAO Evaluation Office in case of evaluations); and (v) monitoring and supervision missions (FAO).

At the beginning of the implementation of the GEF project, the PCU will establish a system to monitor the project’s progress. Participatory mechanisms and methodologies to support the monitoring and evaluation of performance indicators and outputs will be developed. During the project inception workshop (see section 3.5.3 below), the tasks of monitoring and evaluation will include: (i) presentation and explanation (if needed) of the project’s Results Framework with all project stakeholders; (ii) review

of monitoring and evaluation indicators and their baselines; (iii) preparation of draft clauses that will be required for inclusion in consultant contracts, to ensure compliance with the monitoring and evaluation reporting functions (if applicable); and (iv) clarification of the division of monitoring and evaluation tasks among the different stakeholders in the project. The M&E Expert (see TORs in Annex 7) will prepare a draft monitoring and evaluation matrix that will be discussed and agreed upon by all stakeholders during the inception workshop. The **M&E matrix** will be a management tool for the NPC, the Regional Project coordinators, and the Project Partners to: i) six-monthly monitor the achievement of output indicators; ii) annually monitor the achievement of outcome indicators; iii) clearly define responsibilities and verification means; iv) select a method to process the indicators and data.

The **M&E Plan** will be prepared by the M&E Expert in the three first months of the PY1 and validated with the PSC. The M&E Plan will be based on the M&E Table 3.4 and the M&E Matrix and will include: i) the updated results framework, with clear indicators per year; ii) updated baseline, if needed, and selected tools for data collection (including sample definition); iii) narrative of the monitoring strategy, including roles and responsibilities for data collection and processing, reporting flows, monitoring matrix, and brief analysis of who, when and how will each indicator be measured. Responsibility of project activities may or may not coincide with data collection responsibility; iv) updated implementation arrangements, if needed; v) inclusion of the tracking tool indicators, data collection and monitoring strategy to be included in the mid-term review and final evaluation; vi) calendar of evaluation workshops, including self-evaluation techniques.

The day-to-day monitoring of the project's implementation will be the responsibility of the NPC and will be driven by the preparation and implementation of an AWP/B followed up through six-monthly PPRs. The preparation of the AWP/B and six-monthly PPRs will represent the product of a unified planning process between main project stakeholders. As tools for results-based-management (RBM), the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output and outcome targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output and outcome targets. Specific inputs to the AWP/B and the PPRs will be prepared based on participatory planning and progress review with all stakeholders and coordinated and facilitated through project planning and progress review workshops. These contributions will be consolidated by the NPC in the draft AWP/B and the PPRs.

An annual project progress review and planning meeting should be held with the participation of the project partners to finalize the AWP/B and the PPRs. Once finalized, the AWP/B and the PPRs will be submitted to the FAO LTO for technical clearance, and to the Project Steering Committee for revision and approval. The AWP/B will be developed in a manner consistent with the Project Results Framework to ensure adequate fulfillment and monitoring of project outputs and outcomes.

Following the approval of the Project, the PY1 AWP/B will be adjusted (either reduced or expanded in time) to synchronize it with the annual reporting calendar. In subsequent years, the AWP/Bs will follow an annual preparation and reporting cycle as specified in section 3.5.3 below.

3.5.2 Indicators and sources of information

In order to monitor the outputs and outcomes of the project, including contributions to global environmental benefits, a set of indicators is set out in the Project Results Framework (Annex 1). The indicators and means of verification will be applied to monitor both project performance and impact. Following FAO monitoring procedures and progress reporting formats, data collected will be sufficiently detailed that can track specific outputs and outcomes, and flag project risks early on. Output target indicators will be monitored on a six-monthly basis, and outcome target indicators will be monitored on an annual basis, if possible, or as part of the mid-term review/ evaluation and final evaluations.

Project output and outcome indicators have been designed to monitor both biophysical and socioeconomic impacts. The main sources of information to support the M&A plan include project monitoring systems set-up under Outcome 3.2, including participatory monitoring; in-situ monitoring of the implementation of best SLM practices and resulting improvements in ecosystem services (GEBs); FFS

monitoring reports; consultancy reports; training reports; the project's mid-term evaluation/review and final evaluation; financial reports and budget reviews; PIRs prepared by the FAO LTO with the support of the FAO Representation in Burundi; FAO-supervised mission reports; IFAD IAP-FS hub project M & A.

3.5.3 Reporting schedule

Specific reports that will be prepared under the monitoring and evaluation programme are: (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) Annual Project Implementation Review (PIR); (v) Technical reports; (vi) Co-financing reports; and (vii) Terminal Report. In addition, the GEF IAP tracking tool for (including land degradation, biodiversity and climate change mitigation) will be completed and will be used to compare progress with the baseline established during the preparation of the project.

Project Inception Report. After FAO internal approval of the project an inception workshop will be held. Immediately after the workshop, the NPC will prepare a project inception report in consultation with the FAO Representation in Burundi and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B and the M&E Matrix (see above). The draft inception report will be circulated to FAO, the PSC, and government partners for review and comments before its finalization, no later than three months after project start-up. The report will be cleared by the FAO BH, LTO and the FAO/GEF Coordination Unit. The BH will upload it in FPMIS.

Annual Work Plan and Budget(s) (AWP/Bs). The NPC will present a draft AWP/B to the PSC no later than 10 December of each year. The AWP/B should include detailed activities to be implemented by project outcomes and outputs and divided into monthly timeframes and targets and milestone dates for output and outcome indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The FAO Representation in Burundi will circulate the draft AWP/B to the FAO Project Task Force and will consolidate and submit FAO comments. The AWP/B will be reviewed by the PSC and the PCU will incorporate any comments. The final AWP/B will be sent to the PSC for approval and to FAO for final no-objection. The FAO Coordination unit will ensure that the AWP/Bs is uploaded in FPMIS.

Project Progress Reports (PPR). PPRs will be prepared by the PCU based on the systematic monitoring of output and outcome indicators identified in the project's Results Framework (Annex 1). The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework (Annex 1), AWP/B and M&E Plan. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR. Each semester the National Project Coordinator (NPC) will prepare a draft PPR, and will collect and consolidate any comments from the FAO PTF. The NPC will submit the final PPRs to the FAO Representative in Burundi every six months, prior to 10 June (covering the period between January and June) and before 10 December (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF. The BH has to ensure that the PPR is submitted to the PTF on time. After LTO, BH and FLO clearance, the GEF Coordination unit will ensure that project progress reports are uploaded in FPMIS in a timely manner

Annual Project Implementation Review (PIR)

The BH (in collaboration with the PCU and the LTO) will prepare an annual PIR covering the period July (the previous year) through June (current year) to be submitted to the FLO for review and approval **no later than (check each year with FAO GEF Coordination Unit but roughly end June/early July each year)**. The FAO GEF Coordination Unit will submit the PIR to the GEF Secretariat and GEF Evaluation Office as

part of the Annual Monitoring Review report of the FAO-GEF portfolio. PIRs will be uploaded on the FPMIS by the FAO GEF Coordination Unit.

Key milestones for the PIR process:

- **Early July:** the LTOs submit the draft PIRs (after consultations with BHs, project teams) to the FAO GEF Coordination Unit (faogef@fao.org , copying respective GEF Unit officer) for initial review;
- **Mid July:** FAO GEF Coordination Unit responsible officers review main elements of PIR and discuss with LTO as required;
- **Early/mid-August:** FAO GEF Coordination Unit prepares and finalizes the FAO Summary Tables and sends to the GEF Secretariat by (date is communicated each year by the GEF Secretariat through the FAO GEF Unit);
- **September/October:** PIRs are finalized. PIRs carefully and thoroughly reviewed by the FAO GEF Coordination Unit and discussed with the LTOs for final review and clearance;
- **Mid November 17:** (date to be confirmed by the GEF): the FAO GEF Coordination Unit submits the final PIR reports -cleared by the LTU and approved by the FAO GEF Coordination Unit- to the GEF Secretariat and the GEF Independent Evaluation Office.

Technical reports. Technical reports will be prepared by national, international consultants (partner organizations under LOAs) as part of project outputs and to document and share project outcomes and lessons learned. The drafts of any technical reports must be submitted by the PCU to the BH who will share it with the LTO. The LTO will be responsible for ensuring appropriate technical review and clearance of said report. The BH will upload the final cleared reports onto the FPMIS. Copies of the technical reports will be distributed to project partners and the Project Steering Committee as appropriate.

Co-financing reports. The BH, with support from the PCU, will be responsible for collecting the required information and reporting on co-financing as indicated in the Project Document/CEO Request. The PCU will compile the information received from the executing partners and transmit it in a timely manner to the LTO and BH. The report, which covers the period 1 July through 30 June, is to be submitted on or before 31 July and will be incorporated into the annual PIR. The format and tables to report on co-financing can be found in the PIR.

GEF Integrated Approach Pilot Tracking Tool. In compliance with GEF policies and procedures, the IAP tracking tool should be sent to the GEF Secretariat in three stages: (i) with the project approval document by the GEF Executive Director; (ii) with the mid-term review of the project; and (iii) with the final evaluation of the project. The tracking tool will be uploaded in FPMIS by the FAO GEF Coordination Unit. The tracking tool will be applied as part of the project M&E system, in close collaboration with the FAO Project Task Force. It will be filled in by the PCU and made available for the mid-term review and again for the final evaluation.

Terminal Report

Within two months prior to the end date of the project, and one month before the Final Evaluation, the PCU will submit to the BH and LTO a draft Terminal Report. The main purpose of the Terminal Report is to give guidance at ministerial or senior government level on the policy decisions required for the follow-up of the project, and to provide the donor with information on how the funds were utilized. The Terminal Report is accordingly a concise account of the main products, results, conclusions and recommendations of the project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for insuring sustainability of project results.

3.5.4 Monitoring and Evaluation summary

Table 22 summarizes the main monitoring and evaluation reports, parties responsible for their publication and time frames.

Table 22: Summary of main monitoring and evaluation activities

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
Inception workshop	NPC, FAO Burundi (with support from the LTO, and FAO-GEF Coordination Unit)	Within two months of project start up	USD 6,000
Project Inception Report	NPC, M&A Experts and FAO Burundi with clearance by the LTO, BH and FAO-GEF Coordination Unit	Immediately after the workshop	Project staff time
Field-based impact monitoring	NPC, project partners, local organizations	Continuous	USD 15,000 (NPC time, technical workshops to identify indicators, monitoring and evaluation workshops)
Supervision visits and rating of progress in PPRs and PIRs	NPC, FAO (FAOBU, LTO). FAO-GEF Coordination Unit may participate in the visits if needed.	Annual, or as needed	FAO visits will be borne by GEF agency fees Project Coordination visits shall be borne by the project's travel budget
Project Progress Reports (PPRs)	BH with support from NPC and intern. Monitoring expert, with stakeholder contributions and other participating institutions	Six-monthly	USD 2,760 (3.5% of the PCU's time)
Project Implementation Review (PIR)	BH (in collaboration with the PCU and the LTO) Approved and submitted to GEF by the FAO-GEF Coordination Unit	Annual	FAO staff time financed through GEF agency fees. PCU time covered by the project budget.
Co-financing Reports	BH with support from PCU and input from other co-financiers	On a semi-annual basis, and will be considered as part of the semiannual PPRs	USD 789 (1% of the PCU's time)
Technical Reports	NPC, FAO (LTO, FAOBU)	As needed	
GEF IAP Tracking Tools	NPC/monitoring expert and reviewed by FAO LTO	At mid-point and end of project	Project staff time
Mid-term evaluation (MTE)/review (MTR)	MTE: FAO Independent Evaluation Unit in consultation with the project team, including the FAO-GEF Coordination Unit and others	Midway through the project implementation period	USD 40,000 by an external consultant / consultancy

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
	MTR: FAO Burundi, External consultant, in consultation with the project team, including the FAO-GEF Coordination Unit and others		
Terminal Evaluation	External consultant, FAO Independent Evaluation Unit in consultation with the project team, including the FAO-GEF Coordination Unit and others	At the end of the project	USD 50,000 by an external consultant. FAO staff time and travel costs will be financed by GEF agency fees.
Terminal Report	PCU; FAO (FAOBU, LTO, FAO-GEF Coordination Unit, TCS Reporting Unit)	Two months prior to the end of the project.	USD 8,000
Total budget			USD 122,549

3.6 Evaluation Provisions

A Mid-Term Evaluation (MTE) will be undertaken at project mid-term to review progress and effectiveness of implementation in terms of achieving the project objectives, outcomes and outputs. Findings and recommendations of this review/evaluation will be instrumental for bringing improvement in the overall project design and execution strategy for the remaining period of the project's term. FAO will arrange for the mid-term review/evaluation in consultation with the project partners. The evaluation will, *inter alia*:

- (i) review the effectiveness, efficiency and timeliness of project implementation;
- (ii) analyze effectiveness of partnership arrangements;
- (iii) identify issues requiring decisions and remedial actions;
- (iv) propose any mid-course corrections and/or adjustments to the implementation strategy as necessary; and
- (v) highlight technical achievements and lessons learned derived from project design, implementation and management.

It is recommended that an independent Terminal Evaluation be carried out three months prior to the terminal review meeting of the project partners. The Terminal evaluation will aim to identify the project impacts and sustainability of project results and the degree of achievement of long-term results. This evaluation will also have the purpose of indicating future actions needed to sustain project results and disseminate products and best-practices within the country and to neighbouring countries.

3.7 Communication and Visibility

In Component 1, the activities related to national level capacity building will have high visibility as it will involve all the key sectors and respective technical officers, and the civil society. The multi-stakeholder policy / institutional platform and knowledge sharing mechanism developed under the component will be carried-out through extensive consultations with all relevant national and regional stakeholders; this will inherently raise the visibility of the project.

A communication plan will be developed early in the project, describing how the direct and indirect beneficiaries will be regularly informed of the achievements of the project. This will be implemented by the Department of Communication of FAO Burundi.

The wide range of communication and visibility tools and approaches are planned throughout the implementation period of the project to raise awareness of the project's key messages, achievements and support scaling-up of the results, including:

- Articles including testimonies of beneficiaries regularly developed and posted on the websites of the Ministry of Agriculture and Livestock, FAO and GEF, also in the bulletin of FAO Burundi and in the local press.
- A range of different forms of communication and visibility raising activities will be carried out during the implementation period of this project:
 - ✓ Leaflets and posters showing the achievements and impact will be produced and will carry GEF logos and FAO (in French, Kirundi and pictorial);
 - ✓ Creation of a project library;
 - ✓ Radio spots with the key messages of the project will be designed and disseminated by certain local radio stations, according to their targeted audience ;
 - ✓ Press releases will be regularly prepared and disseminated;
 - ✓ Reports / info material for TV and radio stations will be regularly performed and broadcast;
 - ✓ Production and distribution of a video documentary throughout the project cycle;
 - ✓ Open houses will be held to inform the public of the success of the project for replication;
 - ✓ Signposts displaying GEF and FAO logos with a key project message will be made and posted on the intervention micro-catchments;
 - ✓ Stickers with the logos of the GEF and FAO will be produced and displayed on any hardware available all throughout the project.
 - ✓ Panels with logos FAO , GEF with a key message will be produced and posted on public roads near the towns of the project's target provinces and near the various infrastructure project

- ✓ International Day open house at which the beneficiaries exhibit / are demonstrating their resilience
- ✓ The Roll Up banner will be designed and placed in key locations (FAO offices, MINAGRIE, MEEATU, special events etc.)
- Other miscellaneous articles and equipment (umbrellas, bags, T-shirt, caps) will be manufactured with GEF and FAO logos, a key message in French and / or Kirundi.

At the end of the project, in conjunction with the terminal workshop a daylong meeting will be held to disseminate the project results, key lessons learnt and best practices captured through the project. This will also be documented through the end of project newsletter.

SECTION 4 – SUSTAINABILITY OF RESULTS

4.1 Social Sustainability

The implementation of the project will include defining factors that ensure social sustainability:

- **Capacity development** (see Sections 1.2.3 and 4.4)
- **Gender equality and mainstreaming** at the institutional and community levels. The project recognizes that women are vital stakeholders in managing the land, using natural resources and in food security in Burundi. The proposed project is consistent with the GEF Policy on Gender Mainstreaming (PL/SD/02. May 1, 2012) which aims to “promote the goal of gender equality through GEF operations”. The project will proactively seek to ensure meaningful participation of women taking into account the specific constraints and barriers they may face. The project will promote the participation and empowerment of women to strengthen their roles in planning and decision-making, and to improve their productivity, food security, incomes and living conditions. At the national level, the project will endeavor to include as many women as possible in the policy platform / knowledge sharing mechanisms – and include women in all groups participating in hub training. At the local institutional level, the project will ensure that women participate in the watershed committees and producers’ associations, ensuring that women make up at least 30% of the members. .

In summary, the following activities will address gender equality and women’s empowerment within the framework of the project; (i) gender-sensitive training within the FFS framework, including with advisory services (regarding SLM and also nutrition), also provision of hand tools, (ii) representation of women in key decision making platforms (e.g. a fixed quota for women will be introduced in the established watershed committees), (iii) provision of micro-grants to women farmers through the established FFS structure, and (iv) access to gender-responsive good practices disseminated through the audio-visual and education materials the project will prepare. In particular the FFS mechanism will be used to introduce gender specific training modules for facilitators aiming at mainstreaming gender equality in FFS. The modules will ensure that targeted women farmers have access to information, technical training, management and decision-making tools, credits and markets. Examples of these modules/topics are: a) characteristics and stereotypes of women and men; b) agree or disagree: declarations on the characteristics of women and men and revision of the criteria for participation in the FFS; c) roles of women and men in agriculture, from grandparents to the present: an analysis of roles over three generations. The trainings targeted at women will be designed and organized at times and in locations that women can easily access and using tools and methods that are mindful of different literacy levels and language barriers. Awareness raising and gender sensitization activities will be organized at community level to facilitate equal participation of different categories of women and men (e.g. by age, ethnicity, marital status etc.).

Moreover a gender analysis will be included in the development of new food value chains to ensure that they are gender-sensitive and inclusive and can contribute towards women’s empowerment. In order to be able to better track gender-related impacts, some gender-sensitive indicators will be included in the monitoring and evaluation system at project inception to ensure that women can adequately benefit from the envisaged activities. . Overall, women will make up

at least 30% of the beneficiaries of the project. Women are expected to make up close to 100% of participants of activities under Output 2.5.

- **Involvement of young people** will be a project priority at the local level, through specific efforts to encourage youths (men and women) to participate in the FFSs, also in IGAs (Output 2.1.3).
- **Other vulnerable groups** residing in marginalized areas, such as those prone to drought and flooding as well as the disabled, elderly and other marginalized are considered to be particularly vulnerable. The project will therefore explicitly take into account the special needs of such vulnerable groups to ensure they benefit from the project interventions. In particular, the project will train and support local actors in strengthening local governance to enhance the autonomy and voice of marginal and vulnerable groups (women, youth and Batwa) and improve access, control and management over natural resources and conflict resolution (using the PNTD approach). Also, specific activities will be organised in and out of schools for school-aged children (learning on food, nutrition, soil and water through vegetable gardens/FFS study plots) and through FFS and value chain development women and youth will be included in agro-business (post-harvest storage, processing, access to markets and credit).
- **Food security** has very strong linkages to the restoration of the degraded agricultural lands including steep slopes, riverine areas and wetlands.. The improved varieties / agricultural practices (including agroforestry) and SLM / INRM actions under the project will ensure increases in crop and livestock yields to reduce the currently high levels of hunger and will contribute substantively to household level food security in the local communities. The wider dissemination of knowledge of SLM / INRM (Output 1.2 - support mainstreaming of SLM knowledge and SLM Learning Alliance) will catalyse wide scaling-out of the win-win-win benefits of SLM / INRM through FFSs and catchment management in Burundi, which should catalyse improvements in household and community level food security beyond the project's intervention catchments.
- **Ownership by local institutions and communities** of the overall processes of the project are vital for the social sustainability of the project. The basic theories of community catchment management and farmer field schools include commitment and display of ownership by local communities and strong facilitation of local institutions; the project's strategy is to implement SLM / INRM through robust FFSs and watershed committees, which will ensure continued ownership and decision making processes at the local level post project.

4.2 Environmental Sustainability

The project will be implemented in highland areas under moderate to severe threat of degradation where there are increasingly high levels of food insecurity, despite land users adopting some SLM approaches and growing a diversity of crops.

This project will catalyse land users to adopt integrated suites of SLM / INRM technologies and agro-silvo-livestock systems to boost their yields (diverse crop, livestock and tree products) crop yields, within an overall landscape approach through supporting community micro-catchment planning, aiming to restore wider ecosystem functioning for win-win-win benefits. Educational material and planning efforts will pay attention to key elements of the policy and legal framework relating to land degradation/ management, sustainable agriculture, agro-biodiversity and climate change

The project will also support efforts to increase tree and shrub cover with indigenous species and reducing pressure on the existing wood resources through promotion of more energy efficient stoves / charcoal production methods. It will also promote attention to biodiversity by demonstrating increased resilience (to climate and market shocks) and food security that land users can derive from growing local nutritious food and fodder crops (neglected orphan crops, fruit varieties, leguminous species) local animal breeds for meat and dairy products and agroforestry species for energy/ biomass. It will also reduce pressure on woody biomass and biodiversity through a study of wild plant relatives in the target catchments/communities and in the buffer zone for Kibira national park and biodiversity fairs and demonstration gardens to make available diverse species/varieties to farmers according to interests and preferences.

4.3 Financial and Economic Sustainability

Project interventions will seek to ensure a viable anchor into existing local and institutional systems to create favourable conditions for the sustainability of the achievements and to ensure sustainable management of investments. In this perspective, the project is positioned as a tool for facilitating the emergence and sustainable development of the inter-sectoral approach. The integration of project activities in major national development programmes, and in the community planning process, will ensure the institutionalization of a regular support from government (human and financial resources) and local communities (in kind and cash). At the community level, the project will promote the sustainable use of resources through increasing revenues that as land users will derive from the sustained productivity, opportunities for exploitation of neglected aspects of biodiversity (local crop fruit varieties as foods, local animal breeds, leguminous fodder crops, agroforestry, market niches, medicines, biomass, etc.), potentially incentives payments for environmental services (use of energy efficient stoves) and other government support (for carbon sequestration, drought mitigation, biodiversity conservation).

The project therefore will place particular emphasis on information, structuring and involvement of beneficiaries in the various activities that lead to the above. It will support and strengthen the emergence of entities and capabilities able to represent the needs of the population and mobilize them around community driven projects from the community supported by competent local service providers. This community and participatory development approach is a guarantee for good ownership by the beneficiaries of the initiatives and achievements of the project. This will ensure These establish and form a technical and organizational level, support at the catchment/watershed level and for associated for each type of infrastructure achieved, through establishing management committees to ensure proper monitoring, maintenance and investment management. Local governments and authorities will also be supported by the project in order to be able to provide advisory support and monitoring activities during and after project completion. Taking into account the level of development of producers organizations (POs) in terms of organizational capacity and OP management will determine the required decision on the level of intervention. Evaluations of organizational and management capacities shall be annual and conducted in a participatory manner so as to . So it is important to ensure an target and provide expanded coaching and quality.

The project is essentially a project of capacity building project, and its success will be measured by the scale of the adoption of improved and diversified natural resources management systems and practices and results in terms of improved livelihoods. The sustainability of project achievements will be based largely on the dynamism and the capacity of these structures to maintain and fully enhance the investments made. The project will strive to put in place mechanisms to encourage and enable beneficiaries (land users and service providers) to strengthen their organizations and their technical and financial capacity and to support the upkeep and maintenance of the investments made by the project. The dynamism and capacities generated will in turn determine the sustainability of project achievements.

The project will facilitate in particular the organization of beneficiaries groups and cooperatives able to organise themselves to access and, as needed, draw on savings and credit for the purchase and reliable supply of agricultural inputs and/or investment by members in seed multiplication, processing equipment, storage facilities (granaries; sheds) and for autonomous management of enterprises (nurseries, seed banks, woodlots etc.). seek and obtain credit for particular finance the purchase of agricultural inputs for the former and the purchase of the provided by the members in storage sheds, autonomous management of developed sites and sustainable systems of input supply. The capacity of producer organizations (associations and cooperatives) will be strengthened to create self-developed sites, implement and manage a sustainable supply of inputs, and ensure the continuous availability of quality seeds in partnership with specialized research institutes. Improving the supply of good quality seeds and the levels of adoption of improved farming practices will ensure the transition towards sustainable integrated systems of production that are viable and resilient to shocks.help make sustainable systems of production.

The sustainability of the project investments will be guaranteed by strengthening the capacity of existing and permanent structures (POs of first and second level, decentralized technical services of the DPAE, etc.) and by offering quality services to small producers. Moreover, the accountability of producers' organisations in (i) the completion of input controls, (ii) the management of productive investments (equipment, stores, etc.) and (iii) the mastery of the implementation of their activities will ensure their economic independence and decision-making capacity (planning and management). The investments planned by the project at post-harvest level will: (i) increase incomes and improve living conditions of rural populations through improved productivity of both sectors concerned and the new enterprises /agro-business opportunities; (ii) reduce transaction costs and losses due to improved processing techniques, storage and packaging facilities; (iii) decrease imports of products of priority industries promoted; (iv) structure agro- businesses into pre cooperative structures for the emergence of private producers / cooperative societies, a strategic step for the future sustainability and economic development.

The approach to the animal developing a community solidarity chain for livestock that has been successfully used in Burundi will be enhanced and extended to vegetable production (inter alia banana plants + sweet potato strings) in particular and local seed banks and multiplication.

4.4 Sustainability of Capacity Development

One of the specific objectives of the Burundi IAP-FS-FS project (and indeed the overall programme) is to contribute to improving the organizational and technical capacities of the institutions and communities involved in the sustainable management of land and the development of value chains to ensure food and nutrition security.

To achieve this goal, two strategic choices have been made during project design: 1) strengthening the organizational and managerial capacity of stakeholders and 2) technical capacity building at all levels.

Strengthening the organizational and managerial capacities of sectoral and existing intersectoral bodies for improved coordination of institutions will focus on activities contributing towards the creation of a more conducive environment for the implementation of SLM. Support for the adaptation of the institutional and legal frameworks to enhance the principles SLM and INRM, also strengthening the technical and managerial material capacities of key existing platforms for improved dialogue and collaboration among between the sectoral ministries such as GSADR at all levels (national and provincial levels) are ways that will ensure assurance on good intersectoral coordination and cooperation. This capacity building of the network of key SLM resource persons/people at national, provincial and municipal levels will essentially comprise stakeholders from the multiple agriculture and environment subsectors under (MINAGRI and, MEEATU), also local administration and communities. This broad approach will ensure the sustainability of local resources mobilized by the different stakeholders.

Participation and accountability of public institutions, local government and communities to the beneficiaries based on participatory planning, implementation and monitoring and assessment of all activities of the project is likely to ensure the sustainability of actions, through making land resources more productive in the medium to long-term and providing beneficiaries with improved incomes and more resilient livelihoods from healthy and resilient ecosystems. them with additional resources.

The enhancement of the technical capacity of the direct beneficiaries (communities) and management structures both private and public (extension services of MINAGRI, MEEATU and local NGOs) that are actively in the GDT) involved in SLM will be based on adapted approaches and technologies for sustainable and integrated planning and management of natural resources and production systems that guarantee sustainability. Indeed, the approach of technical capacity development building chosen based on community management through management and integrated microcatchments planning and management building on local knowledge also practice-oriented action using the FFS approach as well as expertise of technical/ research bodies, will enhance adaptation and resilience. by extension based on local knowledge, also practice-oriented action using the FFS approach assures this.

The themes of the training included in this project design at national, provincial and local levels have been proposed by beneficiaries, to meet their needs.

The selection of beneficiaries of FFS training of FFS master trainers and as facilitators/, animators as well as who favor voluntary producers, local technicians on site (provincial/municipal agriculturists, zonal assistants and local facilitators) will contribute to the sustainability of capacity development building activities.

The organization of exchange forums at regional and national level on sustainable land management SLM practices, sustainable food and agricultural systems and integrated natural resources management approaches and their impacts is an effective way of opening eyes to new technologies / best practices applicable at the national or local level. The importance of adaptive management for developing best practices and technologies to address issues of local and national importance (e.g. nutritious foods for consumption and sale and for enhanced national food security; energy saving technologies for land users that contribute to carbon sequestration and climate mitigation at national level).

4.5 Appropriateness of Technologies Introduced and Cost/Effectiveness

Technologies

The project will, using the FFS approach, encourage well-tested¹ and cost-effective integrated locally adapted “recommended options” (for each agroecosystem) of SLM and INRM technologies (including landscape + agroecological + climate smart agriculture approaches), *inter alia* agroforestry (with native species), evergreen agriculture, various other methods to enhance soil organic matter content (to enhance rainfall infiltration and storage, also nutrient retention – and overall functioning), soil water conservation and promoting local agrobiodiversity (e.g. reviving interest in growing neglected crops (taro and finger millet – see Annex 21).

The project will use training methodologies and technical assistance approaches currently used by FAO that are known and accepted by technical experts and producers. Local knowledge of farmers and indigenous communities is included in this approach.

The project technical feasibility is based on the presence of entities with sufficient fundamental technical capacity to support and further transfer local technologies at the ground level. The project will ensure this through improving the technical capacities of province and local level technical and extension staff, including through training of FFS master trainers, to enable them to provide this improved approach to farmer advisory services.

Only small hand tools, items such as foot pumps and small-scale processing and packaging equipment will be included through the project.

Cost-effectiveness

The project design is cost-effective because it is based on several baseline projects / programmes, will utilise local and national skills and infrastructure, and is aligned to local and national policies. A number of strategies and methodologies have been identified that are complementary and synergistic, including cost-effective ways of removing the barriers and addressing the threats to GEBs, including:

- i) The project development is based on extensive consultations and coordination between key sectoral partners in the country, this is reflected in the co-financing partnerships, this will enhance synergies, avoid duplication of efforts, and reduce the implementation costs;
- ii) The participation of key stakeholders (including national level government entities in PSC) will ensure that decision-making and project implementation will be aligned to local development priorities and public financing mechanisms;

¹ The project will implement technologies advocated in the existing documents on good SLM practices such as those developed by the GEF project “capacity building” in Burundi and the TerrAfrica programme. The project will also disseminate tools such as the WOCAT database, tools and questionnaires to document and assess SLM approaches and technologies, which include existing technical data on Burundi and in the same agro-ecological zones elsewhere (Rwanda, Uganda etc.).

- iii) Training and awareness-raising among local communities participating in the FFSs will contribute to restoration of ecosystem services across the intervention microcatchments and scaling-up across co-financing projects' intervention areas to produce scalable results;
- iv) Strengthening the FFS approach through the value chain approach and turning them into pre-cooperatives is a cost effective way to make the FFSs economically and financially sustainable;
- v) The institutional capacities developed at the provincial and national levels will contribute to the scale-up of the project activities, helping the effective management of natural resources at the national level;
- vi) The systematization of experiences and lessons learned made available to project partners and key stakeholders will also contribute to a cost/effective replication of project results throughout the country and across other IAP-FS programme countries.

4.6 Innovativeness, Replication and Scale-Up

Innovativeness

The project promotes a multi-sectoral approach and coordination at the national, provincial and local levels for SLM / INRM using a landscape approach (catchment planning), build inter-sectoral coordination mechanisms to ensure mainstreaming of SLM / INRM. The project strategy is also based on strengthening national to local institutions and establishing national to local level support systems (policy platform and knowledge sharing mechanism).

These new / revived support systems will mobilise uptake of provide support for integrated SLM / INRM and providea links to wider sources of information and support via the IAP-FS regional hub project / network of the twelve child projects.

On the ground level, the project will be innovative, through catalysing as it will not only catalyse establishment of FFSs which focus on SLM / INRM using a catchment approach so as to mobilise wider community involvement and scaling out at landscape levelapproaches, and enhancing the organization of but also link up land users and assist them to benefit from improved links to value chains (access to improved planting materials, inputs, advice on storage/ packing, bulking to enhance marketing etc.) where none currently exist. The project will pilot the use of "Digital Green" innovative video-enabled media approach for improved communications to share knowledge on improved agricultural practices, and their livelihood, health and nutrition benefits and will promote on innovative planning, financing and incentive measures for SLM/INRM scaling out at community/watershed and wider landscape scale.

The project is also piloting a number of tools including the use of HH-BAT, a project-customised version of the SHARP, the "Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists" tool developed by the FAO is designed as an instrument to assess the resilience of farmer and pastoralist households to climate change. Due to its nature as a self-assessment tool, HH-BAT has been a valuable addition for project design and will be used throughout the project implementation as a monitoring and evaluation tool. During the PPG, HH-BAT has been used to establish of a resilience baseline at household level, from which the impacts of project interventions will be observed, measured and asif necessary during implementation can be better targeted.

This could be backed up by linking with the innovative Integrated Food Security Phase Classification (IPC) tool for improving food security analysis and decision-making. M & A of SLM practices and their impacts will also enable to take advantage of the wealth of accumulated knowledge: traditional, innovative experiences, projects, research results and lessons learned - successes and failures.

Replication and up-scaling

The project sites are representative of the highland agroecosystem of Burundi. Thus the SLM / INRM technologies being advocated via FFS approaches by the project will beare replicable in many other areas of the country and scaled outwill be replicated during the project in collaboration withby cofinancing projects (PRODEFI II, PRODEMA, LVEMP as well as through synergy in terms of technical guidance and the WB landscape restoration porproject). The systematization of experiences, lessons learned and production

of training tools will serve to promote the scaling outreplication of project results through national strategies at the national levels, also across the target geography of the IAP-FS programme.

The up-scaling potential of the project activities and results is high, given its complementarity with national policies, plans, and programmes, particularly the co-financing projects of IFADPRODEFI II and the World Bank co-financing projects. It is envisaged that they will both – which will use the training of trainer process and agro-ecosystems tailored SLM technologies options and recommendations in their implementation areas and, in turn, will provide IAP-FS with improved value chains where the projects operate in neighbouring watersheds.

Lessons will be shared across the IAP-FS programme to the eleven other participating countries through activities of the IAP-FS regional hub project.

In addition, the FAO Representation in Burundi will disseminate information through the FAO regional initiatives that are led by the FAO offices in Accra, Ethiopia and Harare, on the results and lessons learned with other countries in the region with similar characteristics and problem.

ANNEX 1: Results Matrix

Results Chain	Indicators	Baseline	Mid-term milestone	Target	Means of Verification (MOV)	Assumptions
<p>Objective: To increase adoption of resilient, improved production systems for sustainable food security and nutrition through integrated landscape management and sustainable food value chains</p>	<p>(i) % households suffering from moderate +severe food insecurity in intervention microcatchments</p>	<p><u>Moderate:</u> 74% (male led HH), 76% (female led HH) <u>Severe:</u> 2 % (male led HH), 2% (female led HH) (male led HH) (HH-BAT baseline survey)</p>	N/A	<p>(i) Moderate: 65% (male led HH), 65% female led HH) Severe: 0% (male led HH), 0% (female led HH)</p>	<p>Project M&A tool: HH-BAT survey</p>	<p>Many other factors affecting % HHs suffering from hunger – thus assumes no drought etc.</p>
	<p>(ii) % increasing dietary diversity among project community households (% households daily consume (a) at least 5 different food groups, (b) animal protein (HH-BAT baseline data)</p>	<p>(i) 23% (male led HH), 16% (female led HH) (ii) 5% (HH-BAT baseline survey)</p>	N/A	<p>(ii) (a) 40% (male led HH), 35% (female led HH) (b) 15%</p>	<p>Project M&E tools: Collect earth (vegetation cover, perennials), ground truthing HH-BAT survey</p>	<p>Topic remains of high relevance to government</p> <p>Security situation is stable</p> <p>Concerned ministries’ willing to collaborate</p>
	<p>(iii) IAP TT LD-1 (i): Land area under effective agricultural, rangeland and pastoral mgmt practices and/or supporting climate-smart agriculture</p>	0ha	N/A	<p>30,079 ha (including (i) 8,000ha of increased trees in cropping systems/agroforestry plus reforestation of LD hotspots, (ii) 15,000 ha annual crops; and (iii) 7,079 ha perennial crops).</p>		

Component 1: Strengthened institutional framework and support mechanisms

<p>Outcome 1.1:</p> <p>Multi-stakeholder and multi-scale platforms operational in supporting policy, institutional and knowledge sharing mechanisms for scaling out of sustainable agriculture systems and integrated natural resources management approaches.</p>	<p># IAP TT LD-4 (ii): Type of mechanisms, institutions, legal and regulatory frameworks</p> <p><u>Mechanisms:</u></p> <p>(i) Provincial policy platforms (incl. AgBD)</p> <p>(ii) Knowledge sharing and planning mechanism on ILM</p> <p><u>Legal & regulatory frameworks:</u></p> <p>(iii) ILM regulatory framework</p> <p>(iv) National FFS strategy (extent of operationalization)</p> <p>(v) Country Strategic Framework (CSIF) (applied)</p>	<p><u>Mechanisms</u></p> <p>i) National and Provincial GSADR existing</p> <p>ii) No KS or coherency across sectors on SLM/INRM scaling out approaches</p> <p><u>Legal & regulatory frameworks:</u></p> <p>iii) No ILM framework in place/piloted</p> <p>iv) National FFS strategy is available but has not yet been operationalized</p> <p>v) CSIF in place but does not include INRM/landscape</p>	<p><u>Mechanisms</u></p> <p>i) N-GSADR and P-GSADRs actively supporting INRM scaling out in Mwaro, Gitega and Muramvya (concrete actions)</p> <p>ii) KS mechanisms set up and being piloted: 1 national, 3 provincial, 4 local</p> <p><u>Legal & regulatory frameworks:</u></p> <p>iii) Consultations held, including community, gender and Batwa representation, for developing harmonised guidance for implementing INRM FFS and interlinked value chains</p>	<p><u>Mechanisms</u></p> <p>i) P-GSADR has demonstrated success in scaling out INRM in 3 provinces (intersector policy and actions etc)</p> <p>ii) KS mechanisms (1 national linked to WOCAT global, 3 provincial, 4 local) effectively sharing best practices on INRM and value chains.</p> <p><u>Legal & regulatory frameworks:</u></p> <p>iii) Harmonised guidance in place for implementing INRM, erosion control, BD, and interlinked value chains</p> <p>iv) FFS strategy fully operationalised</p> <p>v) CSIF applied/integrated in plans and budgets at</p>	<p>i) Media coverage showing policy support for INRM</p> <p>Project reports</p> <p>Misc. national and provincial reports</p>	<p>Topic remains of high relevance to government</p> <p>Concerned ministries' willing to collaborate</p>
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		approaches and not effectively applied	iv) FFS strategy partly operationalised v) Consultations held, including community, gender and Batwa representation, for planning CSIF implementation at provincial (3), communal (3) and watershed (3) levels	provincial (3), communal (3) and watershed (3) levels		
<p>Output 1.1.1: Agriculture and Rural Development Sector Working Groups (GSADR) at national (1) and provincial (3) levels strengthened and watershed management committees and multi-year plans in place at project sites (9).</p> <p>Output 1.1.2: Functioning multi-stakeholder knowledge sharing mechanism in place at national (1), provincial (3), and local (4) levels (watershed; FFS networks) and promoting exchange of experiences and lessons learned (success and failure) on scaling out SLM /INRM at landscape scale.</p> <p>Output 1.1.3: Legal and regulatory frameworks on SLM, sustainable use of agrobiodiversity and agricultural and environmental strategies and plans better known at national (1) and provincial level (1) and applied in communal development plans and watershed management plans.</p> <p>Output 1.1.4: National strategy for harmonisation of FFS-INRM operationalised in 3 provinces with particular attention to resilient and sustainable food and agricultural systems.</p> <p>Output 1.1.5: Communities consulted through a participatory negotiated territorial development (PNTD) and Free prior informed consent (FPIC) process (from 2).</p>						
<p>Component 2: Improved livelihoods and food security through integrated watershed management, competent producers' organizations and sustainable food systems</p>						

<p>Outcome 2.1: Increased land area and agro-ecosystems under integrated natural resources/ landscape management and supported by FFS and sustainable value chains for increased production and sustainable livelihoods</p>	<p>i) # IAP TT LD-3 (ii): Application of INRM practices in the wider landscape</p> <p>ii) extent of adoption of SLM/integrated landscape management practices</p> <p>iii) # % of farmers producing for market (disaggregated by gender)</p>	<p>i) 0 catchments</p> <p>ii) HH-BAT baseline: shows that many farmers use advised practices but not in a systematic manner so as to improve productivity and ES (manuring 93% crop rotation 83%, agroforestry 79%, agro-sylvo-pastoral integration 75%, intercropping 68%, contour lines 56%.)</p> <p>iii) HH-BAT baseline: 53% produce for markets of which 37% female led HHs</p>	<p>i) 9 catchments with diagnostics completed and community plans developed for INRM including enhanced ABD (at genetic, species and habitat levels)</p> <p>(ii) Diverse improved SLM practices adopted in a combined approach and being monitored and documented by FFS and communities in the 9 catchments</p> <p>iii) 2,500 (>30% female headed households, 20% orphan headed households)</p>	<p>i) 9 catchments implementing INRM with enhanced BD (at genetic, species and habitat levels)</p> <p>ii) Integrated agrosilvopastoral systems with well designed SLM practices effectively combined across 9 catchments and multiple benefits on livelihoods and ES documented and demonstrated</p> <p>ii) 30,000 ha of combined SLM practices in place by the project end plus 50,000 ha scaled up through baseline projects and watershed plans (including 4,000 ha of agrobiodiversity in particular orphan crops such as finger millet)</p> <p>iii) 8,930 (> 30% female headed households, 20%</p>	<p>i) and ii) Catchment plans and sketch maps and project reports</p> <p>iii and iv) Project M&A tool: HH-BAT survey and DATAR (disaggregated by gender)</p>	
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	<p>iv) # % farmers with improved production (disaggregated by gender)</p> <p>In addition, the project will generate carbon benefits. (v) metric tons of CO2 eq avoided</p>	<p>iv) no systematic information on total yields and diversification (baseline collected through FFS)</p>	<p>iv) FFS monitored and demonstrating production and diversity increases compared to normal practice (+25% by 100 FFS)</p>	<p>orphan headed households)</p> <p>iv) FFS monitored and demonstrating production and diversity increases compared to normal practice (+25% by 200 FFS)</p> <p>In addition, (v) over a duration of 5 years: - On-farm (increase in biomass/agri. crops): 28,213t CO2 eq avoided - On-farm (increase of tree cover): 97,920t CO2 eq avoided The indirect benefits (over a capitalization phase of 15 years): - On-farm (increase in biomass/agri. crops): 564,266t CO2 eq avoided - On-farm (increase of tree cover): 1,958,407t CO2 eq avoided</p>		
<p>Output 2.1.1: Micro-watershed management plans developed and implemented (9) using combined appropriate SLM technologies and a harmonised INRM approach</p> <p>Output 2.1.2: National FFS curricula (1) updated and FFS master trainers (25) and facilitators (100) trained on the job with 318 FFS groups which are practicing and supported in SLM/ INRM at farm and watershed scale.</p>						

Output 2.1.3: Network of (pre) cooperatives/producer organizations and FFS groups supported and demonstrating improved access to food value chains (merged pre 2.3+2.4)

Output 2.1.4 : An in situ seed bank system established and farmer-produced adapted varieties promoted through FFS and knowledge sharing on nutritional and other benefits of diversified local food systems at community and provincial levels

Output 2.1.5: Steep slopes and highly degraded areas rehabilitated through tree planting, with attention to indigenous species, to increase biodiversity, productivity and resilience and to reduce pressure on woody material.

Component 3: Monitoring and Assessment of Global Environmental Benefits and Socio-Economic Impacts to Inform Decision Making

<p>Outcome 3 M&A framework in place and capacity of relevant institutions built capacitated in carrying-out monitoring activities and communicating experiences and impacts for informed decision making</p>	<p>Targeted institutions: IGEBU, OBPE, MINAGRIE, MEEATU, universities</p> <p>(i) # staff in concerned institutions trained and applying tools and systems for monitoring GEBs, SLM/INRM and interlinked value chains and their impacts on food and livelihood security and ecosystem services</p> <p>(ii) # farmers applying participatory impact monitoring tools</p> <p>(iii) Communication strategy in place (visibility and for development)</p> <p>Availability of project results and communication materials in country and shared with regional Hub</p>	<p>i) 0 staff trained and applying tools for monitoring impacts</p> <p>ii) 0 farmers applying participatory impact monitoring tools</p> <p>iii) no information and communication materials</p>	<p>i) 80 staff trained and applying tools for monitoring multiple impacts</p> <p>ii) 250 farmers applying participatory impact monitoring tools and sharing results through FFS exchanges</p> <p>iii) Communication strategy in place and project experiences shared through diverse, targeted communication and technical materials (at least 6 per year)</p> <p>SLM/INRM impacts compiled and shared on a</p>	<p>i) 200 staff trained and applying tools for monitoring multiple impacts</p> <p>ii) 636 farmers applying participatory impact monitoring tools and sharing results</p> <p>iii) Communication strategy effectively implemented and project experiences shared through diverse, targeted communication and</p>	<p>Project M&E system</p> <p>Project reports</p> <p>National reports</p>	<p>Topic remains of high relevance to government</p> <p>MINEEATU</p> <p>MINAGRIE</p>
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			6 monthly basis for discussion and decision making/planning at all levels including through project steering committee and GSADR	technical materials (10 per year) SLM/INRM impacts compiled and shared on a 6 monthly basis and workshops to discuss findings and policy implications at provincial (3) and national levels (1) (e.g. GSADR and DPAEs) and regional hub level (2)		
<p>Output 3.1.1: Government staff and extension workers trained and able to use relevant M&A tools and approaches, also in archiving and analysing data</p> <p>Output 3.1.2: Pre-cooperatives and FFS groups trained and able to use participatory impact monitoring tools and approaches (HH-BAT, FFS PM&E, LADA local) as a basis for decision making.</p> <p>Output 3.1.3: Project results and experiences compiled, communicated widely and shared with the project regional hub and partner projects.</p> <p>Output 3.1.4: Project progress reports prepared on time, mid and final review/evaluation conducted</p>						

ANNEX 2: Work Plan

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Component1: Strengthened institutional framework and support mechanisms																
Outcome 1.1: Multi-stakeholder and multi-scale platforms in support of policy and institutional reform and knowledge sharing mechanism for upscaling of SLM / integrated natural resources / landscape management in place.																
Output 1.1.1: Agriculture and Rural Development Sector Working Groups (GSADR) at national (1) and provincial (3) levels strengthened and watershed management committees and multi-year plans in place at project sites (9)	Conduct capacity needs assessment of existing groups (GSADR) at national (1) and provincial (3) levels	PCU with government counter part														
	Develop and put in place a capacity development strategy to scale-out SLM practices and INRM approaches at all levels, including support in decision making, planning, implementation, evaluation and investment.	PCU with government counter part														
	Establish/strengthen technical and organizational capacity of inter-sectoral platforms at local landscape level including management of inter communal watersheds	PCU with government counter part														
	Review and strengthen the roles and capacities of watershed committees in planning and management, and their links to other institutions, organisations and technical services (elected leaders, producers organisations- male and female farmers, livestock keepers and foresters, FFS groups, committees that manage water resources and hydraulic structures)	PCU with government counter part														
	Advocate for mobilising resources for implementing watershed management plans with the support of policy makers and investment programmes at	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	communal, provincial (DPAE) and national levels (SIPMRD, PNIA, NCCP)															
Output 1.1.2: Functioning multi-stakeholder knowledge sharing mechanism in place at national (1) provincial (3) and local (4) levels (watershed; FFS networks), including promoting exchange of experiences and lessons learned (success and failures) on upscaling of SLM / integrated natural resources / landscape management	Establish a National SLM Learning Alliance (ACCESS-SLM) to produce, validate, exchange and distribute appropriate tools and thereby strengthen capacity of technical sectors and field projects (i.e. technical briefs, training modules targeted to different levels and actors, SLM action-research on SLM, INRM, FFS, sustainable agriculture and food security,	PCU with government counter part														
	Facilitate the participation of SLM Learning Alliance members in IAP-FS regional hub activities and solicit exchange visits/ workshops/ policy dialogue between countries on priority themes such as	PCU with government counter part														
	Raise awareness of actors on key UNCCD, UNFCCC, CBD and FAO decisions and promote knowledge sharing tools notably the use of WOCAT global database on SLM and the Science Knowledge Brokering Portal (SKBP) and the Economics of land degradation (ELD) knowledge base.	PCU with government counter part														
	Train and support actors on the ground/ partner projects in assessing and entry of SLM best practices (locally identified technologies and approaches) in the WOCAT global database	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	Support exchange visits /events between FFS and their communities to exchange innovations/good practices and analyse impacts (open days, producers' fora etc.)	PCU with government counter part														
	Collaborate with universities/agricultural schools to develop case studies to show the results and impacts of sustainable integrated agricultural systems/ INRM and support their integration in programmes and curricula.	PCU with government counter part														
	Develop and use audiovisual materials to share innovative practices and their benefits through training and communications (e.g. Digital Green) with partner projects and actors (advisory services, NGOs, state services and private sector) (linked to Output 3.3)	PCU with government counter part														
Output 1.1.3: Legal and regulatory frameworks on SLM, sustainable use of agrobiodiversity and agricultural and environmental strategies and plans are better known at national (1) and provincial level (1) and taken into account and applied in communal development plans and	Develop educational material on key elements of the policy and legal framework relating to land degradation/management, sustainable agriculture, agro-biodiversity and climate change (notably NAIP, NAPA, UNCCD, CBD, UNFCCC strategies, policies and action plans) (P,L)	PCU with government counter part														
	Conduct information events and support the application of relevant instruments for SLM/INRM including FAO Voluntary Guidelines (soil management, tenure, pastoral, responsible agricultural investments) (N, P)	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
watershed management plans	Facilitate the conception and application by watershed management committees of local rules and by-laws through their watershed action plans to address priority problems related to access, control and management of natural resources and raise awareness of local authorities for their wide application through communal development plans (PCDC).	PCU with government counter part														
	Catalyse a participatory review at provincial level of status and performance of the country strategic investment framework for SLM to update and share lessons learnt	PCU with government counter part														
	New pilot national and provincial dialogues to develop a consensual approach and tools for implementation of the watershed and wetland planning/development strategy, the recent MINAGRIE Erosion Control Protocol and Action Plan and other relevant instruments	PCU with government counter part														
Output 1.1.4 National strategy for harmonisation of FFS-INRM operationalised in the 3 provinces with particular attention to resilient and sustainable food and agricultural systems	Support operational mechanisms for the national strategy for harmonisation of FFS-INRM (Steering committee, national consultation platform, field operational units) and facilitate exchange on FFS animation, innovation, planning, quality control, monitoring and evaluation	PCU with government counter part														
	Develop FFS operational guides to facilitate learning-research-action on SLM practices, sustainable agro-silvo-pastoral	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	systems, agribusiness, nutrition, governance and gender.															
	Establish a permanent network of FFS facilitators and master trainers to support the scaling out of SLM practices and watershed management approach by partner projects (PRODEMA, coffee project and LVEMP of the World Bank, PRODEFI of IFAD and PSADR-IM of EU and others)	PCU with government counter part														
	Organise and fund exchange visits and meetings of FFS network members (producers) in the 3 provinces and with partner projects and the regional Hub	PCU with government counter part														
	Mainstream the FFS approach into provincial programmes, institutions and service providers to support sustainable and resilient food and agriculture systems	PCU with government counter part														
Output 1.1.5: Community consultations through a participatory negotiated territorial development process (PNTD) and Free prior informed consent process (FPIC) conducted	Identify actual and potential conflicts regarding governance and management of natural resources and ecosystem services through consultations among actors, including the most vulnerable using a PNTD approach.	PCU with government counter part														
	Undertake dialogue and consultation with the « Batwa » people through representatives in the project areas, to obtain their FPIC:	PCU with government counter part														
	Train and support local actors in strengthening local governance to enhance the autonomy and voice of marginal and vulnerable groups (women,	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	youth and Batwa) and improve access, control and management over natural resources and conflict resolution (PNTD approach)															
Component 2: Improved livelihoods and food security through integrated watershed management, competent producers' organizations and sustainable food systems																
Outcome 2.1: Increased land area and agro-ecosystems under integrated natural resources/landscape management and SLM best practices and supported by FFS and sustainable value chains																
Output 2.1.1: Micro-watershed management plans developed and implemented (9) using combined appropriate SLM technologies and a harmonised integrated natural resources management approach	In 9 micro-watersheds undertake a participatory diagnostic on the state of natural resources and livelihoods, both on the ground and through analysis of satellite imagery, (e.g. LADA-Local, WOCAT, ROAM, Collect Earth tools to assess and map land use, degradation and SLM practices)	PCU with government counter part														
	Organise exchange visits for professional staff, community representatives, local leaders to existing watershed interventions (Kagera TAMP, LVEMP, IFAD etc.)	PCU with government counter part														
	Conduct practical training for technical teams at communal and zonal levels on diverse adapted technologies, their comparative advantages (benefits) and how they are combined in a watershed (using WOCAT fact sheets and available manuals (see Output 1.2)	PCU with government counter part														
	Support the development of 9 watershed plans and train watershed management committees in planning, management, review of progress and partner collaboration (see Outputs 1.1 and 3.2)	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	Support the implementation of watershed plans and assessment and documentation of SLM technologies and approaches (using WOCAT tools)	PCU with government counter part														
	Encourage experience sharing between communities and watersheds and promote wide adoption (research-action activities, incentive measures, open days and competitions /prizes)	PCU with government counter part														
Output 2.1.2: FFS master trainers (25) and facilitators (100) trained on the job with 318 FFS groups and practicing SLM/INRM at farm and watershed scale, and national FFS curricula (1) updated.	Develop updated curricula for training FFS experts/master trainers and facilitators in sustainable agriculture, integrated land /natural resources management, links to markets and nutrition	PCU with government counter part														
	Conduct practical and refresher training of at least 100 facilitators and 20 selected FFS experts, and provide intensive coaching to the latter so as to establish a group of highly competent master trainers to support various projects.	PCU with government counter part														
	Strengthen at least 49 existing FFS groups and develop action plans with 269 new FFS to develop capacities of some 318 FFS (totalling 8,000 male and female producers) on sustainable agriculture, nutrition, SLM /INRM and market linkages	PCU with government counter part														
	Train the farmers over a full year (rainy and dry seasons) on SLM activities at farm and watershed scale and improved livelihoods (including use of perennial species, soil, water and biodiversity management, conflict resolution,	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	marketing, enterprise development, local savings and credit, monitoring)															
	Encourage the scaling out of FFS in neighbouring communities and watersheds and through networking with partner projects and investment programmes in Mwaro, Muramvya et Gitega provinces	PCU with government counter part														
Output 2.1.3: Network of (pre) cooperatives/producer organizations and FFS groups supported and demonstrating improved access to food value chains	Conduct a diagnostic study and selection of (pre) cooperatives/producers organisations for developing new food value chains and/or accessing those set up by partner projects (IFAD, World Bank and other);	PCU with government counter part														
	Support feasibility studies and formulate business plans for FFS groups/producer organisations to develop food value chains in partnership with NGOs/CSOs (in particular, honey making at Mukuzi and Muhanda and other products for nutrition and value addition– such as fruits and vegetables, orphan crops and processing activities)	PCU with government counter part														
	Develop training material and train staff of advisory services to support groups in improved value chains (processing, storage, marketing, as well as access to small equipment, community micro-credit and savings, self-financing, revolving funds and warehouse receipt systems)	PCU with government counter part														
	Support the participation of members of (pre)cooperatives and producers	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	organisations in policy-dialogue activities under Component 1															
	Support local/national initiatives to promote sustainable local food systems and value chains, and to raise awareness of consumers and support sustainable agricultural labelling (bio, agroecology, territory.)	PCU with government counter part														
	Raise awareness of communities, FFS and (pre) cooperatives on the nutritional and other benefits of diversified food systems, through communication events (on nutrition and healthy diets, setting up school gardens and integrating basics of nutrition in FFS. (linked with Output 3.3)	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Output 2.1.4: An in situ seed bank system established and farmer-produced adapted varieties promoted as a basis for local food systems and improved nutrition	Train partners in a pilot site in each province in conducting a genetic diversity assessment through study tours, field visits and workshops (from diagnostics, to data collection, analysis and monitoring)	PCU with government counter part														
	Mobilise research to undertake a study of wild plant relatives in project areas and in the buffer zone for Kibira national park.	PCU with government counter part														
	Organise biodiversity fairs (3 sites x 2 times) and establish and support demonstration gardens (3) to provide diverse species/varieties to farmers according to interests and preferences	PCU with government counter part														
	Support the functioning of community seed banks including quality control, intercountry visits and exchange of seed and germplasm	PCU with government counter part														
	Train FFS members and youth groups (male and female) as seed multipliers with support of ISABU, MINAGRIE and the Bugarama seed centre	PCU with government counter part														
	Support use of healthy high quality germplasm and promote adapted new and preferred varieties [such as fruits, vegetables, coffee, corn and manioc] in collaboration with ISABU, IRAZ and laboratories for in vitro propagation	PCU with government counter part														
	Promote diversified systems with orphan crops, diverse legume species, fruits and vegetables to enhance nutrition, through awareness raising, complementary training and school gardens	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Output 2.1.5: Steep slopes and highly degraded areas rehabilitated through tree planting, with attention to indigenous species, to increase biodiversity, productivity and resilience and to reduce pressure on woody material.	On steep slopes and degraded sites identified on watershed management plans for restoration, increase the cover and diversity of woody/forest species through natural regeneration and tree planting, with a focus on indigenous and fast growing species.	PCU with government counter part														
	Promote forest management techniques to enhance plant survival, productivity and multiple use as well as water conservation and runoff management to reduce erosion, landslides and flooding in valley bottoms	PCU with government counter part														
	Enhance the forest genetic resources in terms of indigenous species through management of existing stands and creation of new stands for seed and support the organisation of a network of seed collectors	PCU with government counter part														
	Support the establishment of seedling nurseries to produce and make available diverse species selected for agroforestry, fruits, medicinal products, timber and bamboo (800,000 plants /year/ province = total of 9,600,000 plants over 4 years)	PCU with government counter part														
	Provide advice on the sustainable use of valley bottoms and flood plains and the stabilisation river banks and lakeshores (300 km) with bamboo and other perennial species to improve water quality, conservation and management through efficient irrigation and permanent access by local populations.	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	Promote and train community groups on the use of appropriate energy saving technologies and the assessment of their benefits for men and women (such as energy saving stoves, solar tools, biogas and briquettes for example with CNTA).	PCU with government counter part														
	Train in the efficient production of charcoal youth groups and members of forest management groups	PCU with government counter part														
Component 3: Monitoring and Assessment of Global Environmental Benefits and Soci-Economic Impacts to Inform Decision Making																
OUTCOME 3.1: M&A framework in place and capacity of relevant institutions built to carry out monitoring activities, communicating experiences and impacts for informed decision making.																
Output 3.1.1: Government staff and extension workers trained in relevant M&A tools and approaches, also in archiving and analysing data	Develop a participatory project M&E system In collaboration with IGEBU and ISEEATU, with a focus on impacts in target watersheds, including socioeconomic indicators and global environmental benefits (GEB) and their alignment with the Sustainable Development Goals (SDGs) (definition of indicators, methods, frequency and responsibilities)	PCU with government counter part														
	Collaborate with universities to employ master students to support data collection on the ground with FFS and in the watersheds	PCU with government counter part														
	Train experts, advisory service staff and selected students in data collection and monitoring, with support of OBPE and IGEBU, and including data entry, participatory monitoring methods, satellite imagery analysis and	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	presentation and reporting of results in particular:															
	Organise periodic meetings to analyse results and inform on progress, the development of annual work plans and project reports (to the Government, FAO, GEF, project partners and stakeholders)	PCU with government counter part														
	Support consultation with partners and institutions for the development of a systematic harmonised M&E system aligned with the SDGs for the M&E of projects and initiatives on SLM/ INRM.	PCU with government counter part														
Output 3.1.2: Pre-cooperatives and FFS group members trained and able to use participatory impact monitoring tools and approaches (HH-BAT, FFS PM&E, LADA local) as a basis for decision making.	Support FFS members and communities in the selection and participatory M&E of activities and results using key indicators, appropriate tools and templates for the collection, analysis and reporting in relation to the baseline study	PCU with government counter part														
	Support use of integrated framework for the Classification of food insecurity (IPC) for mid-term and end of project analysis	PCU with government counter part														
Output 3.3: Project results and experiences compiled, communicated widely and shared with the project regional hub and partner projects	Develop a project communication strategy and materials (visual identity, brochures, posters, stickers, kakemonos – roll up posters), power point backgrounds, document folders etc.)	PCU with government counter part														
	Produce policy briefs for decision makers and case studies that document innovative approaches, experiences and impacts of the project	PCU with government counter part														

Output	Indicative Activity	Responsible	Year 1				Year 2				Year 3				Year 4	Year 5
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
	Develop partnership with the media, rural radio, Dimitra clubs, Digital green video development etc. to disseminate project experiences/results with partners for wide scaling out (transformational)	PCU with government counter part														
	Develop communication materials on study tours and workshops organised with the regional hub project for sharing experiences with other countries and to enhance policy dialogue in Burundi on SLM/INRM and improved value chains and integrated food systems	PCU with government counter part														
Output 3.1.4: Project progress reports prepared on time, mid and final review/evaluation conducted	Prepare six monthly Project Progress Reports (PPR)	FAO/PCU with government counter part														
	Prepare annual Project Implementation Review (PIR)	FAO/PCU with government counter part														
	Prepare mid-term and final review/evaluation, also terminal report	FAO/PCU with government counter part														

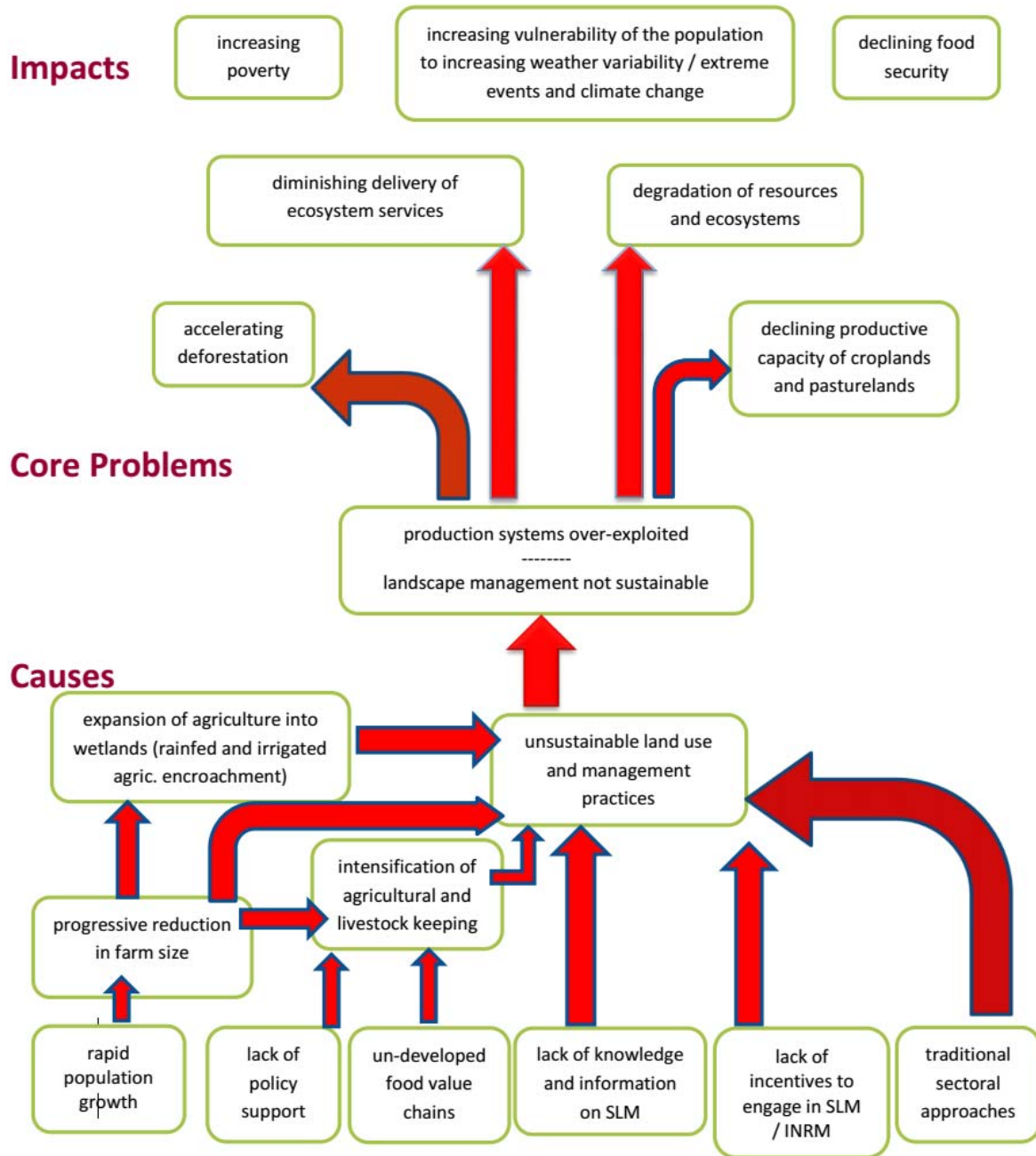
ANNEX 3: Project Budget



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ANNEX 4: Project Problem Tree and Theory of Change

PROBLEM TREE



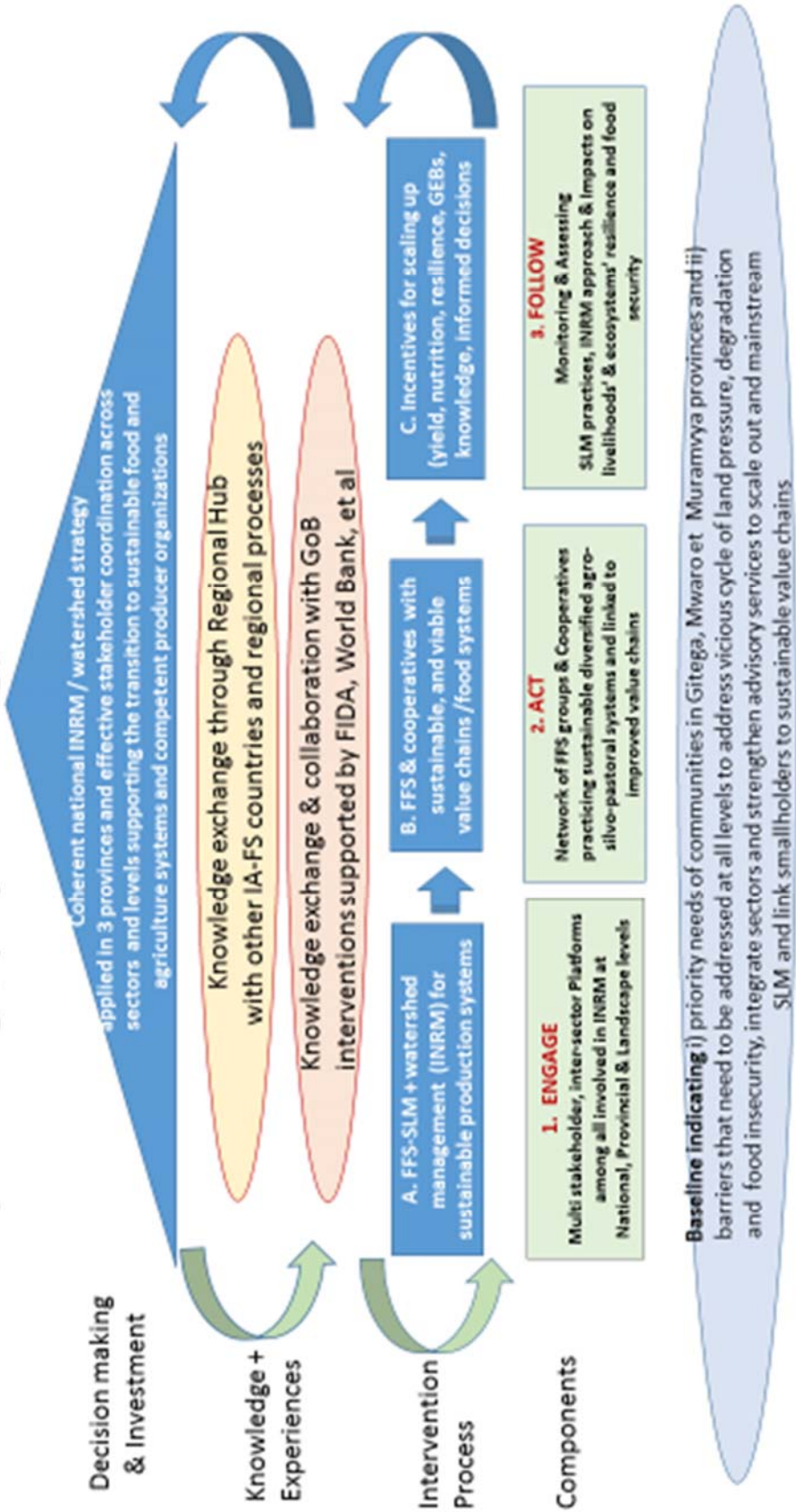
THEORY OF CHANGE

The project's theory of change has been developed taking into account the situation of communities and potential project beneficiaries, their needs and problems, guided by the experience of local technical experts and other stakeholders on the ground. It is a strategic vision, which is to catalyse the fundamental transformation of the current system of subsistence farming into a more sustainable, resilient and efficient agricultural system, including:

- ✓ Increased:
 - productivity of crops and livestock;
 - diversity of products;
- ✓ Improved
 - nutritional status of households;
 - access to enhanced services and markets and income (producers organized in pre-cooperatives quality products);
 - ecosystem services (hydrology, nutrient cycling, carbon storage and control of pests and crop diseases and animals, landslides and reduced risk of floods and droughts).

This theory is to be implemented through a coherent results framework (Annex 1), which if required may be modified during project inception and implementation, according to the evolving and changing needs felt in the country, also to ensure complementarity with other projects being developed for Burundi.

Theory of change/ project strategy of IAP-FS in Burundi



ANNEX 5: RISK MATRIX

	Description of risk	Impact ⁵⁴	Probability of occurrence	Degree of incidence	Mitigation actions	Responsible party
1	Climate contingency risk: Drought-may be so severe that it threatens crop and livestock survival, thus curtailing the basis for development of value chains appropriate for food security.	ML: The technical practices related to SLM implemented by the project become ineffectual over the course of the project	ML	amber	The project will mitigate this risk by implementing SLM activities, watershed management and CCA& CCM policies and measures to strengthen pro-active and coordinated responses, as well as by initiating multi-stakeholder, community-based capacity-building initiatives (i.e. FFS). Appropriate partnerships and collaborations with on-going emergency/post-emergency initiatives and with governmental programmes regularly supporting crop health will improve responses to those risks.	Project Steering Committee (PSC)
2	Climate contingency risk: Floods – may be severe and threaten crops and livestock survival, also damaging links to markets	MH: The technical practices related to SLM implemented by the project become ineffectual over the course of the project Also, links to value chains could be disrupted	MH	amber	The project should work to improve catchment planning to reduce flood risk, including SLMs which enhance rainwater infiltration and water storage. Project to improve food storage facilities in rural areas. Co-financing project working to improve roads.	PCU Executing Partners
3	Social risks: Lack of social acceptance of introduced INRM/SLM tools and practices by the target groups will threaten the project's	H: This is will severely affect all the aspects of the project implementation and delivery at the ground level, especially given the community-driven nature of the project	L	green	Cultural values (e.g. linked to food preparation/preferences) and traditions (such as agricultural production methods) in a rural set-up hardly change. In order to ensure social acceptance by target groups and eventual wide-scale adoption of	PCU Executing Partners

⁵⁴ H: High; MH: Moderately High; ML: Moderately Low; L: Low

	Description of risk	Impact ⁵⁴	Probability of occurrence	Degree of incidence	Mitigation actions	Responsible party
	impact and sustainability				<p>improved crops and INRM/SLM tools and practices, the project uses participatory approaches such as the FFS and HH-BAT to ensure that interventions meet, not only the norm of the social system, but also the different needs of women and men.</p> <p>Moreover, communities have been consulted during the preparation of the project and have expressed their interest and willingness to participate in the project activities.</p>	
4	Institutional risk: Limited involvement and weak cross-ministerial cooperation between the two involved ministries.	H: The project activities will take place in a compartmentalized manner and the project results will be severely affected. The positive results generated by the project will not be sustainable either	ML	green	<p>Introducing greater resilience and sustainability into food production systems will require stronger links between the environment and the agriculture sectors at all levels. The project is therefore designed with the view of strengthening cross-sectoral collaborations by establishing multi-sectoral policy and knowledge platforms (the Agriculture and Rural Development Group)⁴. Here the stakeholders' common interests, the project's multi-scale benefits (evidence based) and appropriate incentive mechanisms for each party's involvement will be identified and elaborated on. Activities will hence be designed and implemented in a win-win manner for all parties involved.</p>	FAO / PCU PSC

	Description of risk	Impact ⁵⁴	Probability of occurrence	Degree of incidence	Mitigation actions	Responsible party
					The project's steering committee will also comprise of senior members from the partner government agencies ensuring constant involvement and coordination.	
5	Political risk: reduction in political will and decrease in support from the government	MH: This could influence the institutional priorities and support, specifically from the main government counterpart's side. This will affect all aspects of the project delivery.	ML	amber	The government has fully backed the development of the project and high level participation was ensured both at the project preparation and validation workshops. The project through its PSC will constantly coordinate with high level policy makers to keep them appraised and maintain their support for the project.	PCU, PSC
6	Security issues	ML: Current insecurity issues could escalate	MH	amber / red	Project cannot mitigate	

ANNEX 6: Environmental and Social Assessment

For Risk Classification use during Project Identification

For each question only 1 of 4 boxes must be checked: Not Applicable (N/A), No, Yes or Unknown⁵⁵

Would the project, if implemented?	Not Applicable	No	Yes	Unknown
I. FAO VISION/STRATEGIC OBJECTIVES				
Be in line with FAO's vision?			X	
Be supportive of FAO's strategic objectives?			X	
II. FAO KEY PRINCIPLES FOR SUSTAINABILITY IN FOOD AND AGRICULTURE				
Improve efficiency in the use of resources?			X	
Conserve, protect and enhance natural resources?			X	
Protect and improve rural livelihoods and social well-being?			X	
Enhance resilience of people, communities and ecosystems?			X	
Include responsible and effective governance mechanisms?			X	
ESS 1 NATURAL RESOURCES MANAGEMENT				
❖ Management of water resources and small dams				
Include an irrigation scheme that is more than 20 ha or withdraws more than 1000 m ³ /day of water?		X		
Include an irrigation scheme that is more than 100 ha or withdraws more than 5000 m ³ /day of water?		X		
Include an existing irrigation scheme?		X		
Include an area known or expected to have water quality problems?		X		
Include usage of non-conventional sources of water (i.e. wastewater)?		X		
Include a dam that is more than 5 m in height?		X		
Include a dam that is more than 15 m in height?		X		
Include measures that build resilience to climate change?			X	
❖ Tenure				
Negatively affect the legitimate tenure rights of individuals, communities or others ⁵⁶ ?		X		
ESS 2 BIODIVERSITY, ECOSYSTEMS AND NATURAL HABITATS				
Make reasonable and feasible effort to avoid practices that could have a negative impact on biodiversity, including agricultural biodiversity and genetic resources?			X	
Have biosafety provisions in place?	X			
Respect access and benefit-sharing measures in force?			X	
Safeguard the relationships between biological and cultural diversity?			X	
❖ Protected areas, buffer zones and natural habitats				

⁵⁵ “Show stopper” questions are marked in red colour. If any issues are identified in answering these questions then the project is no longer a low risk project and needs to be brought to the attention of relevant technical divisions and the ESM unit.

⁵⁶ In accordance with Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT) <http://www.fao.org/docrep/016/i2801e/i2801e.pdf>

Be located such that it poses no risk or impact to protected areas, critical habitats and ecosystem functions?			x	
ESS 3 PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE				
❖ Planted forests				
Have a credible forest certification scheme, national forest programmes or equivalent or use the Voluntary Guidelines on Planted Forests (or an equivalent for indigenous forests)?		x		
ESS 4 ANIMAL - LIVESTOCK AND AQUATIC- GENETIC RESOURCES FOR FOOD AND AGRICULTURE				
Involve the procurement or provision of pesticides?				x
❖ Aquatic genetic resources				
Adhere (Aligned) to the FAO Code of Conduct for Responsible Fisheries (CCRF) and its related negotiated instruments?		x		
Be aligned, where applicable, with FAO's strategic policies established in the FAO Technical Guidelines for Responsible Fisheries (including aquaculture)?		x		
❖ Livestock genetic resources				
Be aligned with the Livestock Sector Strategy including the animal disease, public health and land degradation provisions?			x	
ESS 5 PEST AND PESTICIDES MANAGEMENT				
Involve the procurement or provision of pesticides?				x
Result in increased use of pesticides through expansion or intensification of production systems?				x
Require the disposal of pesticides or pesticide contaminated materials?		x		
ESS 6 INVOLUNTARY RESETTLEMENT AND DISPLACEMENT				
Avoid the physical and economic displacement of people?			x	
ESS 7 DECENT WORK				
Adhere to FAO's guidance on decent rural employment, promoting more and better employment opportunities and working conditions in rural areas and avoiding practices that could increase workers' vulnerability?			x	
Respect the fundamental principles and rights at work and support the effective implementation of other international labour standards, in particular those that are relevant to the agri-food sector?			x	
ESS 8 GENDER EQUALITY				
Have the needs, priorities and constraints of both women and men been taken into consideration?			x	
Promote women's and men's equitable access to and control over productive resources and services?			x	
Foster their equal participation in institutions and decision-making processes?			x	
ESS 9 INDIGENOUS PEOPLES AND CULTURAL HERITAGE				
Are there any indigenous communities in the project area?			x	
Are project activities likely to have adverse effects on indigenous peoples' rights, lands, natural resources,		x		

territories, livelihoods, knowledge, social fabric, traditions, governance systems, and culture or heritage (tangible and intangible)?				
Are indigenous communities outside the project area likely to be affected by the project?	x			
Designed to be sensitive to cultural heritage issues?			x	

ANNEX 7: E&S Risk Classification Certification Form and Risk Mitigation Plan



E&S Certification
Form.pdf



Environmental and
Social Risk Manager

ANNEX 8: Terms of Reference Draft⁵⁷

8.1 National Project Coordinator/Land resources and watershed management expert

(National, full-time 5 years)

Under the overall supervision of the FAO Representative in Burundi, and the direct supervision of the Lead Technical unit (AGL) and AGPM teams in Rome, the National Project Coordinator (NPC) will manage the Project's Coordination Unit (PCU) and will be responsible for providing technical leadership as well as supervising and coordinating all activities aimed at the successful implementation of the three project components, budget execution, team management, and maintenance of institutional relationships with project partners. The Coordinator will be responsible for overall and annual planning, the preparation of contracts and agreements with organizations and consultants, technical supervision of PCU members and advisers and the daily management of the project. He/she should be an expert in natural resources and watershed management able to guide and coordinate the project activities towards the wide adoption of sustainable and integrated production systems through FFS and watershed approaches and improved access to sustainable value chains by smallholders.

Main responsibilities

- Direct the execution of the project's technical and administrative activities and the team work with international and national experts for all 3 Components and with LTO and project task force at FAO Headquarters in Rome for technical guidance and supervision.
- Coordinate and participate in the start-up and regular planning workshops with local stakeholders and project partners for the preparation of the Annual Work Plan(s) and Budget(s) (AWP/B).
- Provide technical leadership to guide the project team in collaboration with government, partner projects, other service providers and beneficiaries in the implementation of project activities.
- Conduct regular supervisory visits in the field to advise the technical personnel of the project partners with attention to ensure that the SLM / INRM and FFS approaches are designed and applied, scaled out effectively at landscape scale and their impacts monitored.
- Make the necessary arrangements to facilitate—through agreements and interagency partnerships with local, provincial and national government bodies, as well as other development actors—the development of the project and the achievement of its outputs and outcomes.
- Coordinate the implementation of the project's communication strategy and the institutional strengthening activities.
- Provide continuous coordination and communication with project partners' responsible for collaborative activities and cofinancing.

⁵⁷ Terms of Reference will be revised and validated during the project's inception.

- Coordinate the development of terms of reference and technical specifications for project consultancies and contracts, follow due review and approval process, and monitor their satisfactory and timely implementation according to agreed work plans.
- Organize and serve as Secretary for the PSC meetings and meetings with cofinancing partners.
- Monitor progress, according to the results frame and work plan (see Annex 2- updated annually) and M&A plan (to be prepared by the M&A Expert) and ensure the implementation of mitigation measures in accordance with the risk matrix (see Annex 5).
- Prepare the Project Progress Reports (PPRs) and the Terminal Report (TR) in coordination with the project team and with specific support of the M&E expert, and submit it for the consideration and review of the LTO and Project Steering Committee (PSC).
- Provide input to the Annual Project Implementation Review(s) (PIR) to be finalized by the BH.
- Advise project partners in the preparation of reports on in-kind and in-cash co-financing including other partners that were not foreseen in the Project Document.
- In consultation with the PSC, the FAO Evaluation Office, the LTO and the FAO-GEF Coordination Unit, assist in organizing the mid-term and terminal evaluations.

Required professional profile

- Bachelor's or higher degree in a field related to the project (e.g. agriculture, natural resource management, forestry).
- Minimum of ten years' experience in the management of natural resources through watershed management and improved production systems.
- Minimum of three years' experience in coordinating development projects or components financed by international organizations.
- Experience in the coordination of multidisciplinary teams.
- Knowledge and experience in results-based management, development and implementation of budgets, preparation of technical and financial reports, and monitoring and evaluation.
- Ability to prepare concise reports according to United Nations standards.
- Knowledge and use of participatory planning and monitoring tools.
- Extensive knowledge of the socioeconomic reality of Burundi and the problems of gender equality.
- Proven ability to lead a team and competency for effective teamwork.
- Excellent oral and written and computer literacy skills.
- Experience in managing GEF projects desired.
- Experience in implementation and evaluation of FAO projects desired.
- Availability to travel frequently to the project sites and to travel to regional hub project activities.

Duration: 60 months

Location: Bujumbura, with frequent travel to the areas covered by the project.

Languages: French (fluent), English (working knowledge) and Kirundi desired

8.2 International Expert in monitoring and assessment

(International, part time, regular missions)

Under the overall supervision of the FAO Representative in Burundi, and the direct supervision of the Lead Technical unit (AGL) and AGPM teams in Rome, the International Expert in monitoring and evaluation will directly support the National Project Coordinator (NPC) and the PCU and ensure the development and application of the project Monitoring and assessment system (M&A) for all components of the project, including use of GEF tracking tools and socio-economic indicators and alignment with the SDGs as an integral part of the Project work plan and activities.

Main responsibilities

- Familiarise with the results framework and the planned activities under all 3 Components as well development partners, partner projects and co-financing arrangements
- Familiarise with available monitoring and assessment tools (LADA, WOCAT, EX-ACT, HH-BAT, GEF IAP tracking tool, DATAR, FAO gender policy etc. etc.) for environmental and socio-economic impacts (including soil, hydrology, biodiversity, carbon, productivity, food security, resilience, gender etc.)
- Design and propose a participatory monitoring and evaluation (M&E) system for the project, in cooperation with MINAGRIE, MEEATU and ISEEATU and with all actors and stakeholders in the target provinces and project intervention areas; including progress and impact indicators, use of available tools (see above) and alignment to the SDGs
- Support training of all concerned actors at all levels in the conduct of regular assessments using the M&E methods and tools, including their involvement in reviewing templates for reporting and in analyzing findings including gender disaggregated data
- Support the integration of farm and landscape level parameters and agro-biodiversity in the M&E in the provinces (including habitat, species and genetic resources diversity, hydrology, carbon balance as well as food security and resilience and associated functions (e.g. pollination, pest and disease control)
- Develop a database for systematic recording and analysis of all M&E data collected by the project and sharing with project partners
- Supervise the project participatory M&A using the selected methods and tools and annual workshops to learn from the M&E findings and disseminate the use of appropriate tools and practices for monitoring resilience within multi-stakeholder platforms created in Component 1.
- Consultation with key national institutions and other partner projects with a view to developing a prototype standard M&E system aligned with the SDGs for all SLM / watershed management projects for systematic and comprehensive data collection and analysis
- Support the real-time monitoring of project progress and the alerting of the BH and the LTO to potential problems that could result in delays in implementation and budget delivery;
- Help recruit and train and supervise national M&E experts as appropriate;
- Prepare the draft Project Progress Reports (PPRs) and the Terminal Report (TR) in coordination with the project team and submit them for the consideration and review of the LTO and Project Steering Committee (PSC).
- Propose an approach to making available results of the M&E process through communication materials and to identifying and disseminating lessons learned;
- Support the NPC in reporting on project progress, and engaging in policy dialogue and contribute to the development of semi-annual PPRs and annual PIRs.

Required professional profile

- Higher degree related to agriculture/, environment, economics or statistics;
- An internationally recognized expert on agriculture/natural resource project M&E in Africa or similar agro-environment;
- Experience with monitoring extension systems and knowledge of the FFS and INRM approaches.
- At least 10 years of experience in project results based management and monitoring;
- French language skills preferential, English language skills an asset.

Duration: 20 months (part-time)

Location: Home with regular missions to the project including field visits.

Languages: Fluent French and working knowledge of English

8.3 Operations and Administration Officer (national, full-time, 60 months)

Under the overall supervision of the FAO Representative in Burundi, and the direct supervision of the Lead Technical unit (AGL) and AGPM teams in Rome, the Operations and Administrative Officer will directly support the National Project Coordinator (NPC) and the PCU through providing operations and administrative support for timely and effective implementation of the project (note: might be two separate positions).

Main responsibilities:

- Ensure smooth and timely implementation of project activities in support of the results-based work plan, through operational and administrative procedures according to FAO rules and standards;
- Coordinate the project operational arrangements through contractual agreements with key project partners;
- Arrange the operations needed for signing and executing Letters of Agreement (LoA) with relevant project partners;
- Maintain inter-departmental linkages with FAO units for donor liaison, Finance, Human Resources, and other units as required;
- Day-to-day manage the project budget, including the monitoring of cash availability, budget preparation and budget revisions to be reviewed by the PC;
- Ensure the accurate recording of all data relevant for operational, financial and results-based monitoring;
- Ensure that relevant reports on expenditures, forecasts, progress against work plans, project closure, are prepared and submitted in accordance with FAO and GEF defined procedures and reporting formats, schedules and communications channels, as required;
- Execute accurate and timely actions on all operational requirements for personnel-related matters, equipment and material procurement, and field disbursements;
- Participate and represent the project in collaborative meetings with project partners and the Project Steering Committee, as required;
- Undertake missions to monitor the outputs-based budget, and to resolve outstanding operational problems, as appropriate;
- Be responsible for results achieved within her/his area of work and ensure issues affecting project delivery and success are brought to the attention of higher level authorities through the BH in a timely manner;
- In consultation with FAO Evaluation Office, the LTU, and FAO-GEF Coordination Unit, support the organization of the mid-term evaluation/review and final evaluation, and provide inputs regarding project budgetary matters;
- Provide inputs and maintain the FPMIS systems up-to-date; and
- Undertake any other duties as required.

Qualifications

- University Degree in Economics, Business Administration, or related fields;
- Five years of experience in project operation and management related to natural resources management, including field experience in developing countries;
- Proven capacity to work and establish working relationships with government and non-government representatives;
- Excellent French language skills;
- Knowledge of FAO's project management systems (desirable).

Duration: 60 months

Location: Bujumbura.

Languages: French (and English desirable)

8.4 FFS institutionalisation/training expert (national full time, 55 months)

Under the overall supervision of the FAO Representation in Burundi, the AGL and AGPM teams in Rome, Project Coordination Unit (PCU), the FFS expert will support activities under Component 1 and Component 2 related to the strategy for harmonization of FFS approach, development of national capacities and setting up of Farmer Field Schools in the different provinces. The consultant will work in close coordination with the FAO Representation in Burundi and other key implementing partners with whom coordination will be sought during implementation. The consultant will develop the following tasks:

- Provide substantial support to the operationalization of the National strategy for harmonisation of FFS in 3 provinces, including support to a national FFS platform/community of practice, awareness raising, and capacity development of national stakeholders and development partners;
- Support the preparation of technical and methodological guidance documents and training material (under Output 2.2) to be used during Farmer Field School implementation and training;
- Take a lead role in consolidating Farmer Field School curricula and communication systems including inputs from PCU staff;
- Support the establishment of Master Trainers and resource persons capable of training Facilitators on all aspects of FFS (technical and methodological aspects);
- Provide support to the FFS Trainers in training 100 Facilitators on all aspects related to FFS and integration of SLM/INRM, value chains, IGAs, nutrition in FFS;
- Support the FFS Trainers in preparing FFS community action plans: setting out targets, planned activities and resource needs of the Field Schools; and organize the dispatch, and monitoring of grants and support activities
- Ensure close linkages of the FFS with the other project components in the provinces – support to cooperatives, value chains support activities, watershed management committees, knowledge sharing mechanisms...
- Develop the M&E system for FFS activities of the project, in consultation with the Project coordination unit and international M&E and FFS consultants, ensuring close integration with the other M&E tools used: SHARP/HHBAT, DATAR, HHDS, FIES, etc.
- Organize farmer to farmer exchange visits, and open field days; support the development of FFS networks of facilitators and of farmers
- Provide additional inputs to the preparation of project documents (i.e. PPRs; PIRs, etc.) as required.

Required professional profile:

- University degree in Rural development, social sciences, or relevant field;
- A minimum of 5 years' experience in implementing participatory planning and capacity development approaches in particular field schools;
- Proven capacity to conduct field work and ability to work in teams and establish working relationships with local governments, community-based organizations, women networks, and rural households.

Duration: 55 months

Location: Gitega with regular visits to Bujumbura and opportunity to participate in regional hub events

Language: French (and English understanding desirable)

8.5 Value chain and local food systems specialist (national full time, 55 months)

Under the overall supervision of the FAO Representation in Burundi, the AGL and AGPM teams in Rome, Project Coordination Unit (PCU), the Value Chain specialist will support activities under Component 1 and Component 2 related to value chain and local food systems. The consultant will work in close coordination with the FAO Representation in Burundi and other key implementing partners with whom coordination will be sought during implementation. The consultant will develop the following tasks:

- Provide technical guidance on value chain and local food systems related activities related to Outcome 1 (Multi-stakeholder and multi-scale platforms) and Outcome 2, in particular in relation to Output 2.3 (Network of (pre) cooperatives/producer organizations and FFS groups supported and demonstrating improved access to food value chains);
- Support identification of value chain opportunities, notably by mapping and evaluating existing supply chains, and supporting participatory assessments of priority opportunities for value chain development for cooperatives/farmer groups; with special attention to opportunities / initiatives on value chains for sustainably produced food products
- Outline value chain opportunities by developing market analysis reports;
- Provide support to local initiatives to develop market for products from sustainable agriculture
- Train and coach FFS facilitators and other trainers in providing training on strengthening of cooperatives, commercialization of food and other products as to support livelihood diversification, based on regionally-differentiated local/national marketing strategies;
- Develop or compile training material as relevant
- Assist in the formation of value chain partnerships and networks by farmer groups, by overseeing capacity development, coaching and support to farmer groups, development and implementation of business plans;
- Develop an overview of stakeholders and approaches used in supply chains, value chain and local food systems activities in Burundi, and facilitate sharing of information and lessons learning on project findings;
- Support the PCU in the process of selecting, strengthening and revitalizing new and already established cooperatives and POs in the areas of intervention;
- Assist, support and actively participate in the meetings related to providing long term support to cooperatives and Producer Organizations.
- Provide additional inputs to the preparation of project documents (i.e. PPRs; PIRs, etc.) as required.

Minimal requirements:

- University Degree in development economics, finance, value chain/ marketing/ social development/ international development or relevant field;
- Proven work experience in marketing, sales and strong knowledge of inclusive business models, capacity development and local marketing strategies for Cooperatives and Producers Organizations;
- Proven experience in participatory capacity building techniques;
- Highly developed communication (spoken, and presentation) skills, to effectively communicate with partners and multiple target audiences.

Duration: 55 months

Location: Gitega with regular visits to Bujumbura and opportunity to participate in regional hub events

Language: French

8.6. Other

Specific ToRs for the short term consultants will be developed by the NPC, based upon the guidance of this document. These are likely to include:

Internationally recruited staff and consultants:

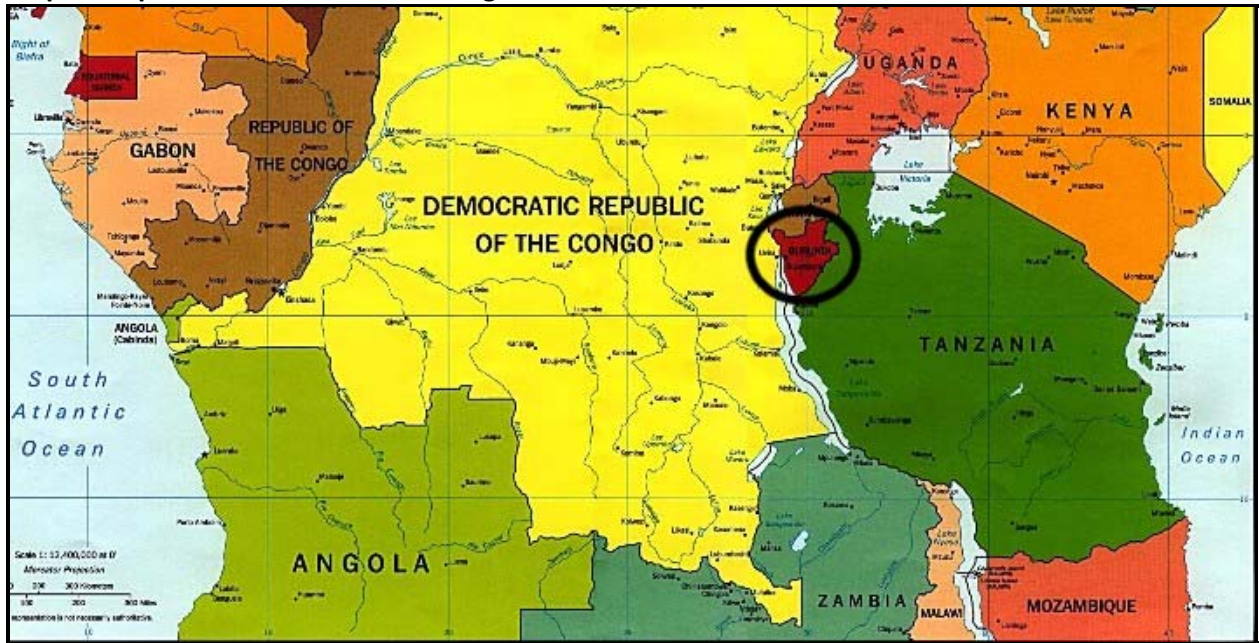
- SLM/Climate Change Adaptation /SDG monitoring Advisor support for resilient soil and water and biological management practices and scaling strategies
- Extension/Advisory services FFS and value chains adviser
- FPIC Expert
- EX-ACT Training Expert
- HH-BAT/SHARP data analysis expert and training expert
- FIES/HDDS Expert
- Food systems/nutrition/seeds advice
- GIS/Collect Earth Expert

Nationally recruited staff and consultants:

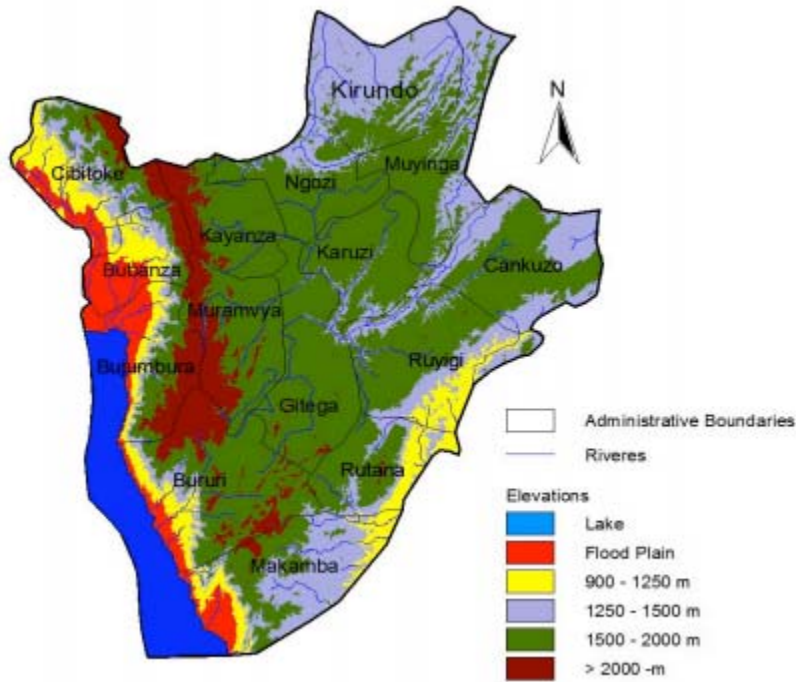
- Support officer (field logistics)
- 3 Provincial Facilitators
- Policy /multisector platform expert including investment plans and development strategies
- M&E expert including support to resilience assessment at field level
- Watershed planning/Soil & water conservation design expert (RWH etc.)
- Enumerators for SHARP-HHBAT;
- Genetic resources/seeds and other planting material expert.
- FPIC expert
- Communications & publications expert
- Nutrition expert
- 3 experts in SLM/INRM in the provinces

ANNEX 9: Maps

Map 1: Map of Burundi and surrounding countries⁵⁸



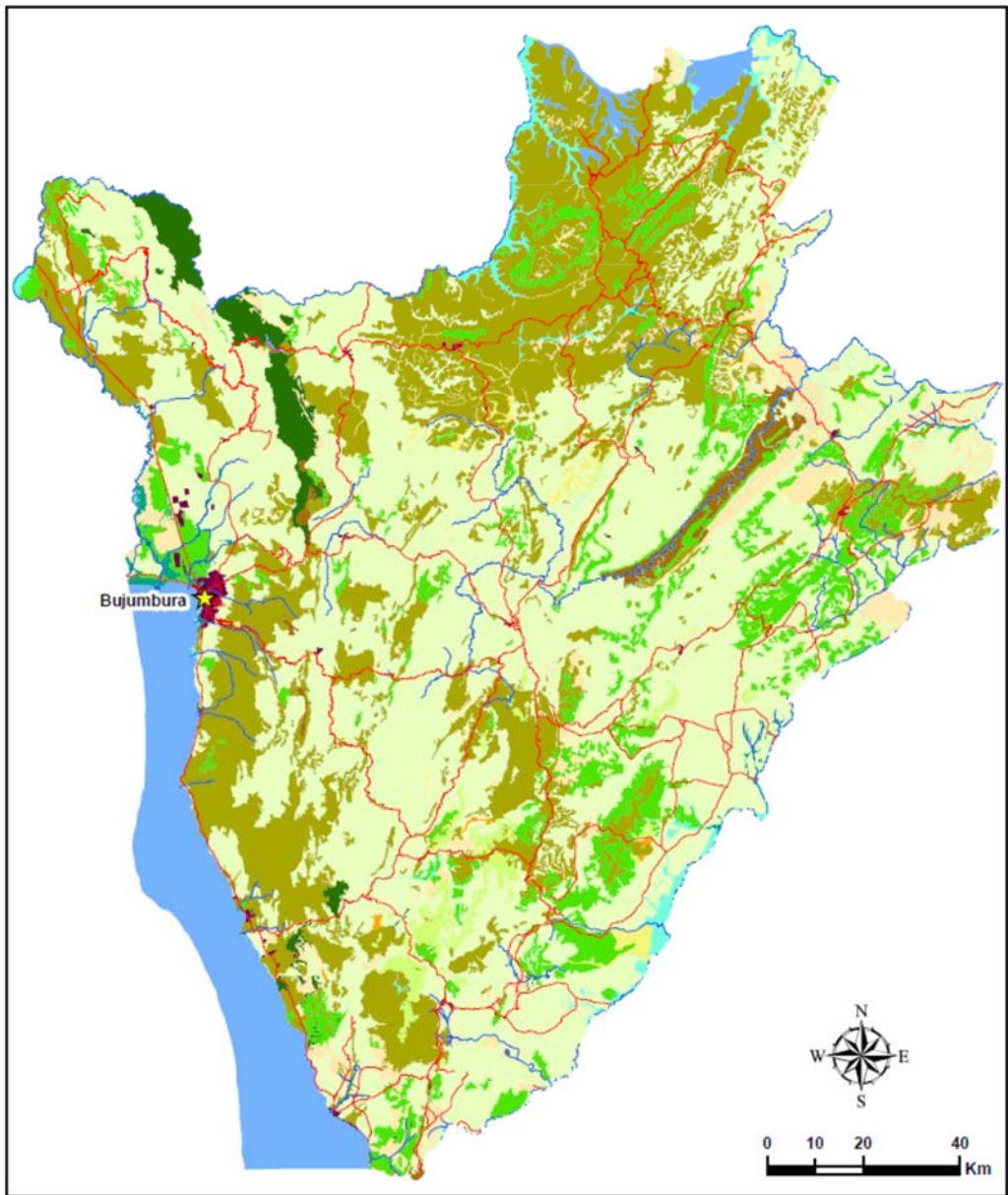
Map 2: Agroecological zones of Burundi⁵⁹



⁵⁸ Source: <https://www.americansecurityproject.org/wp-content/uploads/2015/05/Burundi-Map.jpg>

⁵⁹ Source : <https://www.weadapt.org/placemarks/maps/view/790>

Map 3: Generalised land cover ⁶⁰



LEGEND

Land cover classes

- Aquatic agriculture
- Aquatic closed to open grass incl. Sparse trees and shrubs
- Aquatic closed to open trees, shrubs and woody vegetation
- Sparse vegetation
- Tree and shrub savannah
- Closed trees
- Closed to open shrubs and woody vegetation
- Open to closed grassland

- Open to very open trees
- Irrigated and postflooding herbaceous crops
- Rainfed herbaceous crops
- Rainfed shrub crops, tree crops, forest plantations
- Urban areas
- Water (natural and artificial)

Other Features

- Capital City
- Roads
- Rivers
- Water Bodies

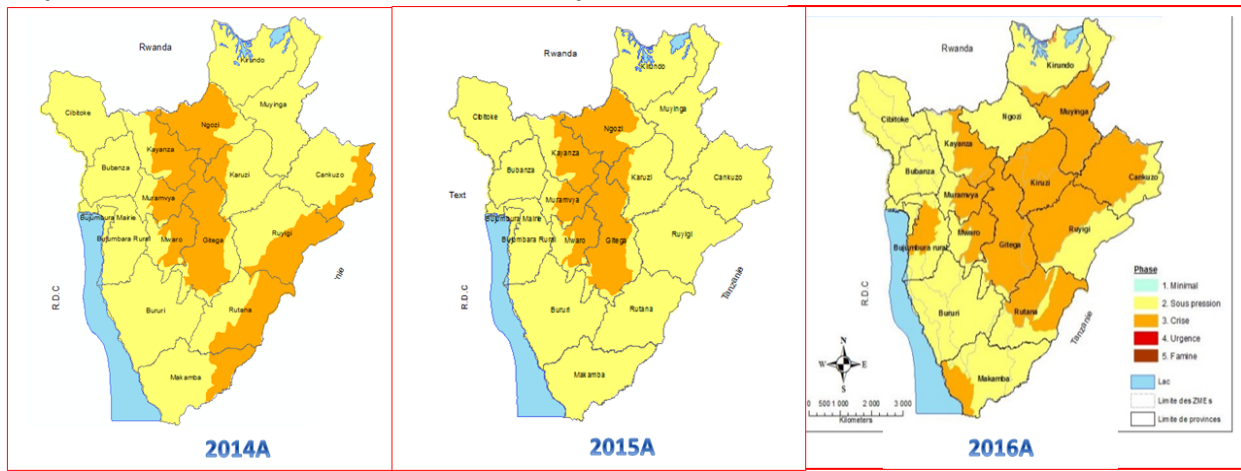
Source: © 2003 FAO - Africover
 Provided by the Environment and Natural Resources Service of the
 Food and Agriculture Organization of the United Nations



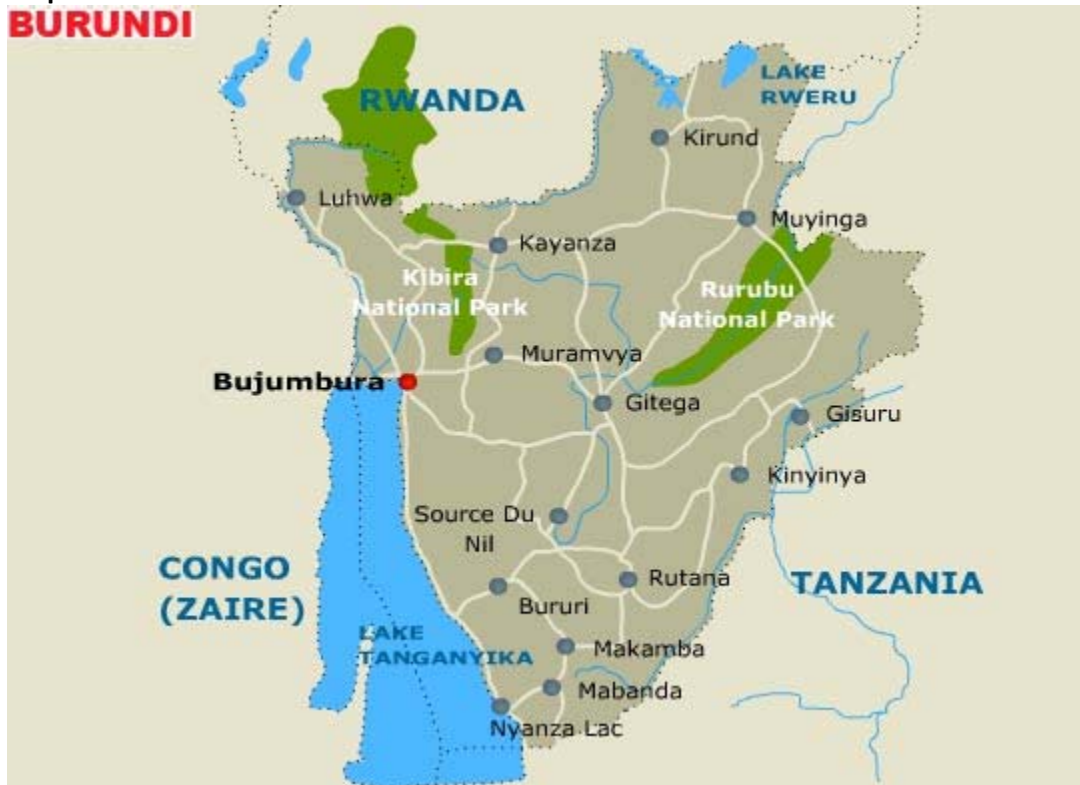
Disclaimer - The boundaries, colors, denominations and any other information does not imply, on the part of the NBI, any judgement or legal status of any territory, or any endorsement or acceptance of such boundaries.

⁶⁰ Source : http://nilerak.hatfieldgroup.com/English/NRAK/Resources/MAPS/Landcover_Burundi.pdf

Map 4: Evolution of the national food insecurity situation (2014 – 2016)⁶¹



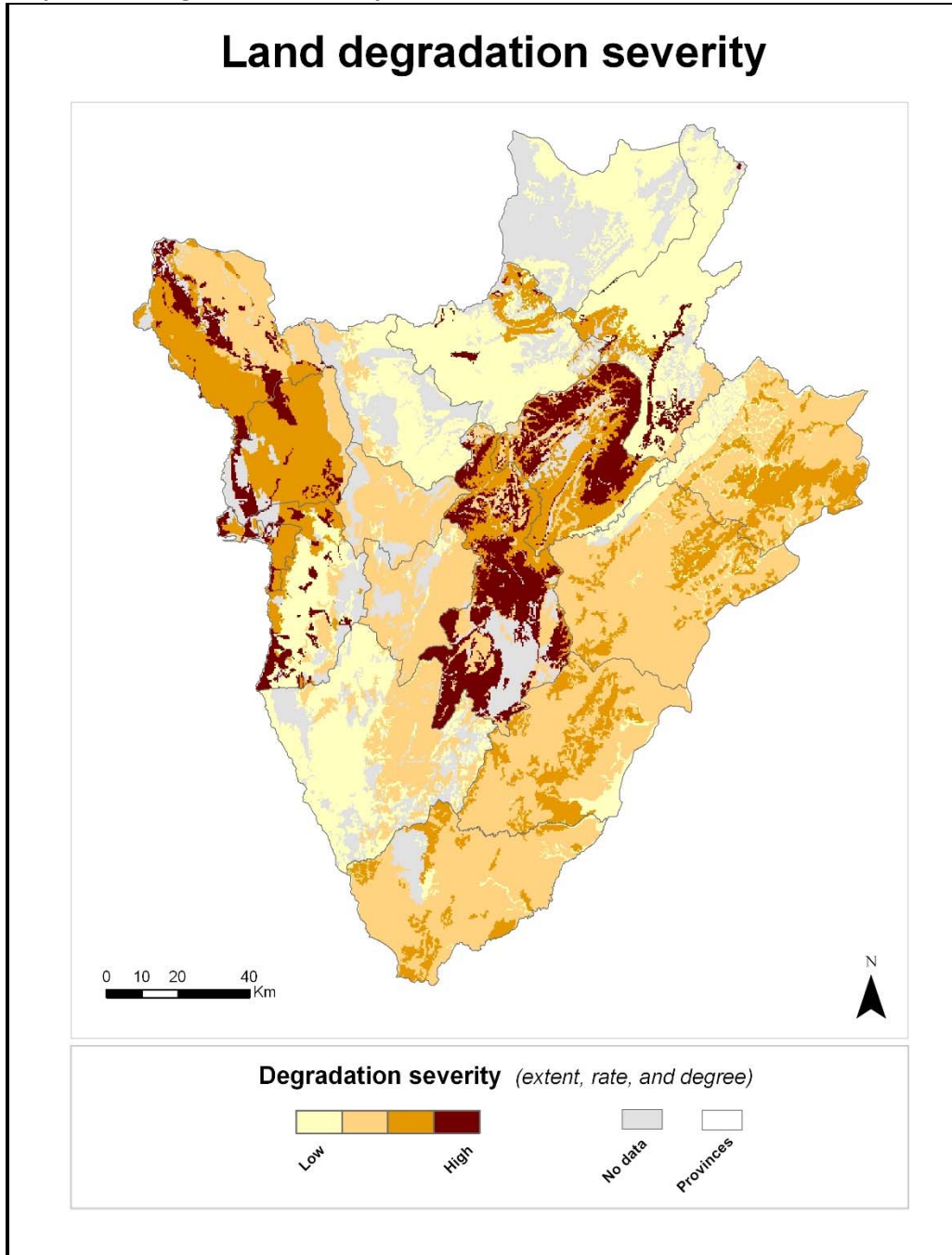
Map 5: National Parks in Burundi⁶²



⁶¹ Source: <http://www.ipcinfo.org/>

⁶² Source : <http://www.enjoyburundi.info/pure-nature/ruvubu-national-park-in-burundi/>

Map 6: Land degradation severity⁶³



⁶³ Source: <http://www.fao.org/fileadmin/templates/nr/kagera/images/monica/map1a.jpg>

ANNEX 10: List of Threatened Species and Ecosystems

Mammals⁶⁴

Total number of species: 107

Number of **endemic** species: 0

Threatened Mammal Species: The following list includes all mammals which occur in Burundi and are rated as Endangered (EN) or Vulnerable (VU) in the 2004 IUCN Red List of Threatened Animals.

- **Endangered:**
 - **Chimpanzee** (*Pan troglodytes*).
 - **Wild Dog** (*Lycaon pictus*).
- **Vulnerable:**
 - **African Golden Cat** (*Profelis aurata*).
 - **Carruther's Mountain Squirrel** (*Funisciurus carruthersi*).
 - **Cheetah** (*Acinonyx jubatus*).
 - **Lion** (*Panthera leo*).
 - **Ruwenzori Shrew** (*Ruwenzorisorex suncoides*).
 - **Spotted-necked Otter** (*Lutra maculicollis*).

Environmental Data

Biodiversity/Ecosystems

Burundi contains portions of the Albertine Rift Highland Forests, Zambezi Woodlands & Savannas, and Rift Valley Lakes Global 200 Ecoregions

Flora

The flora is characterized by East African evergreen bushland and secondary grassland, as well as Afromontane vegetation including transitional rainforests in the western mountain region. *Hyphaene–Acacia* and *Brachystegia* trees are noted in the lake shores. The *Brachystegia–Julbernardia* (miombo) trees are seen in south-eastern border area. The Bugesera region in the north and the Kumoso depression on the east have profuse vegetation of *Acacia–Combretum* and *Brachystegia* trees. The vascular flora reported is of 2,950 species under 195 families. In the high altitude in particular many species of wild flora are reported to be endemic; 70 species of plants are reported in this category.

Fauna

The faunal species reported are 163 species of vertebrates, 52 species of reptiles, 56 species of amphibians and 215 fish species. It is also reported that at high altitudes, endemism is distinct in 17 species of mammals and 22 species of birds. Lake Tanganyika has 200 species of fish and an equal number of molluscs. A scientific exploration team of the University of Texas at El Paso found the Bururi long-fingered frog (*Cardioglossa cyaneospila*) (considered extinct for decades), in December 2011 in the Bururi Forest Nature Reserve, after it was last seen in 1949. Seven important species of fauna reported are *Genetta piscivora* (aquatic genet), *Serinus mozambicus* (yellow-fronted canary), *Cercopithecus lhoesti* (L'hoest's monkey), *Agapornis fischeri* (Fischer's lovebird), *Galago moholi* (South African galago), *Hyperolius viridiflavus*, and *Hippopotamus amphibius* (hippopotamus).^[12]

The species reported under Endangered and Vulnerable category (as per the IUCN's 2004 Red List) are the following: chimpanzee (*Pan troglodytes*) (EN), wild dog (*Lycaon pictus*) (EN), African golden cat (*Profelis aurata*) (VU), Carruther's mountain squirrel (*Funisciurus carruthersi*) (VU), cheetah (*Acinonyx jubatus*)

⁶⁴ Source: <http://www.animalinfo.org/country/burundi.htm>

(VU),lion (*Panthera leo*) (VU), Ruwenzori shrew (*Ruwenzorisorex suncoides*) (VU), and spotted-necked otter (*Lutra maculicollis*) (VU).

Mammals

African buffalo (*Syncerus caffer*) has four subspecies, of which the West African savanna subspecies *S.c. caffer* found in Burundi number only about 500 now. Sitatunga (*Tragelaphus speldi*) were once found in many swamps in Burundi, but by the 1980s their numbers had dwindled, and the species' present conservation status is unknown. Waterbuck (*Kobus ellipsiprymnus*), also called the *defassa* waterbuck, was found throughout Burundi in the savanna grass land, then became restricted to the Ruvubu National Park. Only 500 numbers were reported in the 1980s and its present status is unknown. Lichtenstein's hartebeest (*Alcelaphus Lichtensteinii*) occurred in the southeast. Korrigum (also tsesebe, topi or tiang), *Damaliscus lunatus*, which were found in the eastern flood plains and savanna grasslands, is now extirpated. Impala (*Aepyceros melampus*), which once inhabited the eastern savannas, is also extirpated. Oribi (*Ourebia ourebi*), which occurred in the eastern and southern savannah and flood plains, is probably extirpated. Klipspringer (*Oreotragus oreotragus*), found in rocky outcrops in the south and east, is now extirpated. Grey duiker (*Sylvicapra grimmia*) is found in large numbers in spite of extensive hunting in the eastern and southern savannas. It is found in Ruvubu National Park.

Birds

Reported avifauna include 596 species (439 resident and 109 seasonal migrants) of which 13 species of global conservation concern and three are introduced species; more species have been found but their details are not recorded (thus UNEP reports 716 species). There are no endemic bird species. There are five Important Bird Areas (IBAs) declared by Bird Life International in the country, which cover an area of 1,018 km² and which account for 3.7% of the total area of the country. These coalesce with the national parks and two forest (or nature) reserves. According to Bird Life International, there are 13 species of global conservation concern (six of non-breeding migrants, and balance of breeding type from Albertine Rift and papyrus swamps).^[5] These include *Phoenicopterus minor* (NT), *Circus macrourus* (NT), *Falco naumanni* (VU), *Gallinago media* (NT), *Glareola nordmanni* (NT), *Ardeola idea* (NT), *Lybius rubrifacies* (NT), *Kupeornis rufocinctus* (NT), *Laniarius mufumbiri* (NT), *Balaeniceps rex* (NT), *Apalis argentea* (VU), *Bradypterus graueri* (VU), *Cryptospiza shelleyi* (VU), *Chloropeta gracilirostris*(VU), and *Bugeranus carunculatus* (VU).

Protected Areas

There are 19 protected area records stored in the WDPA for Burundi, 15 are national-level protected areas with 3 designated under international and regional agreements or conventions. All the protected areas designated under international and regional agreements or conventions are Ramsar Wetlands of International Importance. Both national parks include areas in the project intervention provinces (Gitega and Muramvya), although not in the micro-catchments where the project will work on-the-ground (see Map 7 in Annex 9).

Table A10-1: Protected Areas of Burundi

	Title	Extent (in ha)	Ecosystem Information
National Parks	Parc National de la Rubuvu	50,800	Wildlife consists of animals including hippopotamus, buffalo, crocodiles, leopard, monkeys, antelope and lion. More than 425 species of birds thrive in this park.
	Parc National de la Kibira	40,000	Transboundary rainforest, linked to Rwanda's Parc National de Nyungwe
Reserves	Lac Rwihinda Nature Reserve	8,000	

	Réserve Naturelle de la Rusiz	9,000	Wetland with hippos, sitatunga (aquatic antelopes) and many species of birds
	Bururi Forest Nature Reserve -	3,300	Last vestiges of montane forest in the country
	Rumonge Nature Reserve	5,000	
	Kigwena Forest Nature Reserve	800	Very rich in fauna and flora: a luxuriant vegetation, big calaas, various monkeys (of which baboons living in large families, and other primates), but also many species of birds and butterflies.

In Jan 2015, the Republic of Burundi officially announced its decision to become a Member of IUCN by endorsing the IUCN Statutes.

In order to guarantee the conservation of natural ecosystems, Burundi, a member of the African Ministerial Conference on the Environment, has ratified several international conventions including: the Convention on Biological Diversity (CBD), the Ramsar Convention, the Convention on Migratory Species (CMS), the African Convention on the Conservation of Nature and Natural Resources (ACCNR), the World Heritage Convention (UNESCO), the Washington Convention (CITES), the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC).

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ANNEX 12: Report of the Inception Workshop (April 2016)

Separate file

ANNEX 13: Report of the Stakeholder Consultation Workshops (May 2016)

Separate file

ANNEX 14: Findings of the Household Baseline Assessment Tool

Separate file

ANNEX 15: Intersectoral Coordination

National Committee for Aid Coordination (CNCA)

Recognizing the importance and challenges of coordination, in 2006 the Government of Burundi established the National Aid Coordination Committee (CNCA), which includes: the Ministry of External Relations and International Cooperation; the Ministry of Finance; Minister in the Office of the President responsible for good governance and planning; and the Ministry of the Interior. The CNCA Permanent Secretariat is associated with the work of the Committee and serves the monitoring and evaluation of the strategic framework for growth and fight against poverty (CSLPII) and production of related analyses.

National Environment Commission (NEC)

The NEC was established by Decree No. 100/114 of 31 August 2004 and is mandated to assist the Ministers that have environment in their duties; support the preparation and implementation of the national environmental policy; assist in the evaluation of the National Strategy for the Environment and its actions and updating its Plan; take all necessary measures for implementation of the Burundi Environment Code; give opinions on legislation regulating environmental impact standards and procedures; analyze the annual report on the State of the Environment and give its opinion.

Members of the NEC mostly come from the Ministry of Agriculture and Livestock, the Ministry for Communal Development, the Ministries with Interior, Planning, Finance, Security and Public Health in their duties, also the First Vice President of the Republic in his capacity as guardian of the Commission on Land and other Properties (CNTB). Other involved departments include the Ministry of Industry, Trade, Posts and Tourism, the Ministry of Energy and Mines, the Ministry of Transport, Public Works and Infrastructure and the Ministry of Human Rights, Social Affairs and Gender.

National Land Commission (CNF)

Created by Decree No. 100/34 of 31 January 2012, the mission of the National Land Commission and its permanent secretariat is to assist the Government in the development, implementation, monitoring and evaluation of land policy. Thus the commission has the power to give notice prior to the adoption of plans, disposal or concession of public lands, to the decision of the expropriation in the public interest etc. The commission consists of 11 members from different ministries appointed by Decree of the Minister proposed having lands in its attributions. The Committee meets whenever necessary, and in any case at least quarterly, convened by its Chairman or at the request of at least one third of its members. The National Land Commission has a permanent Secretariat (SP / CFN) which is a technical and operational arm of the National Land Commission. According to the law, the resources of the SP / CFN consist of State subsidies and by voluntary contributions from donors. The annual budget is prepared, adapted by the Commission and upheld by the Minister responsible for part of the General State Budget.

National Platform for Risk Prevention and Disaster Management (PNPRGC)

This is a platform for ongoing case management, coordination, implementation and support for programmes and actions related to the prevention of risks and disasters. This platform exists at national, provincial and municipal levels. Like most platforms and other institutions, the PNPRGC is accused of having human resources issues and is limited in resources which restrict its operation.

ANNEX 16: Policy Framework on the Environment (Including Climate Change)

Burundi Vision 2025

The government's long-term framework for the country's comprehensive economic and social development was adopted by Parliament in October 2010. The Vision has eight pillars geared toward these objectives for the period up to 2025, namely: (i) 10% annual economic growth; (ii) population growth contained at an annual rate of 2%; and (iii) poverty rate down to 50%. It is based on eight inter-connected pillars:

1. good governance and capacity-building of the state;
2. human capital;
3. economic growth and the fight against poverty;
4. regional integration;
5. demographics;
6. social cohesion;
7. regional planning and urbanization;
8. partnership.

Growth and Poverty Reduction Strategy Paper

In 2012, the Government launched its second Growth and Poverty Reduction Strategy Paper (Cadre Stratégique de Croissance et de Lutte Contre la Pauvreté - CSLP II), as a continuation of the first CSLP (2006), which places the challenges of growth and job creation at the centre of governmental programmes. Through the CSLP II, the Government recognizes that for many years Burundi has accelerated environmental degradation which has already resulted in the deterioration of livelihoods and lower production capacity, particularly in the agricultural sector. With regards to the agriculture sector, the objective is to reduce its vulnerability to shocks and to boost its profitability. Agriculture development priorities include improving access to inputs, restoring forest cover, rebuilding livestock herds, introducing drought-tolerant crop varieties and supporting agricultural research and extension activities. The document also highlights the importance of improving roads, providing market intelligence, creating strong national cooperatives, and diversifying production by growing new export crops such as fruits and vegetables. The four strategic thrusts, identified following broad consultations involving the Government, civil society and development partners, include:

1. strengthening the rule of law, consolidating good governance and promoting gender equity;
2. transforming the economy to ensure sustained and job-generating growth;
3. improving the access rate and quality of basic services, and strengthening national solidarity;
4. management of land and the environment in harmony with development.

The CSLP II accords high priority to sustained job-generating growth, which necessarily requires a sound macroeconomic framework, increased productivity in growth-bearing sectors such as agriculture, economic infrastructure, private sector promotion and youth employment. Unlike the CSLP I, it includes gender equality as key driver for development; it identifies the preservation of the environment and coping with climate change as major priorities (aspects little discussed in the CSLP I), and attempts to deepen the link between poverty reduction and environmental conservation.

The prospects for ecologically sustainable growth were defined through Burundi Vision 2025 and CSLP II short term action plan covering the period of 2012-2015⁶⁵. In the medium to long term, the Government plans to engage in a transition toward a green economy. Burundi Vision 2025 makes a firm commitment to

⁶⁵ The Action Plan is limited to 3 years (2012 – 2015), after which there is a re- assessment to elaborate the succeeding plan. The new one (2016 – 2018) is not ready due to critical political situation.

prioritizing the country's protection and rational management of the environment such that Burundians can live in a protected, properly managed setting.

Vision of the Agricultural Sector

With an economy dependent on agriculture, investment in the sector is crucial. The government has made agriculture a priority, committing to increase spending on agriculture to at least 10% of the national budget as per the Maputo Declaration. Spending in the sector has increased however low rates of productivity persist.

The *National Agricultural Investment Plan (NAIP / PNIA)* guidelines are based on the vision that the government has given specifically for the agricultural sector. This vision is outlined below:

"Agriculture Burundi's fundamental mission is to ensure that all Burundians have food security in terms of both quantity and quality. To do this, it will have to transform from subsistence farming to family and commercial agriculture, ensuring a decent income for households based on environmentally sound and good resource management. This agriculture will be practiced on farms whose average size will reach 1 ha farm, compared to 0.5 ha⁶⁶ and whose soils have regained fertility sufficient to enable returns that are comparable to the best African performance. Farmers who participate in these profound changes will be organized with the support of the necessary technically qualified operators to carry out the mission of the agricultural sector".

National Food Security Programme (Programme National de la Sécurité Alimentaire-PNSA) - The government launched the PNSA 2009-2015 in January 2009 in order to address increasing food insecurity and promote better coordination among different public actors (such as the Ministry of Agriculture, the Ministry of Finance, the Ministry of Environment, etc.). The programme aims to restore food self-sufficiency and reduce vulnerability in the country, with the target of reducing hunger and malnutrition by at least 50 % by 2015, especially among rural and peri-urban households.

Producer-oriented policy decisions - State involvement in domestic market has been decreasing recently. Notwithstanding a process of liberalization partly implemented since the beginning of the 1990s, State involvement in the market remains significant. Semi-public enterprises and entities are present in most branches of commercial agriculture with a dominant position in processing and marketing activities, particularly through the fixing of producer prices for coffee, tea, and cotton, among others. The *Office du Thé du Burundi (OTB)*, *Sociétés de Gestion des Stations de Lavage du Café (SOGESTAL)*, and *Compagnie de Gérance du Coton (COGERCO)* are examples of these semi-public enterprises. These interventions have led to market inefficiencies, as the presence of numerous intermediaries inflates post-production prices above international market prices, while farmers still receive low prices for their products and are excluded from the decision process. Timid reforms have been implemented recently under guidance from the World Bank, allowing the partial entrance of private operators in value chains, for coffee in particular.

Introduction of input subsidy programme - In 2012, the Government launched the National Fertilizer Subsidy Programme (*Programme National de Subvention des Engrais au Burundi - PNSEB*), with the aim to increase agricultural productivity through greater input utilization in the country. The programme benefits from financial aid from Germany, the Netherlands, Belgium and Japan, as well as from the World Bank (see Annex 15). A total of US\$ 5.7 million expenditure was foreseen in the 2014 budget for subsidizing the purchase of 18,500 tonnes of fertilizers for 300,000 farmers of all crops (farmers paying about 10% of the fertilizer market price). The target is to benefit 600,000 households annually, with up to 60,000 tonnes of fertilizers

⁶⁶ Present average

supplied. Before the PNSEB, input distributions were implemented in the country on an *ad hoc* and non-systematic basis.

In 2014, the programme received financial support from the Embassy of the Netherlands through the “Support Project to the National Subsidized Fertilizer Program in Burundi (PAN-PNSEB), with a budget of €10million for two crop years (seasons A & B 2014 A and B seasons 2015). To consolidate the achievements of PAN-PNSEB and increase the impact of fertilizers on agricultural production in a sustainable way and to rally the actors involved, a Project to Support Agricultural Productivity in Burundi (PAPAB) was developed by IFDC with Netherlands Government funding, € 18 million for 4 years (October 2015 - March 2019). The focus is on (i) Improving the fertilizer subsidy program by computerization of the registration and payment system and involving farmers organizations and local level private sector for more efficient supply of inputs and improved access to markets for small holder farmers (ii) optimizing organic and inorganic fertilizer use by farmers by technical package and innovations and networking with partner organizations (Alterra-Wageningen, Oxfam, Novib and local organizations, ZOA, ADISCO, OAP, CONSEDI, and Réseau Burundi 2000+).

During the PPG, it was recommended that the project catalyse a more robust impact assessment of the programme, given criticisms of farm input subsidy programmes Africa (ABC, 2016a and Annex 15).

Budget increases in support to agriculture and livestock - According to official data, Burundi is among the countries which have reached the target set by the Maputo Declaration to allocate at least 10% of national budget to agriculture. During the review period, the level of budget support to agriculture and livestock was maintained high, from 11% in 2009 to 11.3% for fiscal year 2015. According to other analyses, however, the national budget dedicated to agriculture and livestock sector has been significantly lower: the World Bank Public Expenditure review of 2013 attests a level of agricultural expenditure averaging 4.5% from 2009 to 2013.

Consumer-oriented policy decisions - Attempts to launch a national school feeding programme. No governmental school feeding programme is in place in the country, and only some donor and NGO projects are being implemented in specific areas (the most important being the WFP School Feeding Programme, which, as of 2013, covered 10% of primary level school-attending children), constituting a major policy gap. The government recently showed interest in developing and implementing a home-grown school feeding programme, and asked for support from main donors and partners.

Commitment to scale-up nutrition - In February 2013, Burundi joined the Scaling-Up Nutrition (SUN) movement, committing to tackle the alarming levels of malnutrition in the country. Subsequently, the Multi-sectoral Food and Nutritional Security Platform (PMSAN) was established with the intention of promoting commitment and accountability among all national stakeholders (including public and private sector and the international community). Information on governmental nutrition-specific programmes is lacking.

National Agricultural Strategy (2007-2015 – published 2008)⁶⁷

In the area of sustainable management of natural resources and land in particular, the National Agricultural Strategy 2007-2015 undertakes to work to combat land degradation through various activities, including:

- the adoption of crop-tree-livestock integration techniques in order to maximize productivity per unit area and per livestock unit by good practices such as agroforestry, permanent stabling of animals, intercropping;

⁶⁷ Note that a new national agricultural strategy and NIPA are being developed. The two documents also incorporate programmes related to climate change.

- restoration of soil fertility through an intensive programme of erosion control;
- corrective action on soil acidity and aluminum toxicity;
- controlling composting techniques.

National Agricultural Investment Plan (NAIP) (2012-2017)

This plan was developed to ensure the operationalization of the national agricultural strategy. The plan focuses particular attention to sustainable land management, with at least three programmes under the first programme "Sustainable Increased production and food security" addressing SLM:

- protection of productive capital;
- development and rehabilitation of irrigation schemes;
- the intensification of agricultural production.

National Programme for Food Security (NPFS) (2008)

The NPFS in Burundi will be based on: (i) the experience provided by FAO to more than a hundred NPFSs across the world; (ii) the positive results of the pilot phase funded by FAO (PSSA) and other relevant experience acquired over time by the various projects working in the food security sector.

The programme aims to fight against food insecurity in order to reduce hunger and malnutrition by at least 50% especially at the rural and urban households started in 2011.

The consideration of sustainable management of NRs in the national food security programme appears in several sub-programmes relating to the development of small irrigated areas, watersheds, wetlands and reforestation, also soil fertility management.

There is a lack of coordination, monitoring, compilation and processing of data from programmes and sub-programmes related to food security, making it currently very difficult to compile data on the impacts of different interventions.

National Strategy and Action Plan Against Land Degradation (2011-2016) / Stratégie Nationale et Plan d'Action de Lutte contre la Dégradation des Sols (SP-LDS)

Burundi ratified the United Nations Convention on the Fight against Desertification (UNCCD) in 1997 and launched activities in September 2000 with the organization of mobilization and awareness days on the fight against land degradation and implementation of the Convention. The national strategy and action plan developed as part of the implementation of the Convention is based on a national vision: "Participation by all groups of the population and strengthened commitment to take concrete action to protect and rational use of land for the well-being of present and future generations."

To achieve this vision, the strategy identifies five priorities:

- 1) Promoting planned and rational use of land;
- 2) Preserving and maintaining land productivity and other ecosystem goods and services;
- 3) Relief from population pressure on land;
- 4) Capacity building for sustainable land management;
- 5) Establishment of a financial mechanism for land management.

The implementation of SP-LDS is cited in the CSLP II. This is Burundi's national strategy to contribute to the implementation of the five pillars of the Global Partnership and to SLM within the framework of the UNCCD. To achieve its mandate, the Global Soil Partnership is based on five pillars of action to be implemented in Burundi (as elsewhere) in collaboration with the regional partnerships on soils, namely to:

- 1 Promote sustainable management of soil resources for the protection, conservation and sustainable land productivity;
- 2 Encourage investment, technical cooperation, land policy, education and extension in soil;

- 3 Promote research and development focusing on the identified gaps and priorities and synergies in relation to productive actions, environmental and related social development;
- 4 Improve the quantity and quality of data and information on soil: the collection of data (creation) and analysis, validation, reporting, monitoring and integration with other disciplines;
- 5 Harmonise methods, measures and indicators for sustainable management and protection of land resources.

Burundi Erosion Control Protocol and Action Plan

MINAGRIE, in collaboration with MEEATU, have developed an erosion control protocol (GoB, 2016). The Protocol was drawn up to reach a common vision on watershed development techniques in Burundi. The main objective is to harmonize the work of erosion control that will take place in Burundi from January 2016 in order to cope with the adverse effects of erosion and climate change.

MINAGRIE plans to work with other ministries (*inter alia* Ministry of Interior and Patriotic Education, the Ministry of Water, Environment, Spatial planning and Urbanization and the Ministry for Communal Development to implement this erosion control policy).

Investment Strategy and Financial Resources Mobilisation Plan to Combat Desertification

In 2013, with support from UNDP and GEF, MEEATU developed an investment strategy and financial resource mobilization plan for the fight against land degradation in Burundi (CSIF).

The strategy is based on four strategic axes namely:

Strategic Axis 1: Improving the enabling framework which aims to promote a planned and rational land use.

Through this axis, the objectives are:

- integration of SLM into national policies, plans and programmes;
- strengthening of the coordination mechanism, capacity building of stakeholders in SLM, strengthening the monitoring system of desertification / land degradation;
- strengthening regional integration in the fight against desertification / land degradation.

Strategic Axis 2: Restoring and maintaining soil productivity and other ecosystem goods and services. The selected objectives are:

- improving the fertility of agricultural soils;
- improvement of ecological conditions in degraded areas;
- implementation of a land reform process of securing small farms.

Strategic Axis 3: Capacity building for sustainable land management. Assuming that SLM requires competent human resources and operational institutions, the objectives for this axis are based on institutional capacity building and community capacity for land management.

The institutional capacity building includes:

- training of specialists and extension agents in various fields such as hydrometeorology, climate and water control, irrigation, drainage and watershed management,
- execution of studies on the possibilities of rain water mobilization and use on farms in dry periods,
- the equipping of IGEBU to provide meteorological services to agriculture,
- set-up and operationalization of a data collection system, treatment in a database and dissemination,
- capture and analysis of satellite photos on the land use system and state of degradation etc.

The community building will address the following aspects:

- development and implementation of the Information and communications technology (ICT) strategy and harnessing of communication tools to address the issues of fight against land degradation

- organization of visits and exchanges of experiences between groups of actors and villages on land management
- extension of the agricultural, forestry and zoo-technical system integration on farms
- extension of short cycle and drought resistant food crops
- extension of rainwater collection techniques for agricultural or domestic use
- set up a system of assistance for vulnerable groups in case of natural disasters
- information and awareness for a wide adoption of new technologies including solar energy for lighting and cooking, improved techniques of carbonization and manufacturing of improved stoves.

Strategic Axis 4: Introduction of a financial mechanism for land management. Noting that the budget funding for SLM is still low, the chosen objectives are:

- mobilizing internal financing resources;
- mobilizing external financing resources;
- mobilizing innovative financing resources.

Mobilizing domestic financial resources refers to an increased budget for SLM. SLM financing by the private sector includes national households, commercial enterprises, commercial banks and microfinance, NGOs and local church, philanthropic foundations, professional associations, cooperatives and individual investors.

Among the innovative financing mechanisms for SLM included converting a portion of external debt financing for environmental management activities and SLM in particular. Moreover, innovative financing could involve the application of differentiated taxation on land use, on activities related to land according to their impact on the environment (lower fees for agricultural land, cutting of tree taxes, taxes on exploration licenses, also for mining and quarrying, fees for permits for the transport of construction materials from quarries, taxes for authorization to transport forest products etc. Following the principle of "polluters pay", MEEATU and Ministry of Finance should develop a law to compel polluters of air, water and land to pay damages

External funding will go through the mobilization of multilateral and bilateral aid, private investment of foreign, international NGOs and philanthropic foundations.

National Water Resources Policy

Developed in 2009, this policy provides guidance on the sound management of water resources. Among the strategic orientations of the National Water Policy include the creation of an enabling environment for good governance in the water sector through the following actions:

- 1) establish an institutional structure for management and use of resources in water - National Coordination Committee for the Water sector (CNCE);
- 2) develop or update the legal and regulatory instruments for water resources management;
- 3) information, awareness, education and advocacy for good water resources management practices.

From technical point of view, this policy promotes *inter alia* the development of master plans for watershed conservation of water and soil, land management, choice of irrigation techniques, collection and use of rainwater for agricultural purposes.

Mainstreaming of the integrated landscape management approach into the water policy would be useful to aggregate the different resources and maintain systemic eco functions and the supply of ecosystem services.

National Strategy for the Environment

The National Strategy for the Environment and its Action Plan (SNEB / PAE) proposes measures to restore or preserve the balance between the interests of development and those of the environment. In order to adapt to the context, this strategy developed in 1992 has been revised successively to 1997 (but not since).

This guidance is based on eight cross-cutting themes, specifically:

- 1) creating an enabling environment (institutional and legal framework),
- 2) management of land and water, land use and land management, agriculture, livestock and forestry;
- 3) industries and services, mining and quarrying and energy;
- 4) infrastructure and transport, industries and crafts, tourism;
- 5) human settlements and health;
- 6) biological and cultural heritage;
- 7) research and communication;
- 8) additional socio-economic strategies such as social policies and demographic, economic and political tax.

National Strategy and Action Plan for Biodiversity (including agrobiodiversity)

As part of the implementation of the International Convention on Biodiversity (CBD), in 2000 the Government developed a National Strategy and Action Plan on Biological Diversity for the operationalization of the national strategy on around it. The strategy is based on the following areas:

- conservation of biodiversity;
- sustainable use of biological resources
- equitable sharing of benefits and responsibilities in the management of biodiversity;
- promotion of biotechnology;
- education and public awareness;
- training and research;
- promotion of impact studies and harm reduction;
- the strengthening of cooperation and information exchange.

As part of the creation of an enabling political and legal environment, the strategy calls for the establishment of a legal framework for the protection of threatened species and populations.

With GEF funding in January 2013, Burundi *updated its National Strategy and Action Plan on Biodiversity 2013-2020* and developed the 5th National Report to the Convention on Biological Diversity. According to MEEATU 2013, the major constraints to biodiversity (some of which are directly addressed by the project) are:

- low level of awareness for biodiversity conservation and sustainable use of biological resources;
- lack of tools and techniques to reduce pressures on the biodiversity;
- low level of overall representative safeguarding ecosystems, species and genes of the country;
- ignorance and low valuation of the benefits of biodiversity and the services provided by ecosystems;
- lack of a participatory planning framework, knowledge and capacity management;

The new strategy on biodiversity is based on the following strategic areas:

- Managing the underlying causes of biodiversity loss through the involvement and commitment of all stakeholders at all levels;
- Reduction of direct pressures on biodiversity and biological resources;
- Improving the status of biodiversity by safeguarding ecosystems, species and genetic diversity;
- Valuation of the benefits of biodiversity and the services provided by ecosystems;
- Strengthening implementation through participatory planning, knowledge management and capacity building.

National Forest Policy (2012)

In view of the vital importance of rational management of forest resources in the face of the shortage of wood, the forest policy provides the following strategies:

- promotion of agroforestry on family farms and around protected areas;
- development of forest resources within the constraints of space;
- improving the management of existing forest heritage;
- involvement of all stakeholders in the management of forest resources;
- promoting alternative mechanisms that balance the interests of conservation and socio- economic development;
- promotion of forestry research and the reduction of losses due to inefficient techniques, etc.

FAO (2016d) particularly commends Burundi’s forest policy as it makes specific reference to the importance of harmonization with the policies of other sectors, such as agriculture, national development and poverty reduction (i.e. inter-sectoral approaches).

Agrobiodiversity in National Policies and Laws

Agrobiodiversity is taken into consideration in several policy and national strategies related to agriculture, such as the National Agricultural Strategy and NAIP through the sub-sector strategies that have been approved by the government namely the National Food Security Programme (NASP), the Strategic Orientation Document for Livestock (DOS-Livestock), etc. Notably crop-trees-livestock integration is included in the priority actions of the National Agricultural Strategy, with particular emphasis on the conversion of extensive livestock keeping to intensive livestock systems, also promoting animals with shorter life-cycles (higher off-take rates).

From legal point of view, several laws (e.g. on seed production), take into account the safeguarding of agrobiodiversity.

From the institutional point, several departments of the MINAGRIE include in their mandates aspects of plant diversity (e.g. Plant Protection, Soil Fertility; Promotion of Seeds and Plants) and animal diversity (Directorate General of Livestock including the Directions of Animal Health and Promotion of Animal Production and the Water Directorate, and Direction of Fisheries and Aquaculture).

To operationalize the intentions expressed in the strategies and policies and guide interventions to improve the management account of biodiversity, MINAGRIE has prepared a Biodiversity Integration Plan in the agriculture and livestock sectors (RoB, 2014). The planned activities are complimentary to the IAP project. Table A16-1 summarises the Plan’s objectives and related activities.

Table A16-1: Elements of MINAGRIE Action Plan for the integration of biodiversity⁶⁸

Objectives	Actions to be taken
By 2017 , all farmers and ranchers will be made aware of the threats of degradation of agro-biodiversity and wild biodiversity	Educate and train farmers and ranchers on the degradation of agro-biodiversity and its impacts on wild biodiversity
	Prepare communication tools , education and awareness by target group
	Strengthening MINAGRIE Multimedia Centre for the dissemination of educational messages aimed at changing the behavior of the population to the accelerated degradation of agro-biodiversity

⁶⁸ Source: GoB (2014)

Objectives	Actions to be taken
	Strengthen the capacity of support services to production on the risk analysis of rapid replacement of agricultural breeds and varieties in use and control measures
By 2018 , effective control of transboundary movements is provided for all agricultural and livestock inputs to ensure the survival of agro-biodiversity	Establish a cross-border movement control system for agricultural and livestock inputs in all the country's borders entries
	Install quarantine of imported animals infrastructure
	Train staff sector Agriculture and livestock in the field of plant health inspection and monitoring of GMOs
	Inform, educate and raise awareness on the negative consequences of uncontrolled transboundary movement of agricultural and livestock inputs
	Equipping ISABU conservation of domesticated animal breeds and plant species
By 2018 , knowledge about the disappearance of crops , livestock and wild relatives and will be improved	Establish a strict system of compliance of the seed sector
	Identify all the causes of genetic erosion and the level of vulnerability of domesticated species
	Document and apply all traditional knowledge of agro - pastoralists to support biodiversity and ensure food security
By 2019, 50% of farmers and ranchers will have adopted integrated management in agro-ecosystems	Evaluate and map the agricultural areas , forestry and aquaculture and integrate it into the development master plan of the territory
	Develop sustainable management plans of agro ecosystems, forestry and aquaculture zones according to agro-ecological zones
	Produce and disseminate guides on good practices and the ecosystem approach in agriculture, forestry and aquaculture
	Strengthen the capacity of MINAGRIE staff about the importance and environmental impact assessment procedures
	Establish a legal framework for wetland management
By 2019, the resilience of agro-ecosystems and agricultural species to the adverse effects of climate change is strengthened	Conduct studies on the vulnerability of agro ecosystems and agricultural and livestock species to climate change
	Promote crops adapted to climate change according to the vulnerability of each agro-ecological zone

Climate Change

The national priorities concerning adaptation to climate change, are outlined in various documents.

National Adaptation Plan of Action to Climate Change (NAPA, 2007)

Burundi ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 6 April 1997. From that date, it has committed to honouring its obligations under Articles 4 and 12 of the text of the convention among others the preparation of national communications on climate change. In this context, it has developed a NAPA which identifies limited human and financial resources and inadequate institutional

framework as the main obstacles to the fight against climate change. Thus, to cope with the negative impacts of climate change, the NAPA proposes an adaptation plan around the following strategic objectives:

- Strengthen the institutional framework for addressing environmental issues in sectoral programmes;
- Ensure a better knowledge and information sharing on the scientific, technical and economic impacts, vulnerability and adaptation to climate change;
- Integrating climate change into national policy of economic development and fight against poverty;
- Run specific adaptation measures in the most vulnerable sectors such as water resources, energy, agriculture and livestock, wetland ecosystems, terrestrial ecosystems and landscapes.

Second National Communication on Climate Change (2010)

In continuity with NAPA, the objective of the Second National Communication on Climate Change is to strengthen Burundi's ability to cope with the adverse impacts of climate variability and change in the most vulnerable socio-economic sectors while ensuring the development sustainable population.

Key vulnerabilities identified in Burundi's Second National Communication were: water resources; food and agriculture; land and wetland ecosystems.

Through this document, the Government proposes the following strategic areas:

- Strengthening the institutional framework for addressing environmental issues in sectoral programmes;
- Better knowledge and information sharing on the scientific, technical and economic impacts, vulnerability and adaptation to climate change;
- Integrating climate change into national policy of economic development and fight against poverty, Investment Strategy and Financial Resource Mobilization Plan for the fight against land degradation in Burundi
- Perform specific adaptation measures in the most vulnerable sectors such as water resources, energy, agriculture and livestock, wetland ecosystems, terrestrial ecosystems and landscapes.

National Strategy and Action Plan on Climate Change (2012)

Two programmes were identified as part of the National Strategy and Action Plan on Climate Change (2012) – the IAP project will particularly contribute to various components of these programmes (Table A16-2).

Table A16-2: National climate change programmes and their respective components

Programme Name	Components
Climate risk adaptation and management	<ul style="list-style-type: none"> ✓ Integrated water resources management by a small hydrological unit ✓ Integrated management of climate risk and forecasts over time (by means of probabilities and forward-looking studies) so as to be able to take action in advance ✓ Protection of aquatic and land-based ecosystems ✓ Coaching of the population to develop their resilience to climate change ✓ Development of institutional and operational capacities to coordinate programmes that are resilient to climate change ✓ Research on the vulnerability and adaptation of socioeconomic sectors to climate change ✓ Establishment of functional monitoring and evaluation mechanisms for climate change, as well as knowledge management and information mechanisms ✓ Research and extension of drought-resistant forest species

	✓ Promotion of climate-smart agriculture
Capacity-building, knowledge management and communication	<ul style="list-style-type: none"> ✓ Enhancement of data and information management and distribution mechanisms ✓ Reinforcement of climate change impact tracking systems by means of observations and investigations ✓ Improvement of scientific and technological research on adapting to climate change, supported by climate (correction – probably should read <i>weather</i>) observations ✓ Improvement of the legislative and regulatory framework for handling climate change as part of investment programmes and the promotion of public-private partnerships ✓ Strengthening of the information and data communication and exchange system

National Climate Change Policy (2012)

The overall objective of the policy is to be a guide the Government and other partners to adopt and implement measures to promote development resilient to climate change. Specifically, the policy is based on the following strategic areas:

- adaptation and climate risk management;
- mitigating emissions of greenhouse gases and low carbon development;
- promotion of R & D and technology transfer;
- capacity building;
- knowledge management and communication;
- education, training and public awareness;
- legal and institutional framework .

Various sectoral policies and strategies include aspects of adaptation to climate change which are pertinent to the IAP. These are summarised in Table A16-3.

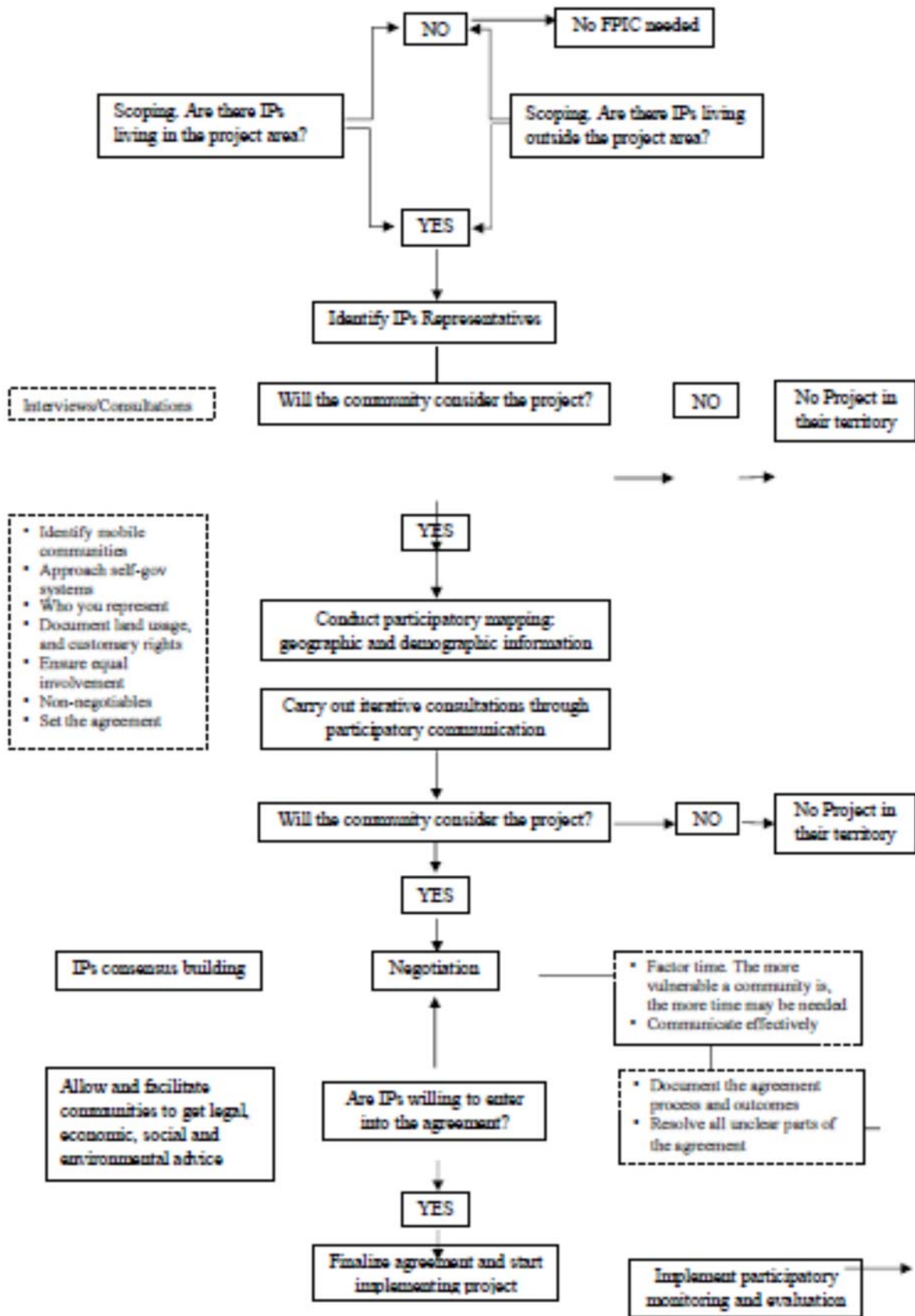
Table A16-3: Sectoral policies and strategies in place for adaptation to climate change⁶⁹

Sector	Current Policy and Strategy Documents	Priorities
Water	National Water Resources Management Policy and Action Plan (2001) Water Code (Law 1/02 of 26/03/2012 enacting the Water Code in Burundi)	Water control with a view to increasing agricultural and livestock production Human resources capacity-building in the field of water
Energy	Sectoral Strategy for the Energy Sector in Burundi (2011) Law 1/13 of 23 April 2015 reorganizing the electricity sector in Burundi	Hydro-electrical production through developments adjusted to align with the successive growth phases of the Burundian economy

⁶⁹ Source : GoB (2015)

Forestry	National Forestry Policy of Burundi (2012)	Development and rational management of forest resources: raising the forest cover rate to 20% by 2025 Promotion of forest resources Human and institutional capacity-building
Agriculture and Livestock	National Agricultural Strategy, 2008-2015 (2008) National Sustainable Land Use Strategy (2007) National Action Programme to Fight Land Degradation (2005)	Increase in agricultural production and productivity and development of sustainable production systems than can re-establish food self-sufficiency in the short and medium terms Management and sustainability capacity-building in the agricultural sector in order to transform subsistence farming into profitable market agriculture managed by professionals Introduction of (<i>climate</i>) smart agriculture

ANNEX 17: Recommended Steps to Conduct Free, Prior, Informed Consent (FPIC)



- 1. Identify the Indigenous Peoples' concerned and their respective representatives**
 - ✓ Find diverse sources of information to know which Indigenous Peoples are being affected by the project
 - ✓ Carry out interviews and consultations in and around the project area
 - ✓ Approach the Indigenous Peoples' self-governance systems and structures
 - ✓ Encourage broader community participation
 - ✓ Explain who you represent, your organization mandate, allowing sufficient time for discussion and negotiation within the community
 - ✓ Formalize the community's decision
 - ✓ Set the agreement
- 2. Document geographic and demographic information through participatory mapping**
 - ✓ Conduct a participatory mapping and documentation of land usage, natural resources, communication channels/media and customary rights - ensuring all communities affected are equally involved
 - ✓ Document land usage and natural resources
 - ✓ Identify Indigenous Peoples or project team non-negotiables
 - ✓ Identify customary rights, spiritual practices or traditional ethical codes, and relevant legal frameworks
- 3. Determine preliminary resources and time required to conduct FPIC**
 - ✓ Financial resources
 - Human resources
 - Communication materials' elaboration and translation into the local indigenous languages
 - Capacity building activities
 - ✓ Factor time and be flexible about time management
 - ✓ Design participatory communication plan and carry out iterative consultations over which project information will be disclosed in a transparent way
- 4. Communicate effectively with the indigenous peoples throughout all stages of the process**
 - ✓ Publicise the outcomes and decisions reached after the meetings
 - ✓ Reach consent and document Indigenous Peoples' needs that are to be included into the project
 - ✓ Agreements reached must be mutual and recognized by all parties (when a community is opposed to certain parts of a project, the project team needs to be flexible)
 - ✓ In case negotiations fail to produce an agreement and a stalemate is reached, agree in advance what steps will be taken.
 - ✓ Where consent is withheld, establish the causes, the conditions that would need to be met for the communities to give their consent, whether the community will consider renegotiation, and the terms and timing of eventual renegotiation.
 - ✓ Document the agreement process and outcome in forms and languages accessible and made publicly available to all members of the community
 - ✓ Identify additional needs
- 5. Monitoring and evaluating the agreement.**
 - ✓ Jointly define modes of monitoring and verifying agreements
 - ✓ Ensure participation of individuals from the indigenous peoples' community in the project task force
- 6. Establish the grievance mechanism and implement it**
- 7. Determine provision of access to remedy and conflict resolution, and exit strategy**
- 8. Document lessons learned.**

Annex 18: Value Chain Analysis

Introduction

In Burundi, all players in the agricultural sector are convinced that the development of Burundi's agricultural sector can only be achieved with the support of agribusiness, which inevitably passes it through the development of value chains and increased investment in the area. This is reflected in the national agricultural policy documents, notably: National Agricultural Strategy (SAN 2008-2015) resulting from the PRSP itself which references the MDGs, the National Food Security Programme (NASP) and the National Investment Programme agricultural (NAIP), as well as others.

According to the National Agricultural Strategy Paper, some among the food value chains are developed by farmers with the support of multilateral and bilateral funds for import substitution (rice, beans and cassava), others for food security and income generation (banana, potato) and for reducing post-harvest losses (fruits and vegetables). The choice of value chain(s) supported by donors relates to the concerns of the government, but still depends largely on their convictions on the matter and the scope of the project.

During the PPG, a national consultant completed a detailed inventory and analysis of these value chains to identify them, also identifying the capacity and interests of existing farmer field schools / inter-cooperative networks and other producers' organizations (POs) and proposing what support is needed to develop effective partnership between the various stakeholders to professionalize POs in the context of the project.

Methodology

During the consultation workshops with key stakeholders (decentralized technical services of the Ministries of Agriculture and Livestock and the Ministry of Water, Environment, Spatial Planning and Urban Development, local government, NGO partners and other stakeholders) and focus group with grassroots communities (potential beneficiary households), selection was made of the priority value chains according to the following criteria:

- 1) *Food security*: measured through household food mainly, but also the number of small producers practicing speculation and geographic coverage;
- 2) *Climate resilience*: adaptation to climate change or resilience against the actual or expected effects of climate change;
- 3) *Protection of the environment*: protection of populations of animal and plant species, also the conservation of ecosystem services. Its goal is to maintain ecosystems in a good state of conservation, and prevent or correct the damage they may suffer;
- 4) *Household income / profitability*: profitability is evaluated on its cycle then extrapolated over the year to optimize the basis for comparison, but also the interest and potential of organization of producers and the benefits for women and vulnerable groups. This criterion refers mainly to the benefit that such persons could benefit the development of the value chain in terms of social and financial benefits;
- 5) *Market potential*: the ability to structure the commercial chain by giving more weight to rural populations, creating jobs and ensuring a fairer distribution of profit margins between players in the value chain;
- 6) *Nutritional value*: contribution to the recommended dietary requirements (ANC) represent average values of EVERY nutrients (macronutrients (protein, fat, carbohydrates) and micronutrients (vitamins, minerals and trace elements) needed to ensure coverage of all nutritional needs.

The exercise, which immediately caught the attention of the participants, is to build a "pairwise comparison matrix" comprised:

- on the vertical axis, different value chains;
- on the horizontal axis shows the numbers of these VCs, the score of each and the final place.

Each value string is compared with all the others according to the criteria mentioned above. Furthermore, value chains were cited without regard to their order of importance, which was also not known in advance.

The instructions for this exercise were to listen carefully to each participant speaking, not interrupting during his intervention and make necessary explanations must have guided the selection of a value chain rather than others.

Participants at the provincial level were composed of technicians informed on development issues and VCs. The results usually differ from one province to another but without much difference.

Results of the agricultural value chain analysis

Crops

Gituku, Mubarazi and Ruvyironza microcatchments in the communes of Gitega Province

Cultures	Sécurité alimentaire	Rentabilité revenus	Résilience climatique	Protection Environnement	Potentiel marché	Apport Nutritionnel	Arbitrage
Maïs	4 ^{ème}	7 ^{ème}	5 ^{ème}	10 ^{ème}	8 ^{ème}	3 ^{ème}	5 ^{ème}
Haricot	1 ^{er}	3 ^{ème}	8 ^{ème}	11 ^{ème}	4 ^{ème}	1 ^{er}	7 ^{ème}
Patate douce	2 ^{ème}	9 ^{ème}	1 ^{er}	3 ^{ème}	10 ^{ème}	5 ^{ème}	8 ^{ème}
Banane	4 ^{ème}	6 ^{ème}	2 ^{ème}	1 ^{er}	5 ^{ème}	5 ^{ème}	3 ^{ème}
Manioc	4 ^{ème}	5 ^{ème}	2 ^{ème}	2 ^{ème}	7 ^{ème}	7 ^{ème}	6 ^{ème}
Sorgho	8 ^{ème}	11 ^{ème}	5 ^{ème}	6 ^{ème}	9 ^{ème}	4 ^{ème}	10 ^{ème}
Arachides	9 ^{ème}	6 ^{ème}	4 ^{ème}	7 ^{ème}	3 ^{ème}	1 ^{er}	4 ^{ème}
Riz	5 ^{ème}	7 ^{ème}	9 ^{ème}	13 ^{ème}	4 ^{ème}	5 ^{ème}	10 ^{ème}
Soja	7 ^{ème}	8 ^{ème}	6 ^{ème}	9 ^{ème}	6 ^{ème}	2 ^{ème}	9 ^{ème}
Pomme de terre	6 ^{ème}	4 ^{ème}	7 ^{ème}	8 ^{ème}	2 ^{ème}	4 ^{ème}	6 ^{ème}
Colocase	6 ^{ème}	8 ^{ème}	1 ^{er}	5 ^{ème}	6 ^{ème}	6 ^{ème}	7 ^{ème}
Légumes	3 ^{ème}	1 ^{er}	4 ^{ème}	12 ^{ème}	1 ^{er}	1 ^{er}	2 ^{ème}
Fruits	5 ^{ème}	2 ^{ème}	3 ^{ème}	4 ^{ème}	1 ^{er}	1 ^{er}	1 ^{er}

The priority VCs were:

1. Fruit (avocado, pineapple, bananas, Maracudja, Japan plum)
2. Vegetables (Amaranths, cabbage, eggplant, red and white onions)
3. Bananas
4. Peanuts
5. Maize

Gituku, Kaniga, Kayokwe and Ruvyironza communes in Mwaro Province

Cultures	Sécurité alimentaire	Rentabilité revenus	Résilience climatique	Protection Environnement	Potentiel marché	Apport Nutritionnel	Arbitrage
Maïs	6 ^{ème}	7 ^{ème}	8 ^{ème}	7 ^{ème}	8 ^{ème}	4 ^{ème}	5 ^{ème}

Haricot	1 ^{er}	5 ^{ème}	9 ^{ème}	10 ^{ème}	4 ^{ème}	1 ^{er}	7^{ème}
Patate douce	3 ^{ème}	9 ^{ème}	1 ^e	9 ^{ème}	10 ^{ème}	6 ^{ème}	8^{ème}
Banane	5 ^{ème}	7 ^{ème}	3 ^{ème}	1 ^{er}	5 ^{ème}	6 ^{ème}	3^{ème}
Manioc	4 ^{ème}	8 ^{ème}	5 ^{ème}	3 ^{ème}	7 ^{ème}	9 ^{ème}	6^{ème}
Sorgho	9 ^{ème}	9 ^{ème}	8 ^{ème}	5 ^{ème}	9 ^{ème}	5 ^{ème}	10^{ème}
Arachides	10 ^{ème}	3 ^{ème}	6 ^{ème}	4 ^{ème}	3 ^{ème}	1 ^{er}	6^{ème}
Riz	8 ^{ème}	4 ^{ème}	11 ^{ème}	12 ^{ème}	4 ^{ème}	7 ^{ème}	9^{ème}
Soja	11 ^{ème}	6 ^{ème}	7 ^{ème}	8 ^{ème}	6 ^{ème}	2 ^{ème}	8^{ème}
Pomme de terre	7 ^{ème}	2 ^{ème}	8 ^{ème}	7 ^{ème}	2 ^{ème}	5 ^{ème}	4^{ème}
Colocase	11 ^{ème}	10 ^{ème}	2 ^{ème}	2 ^{ème}	6 ^{ème}	7 ^{ème}	7^{ème}
Blé	12 ^{ème}	11 ^{ème}	12 ^{ème}	11 ^{ème}	10 ^{ème}	3 ^{ème}	11^{ème}
Légumes	2 ^{ème}	1 ^{er}	4 ^{ème}	6 ^{ème}	1 ^{er}	1 ^{er}	2^{ème}
Fruits	4 ^{ème}	3 ^{ème}	2 ^{ème}	3 ^{ème}	1 ^{er}	1 ^{er}	1^{er}

The priority VCs were:

1. Fruit (avocado, mango, passion fruit, plum japan, pineapple, papaya)
2. Vegetables (Cabbage, amaranth, red and white onions, tomatoes, eggplant, leeks, peppers, carrots)
3. Bananas
4. Potato
5. Maize

Mukuzi and Nkokoma microcatchments in the commune of Muramvya

Cultures	Sécurité alimentaire	Rentabilité revenus	Résilience climatique	Protection Environnement	Potentiel marché	Apport Nutritionnel	Arbitrage
Maïs	4 ^{ème}	6 ^{ème}	6 ^{ème}	7 ^{ème}	8 ^{ème}	4 ^{ème}	5^{ème}
Haricot	1 ^{er}	5 ^{ème}	9 ^{ème}	10 ^{ème}	4 ^{ème}	1 ^{er}	7^{ème}
Patate douce	3 ^{ème}	8 ^{ème}	4 ^{ème}	9 ^{ème}	10 ^{ème}	6 ^{ème}	8^{ème}
Banane	5 ^{ème}	4 ^{ème}	1 ^{er}	1 ^{er}	5 ^{ème}	6 ^{ème}	6^{ème}
Manioc	4 ^{ème}	7 ^{ème}	2 ^{ème}	3 ^{ème}	7 ^{ème}	9 ^{ème}	6^{ème}
Sorgho	11 ^{ème}	12 ^{ème}	4 ^{ème}	5 ^{ème}	9 ^{ème}	5 ^{ème}	9^{ème}
Arachides	10 ^{ème}	9 ^{ème}	6 ^{ème}	4 ^{ème}	3 ^{ème}	1 ^{er}	8^{ème}
Riz	9 ^{ème}	11 ^{ème}	12 ^{ème}	11 ^{ème}	4 ^{ème}	7 ^{ème}	10^{ème}
Soja	12 ^{ème}	10 ^{ème}	8 ^{ème}	8 ^{ème}	6 ^{ème}	2 ^{ème}	9^{ème}
Pomme de terre	3 ^{ème}	2 ^{ème}	10 ^{ème}	7 ^{ème}	2 ^{ème}	5 ^{ème}	4^{ème}
Colocase	8 ^{ème}	9 ^{ème}	3 ^{ème}	2 ^{ème}	6 ^{ème}	7 ^{ème}	7^{ème}
Blé	6 ^{ème}	11 ^{ème}	5 ^{ème}	10 ^{ème}	10 ^{ème}	3 ^{ème}	3^{ème}
Légumes	2 ^{ème}	1 ^{er}	7 ^{ème}	6 ^{ème}	1 ^{er}	1 ^{er}	1^{ème}

Fruits	7 ^{ème}	3 ^{ème}	6 ^{ème}	3 ^{ème}	1 ^{er}	1 ^{er}	2 ^{ème}
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The priority VCs were:

1. Vegetables (amarantes, cabbage, eggplant, red and white onions)
2. Fruits (avocado, pineapple, bananas fruits, Maracudja, Japan plum)
3. Wheat
4. Potato
5. Maize

Muhanda in the commune of Rutegama

Cultures	Sécurité alimentaire	Rentabilité revenus	Résilience climatique	Protection Environnement	Potentiel marché	Apport Nutritionnel	Arbitrage
Maïs	4 ^{ème}	7 ^{ème}	6 ^{ème}	10 ^{ème}	8 ^{ème}	3 ^{ème}	4 ^{ème}
Haricot	1 ^{er}	3 ^{ème}	9 ^{ème}	11 ^{ème}	4 ^{ème}	1 ^{er}	5 ^{ème}
Patate douce	2 ^{ème}	9 ^{ème}	1 ^{er}	3 ^{ème}	10 ^{ème}	5 ^{ème}	9 ^{ème}
Banane	4 ^{ème}	6 ^{ème}	2 ^{ème}	1 ^{er}	5 ^{ème}	5 ^{ème}	3 ^{ème}
Manioc	4 ^{ème}	5 ^{ème}	2 ^{ème}	2 ^{ème}	7 ^{ème}	7 ^{ème}	6 ^{ème}
Sorgho	8 ^{ème}	11 ^{ème}	6 ^{ème}	6 ^{ème}	9 ^{ème}	4 ^{ème}	11 ^{ème}
Arachides	9 ^{ème}	6 ^{ème}	5 ^{ème}	7 ^{ème}	3 ^{ème}	1 ^{er}	7 ^{ème}
Riz	5 ^{ème}	7 ^{ème}	10 ^{ème}	13 ^{ème}	4 ^{ème}	5 ^{ème}	11 ^{ème}
Soja	7 ^{ème}	8 ^{ème}	7 ^{ème}	9 ^{ème}	6 ^{ème}	2 ^{ème}	10 ^{ème}
Pomme de terre	6 ^{ème}	4 ^{ème}	8 ^{ème}	8 ^{ème}	2 ^{ème}	4 ^{ème}	5 ^{ème}
Colocase	6 ^{ème}	8 ^{ème}	1 ^{er}	5 ^{ème}	6 ^{ème}	6 ^{ème}	8 ^{ème}
Légumes	3 ^{ème}	1 ^{er}	5 ^{ème}	12 ^{ème}	1 ^{er}	1 ^{er}	2 ^{ème}
Fruits	5 ^{ème}	2 ^{ème}	3 ^{ème}	4 ^{ème}	1 ^{er}	1 ^{er}	1 ^{er}

The priority VCs were:

1. Fruit (avocado, pineapple, bananas fruits , Maracudja , Japan plum)
2. Vegetables (amarantes, cabbage, eggplant, red and white onions)
3. Bananas
4. Maize
5. Potatoes

Livestock

The results of the classification of animal species were obtained during the provincial consultations (involving provincial and municipal technical services, local government). These have been combined with elements from the focus groups organized in communities.

The criteria which formed the basis for these results were:

- availability of fodder / forage crops;
- contribution to the rapid growth of organic manure.

The results of the classification of animal species were common across all the microcatchments

N°	Species	1	2	3	4	5	6	7	8	Score	Rank
1	Cattle		2	3	4	5	6	7	8	0	8ème
2	Goats			2	4	2	2	2	2	6	2ème
3	Sheep				4	3	3	3	3	5	3ème
4	Pigs					4	4	4	4	7	1er
5	Poultry						5	5	5	4	4ème
6	Duck							6	6	3	5ème
7	Rabbits								7	2	6ème
8	Bees									1	7ème

The results of the analysis of the classification of animal species, through the pair comparison approach in the various focus groups organized in communities of place at the base of all visited watersheds, show the following results, priority order:

1. Pigs
2. Goats
3. Sheep
4. Poultry

It emerges that although cattle contribute to the increase of organic manure, they have not in the end been chosen by the communities (ranked 8 out of 8), as they require a large area of forage / fodder crops, while the project area is facing a demographic pressure.

Key features and SWOT analyses of different value chains

Fruit and Vegetables (Marsh crop)

The market-garden products mainly sell in the market of capitals of provinces, local markets and on the road to Bujumbura. However, market gardening sector have little or no organized. It would take efforts over time to boost these productions in the context of the value chain approach

Strengths	Weaknesses
<ul style="list-style-type: none"> • Existence of many marshes for cultivation of horticultural produce; • Relatively short cropping cycle; • Long experience in vegetable gardening; • Relatively high yields from small scale activity (e.g. pepper). 	<ul style="list-style-type: none"> • Poor seeds in rural specialty stores; • Lack of appropriate agricultural equipment due to low purchasing power (watering cans, hoses, pumps for pesticides); • Insufficient supply of organic manure; • Inaccessibility of inorganic fertilizers; • Perishable products and lack of post- harvest processing and storage infrastructure; • Lack of modern processing units.
Opportunities	Threats
<ul style="list-style-type: none"> • Wide possibility of industrial processing; • Strong demand in urban centers. 	<ul style="list-style-type: none"> • Climatic hazards (floods / droughts); • Loss of part of the production; • Insufficient production to justify industrial transformation projects; • Strong fluctuations in prices from seasonal produce (vegetables and fruits).

Maize

Maize is now unquestionably the cereal that has the highest popularity among consumers. This is due, in large part, to changes in eating habits of urban populations. While maize is consumed as urban grain (flour porridge), it is cooked and consumed in different forms in rural areas.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Corn plays an important role in the context of food security; • The market is characterized by a large number of consumers; • Culture tradition known and widely represented in rotations; • Corn can be consumed in a multitude of forms; • Product storable and capable of being the object of securing credit; • Foods with good nutrient properties; • Good crop rotation with legumes and tubers. 	<ul style="list-style-type: none"> • It is difficult to produce local quality seeds and the availability of the latter is not sufficient. • No modern processing plant for maize in the project area. • Poor control of diseases and pests; • Preservatives inaccessibility due to prices.
Opportunities	Threats
<ul style="list-style-type: none"> • The national agricultural policy supports the development of maize production; • Existence of mills • The potential for increased yields (intensification) are real; • Existence of a market for by-products of processing (for livestock feed) • Strong demand for maize. 	<ul style="list-style-type: none"> • Local maize is less competitive in the market (price and quality) compared to imported maize from countries in the sub region (notably Tanzania); • Climatic hazards affected yields.

Banana

In the project area, bananas are important for i) banana fruit starch, ii) beer bananas, and iii) the table of banana. The banana is cultivated almost throughout the whole of the project area. It is often planted around the box and is a very valuable plant for the population.

The market for bananas and beer is available. Beer is sold directly to consumers in bowls from March to June bottles or bottle of 0.75 litres. There are no packing problems since consumption is immediate. For beer sold away from the production area, storage is provided in cans of 20 litres.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Ease of production; • Interesting returns and possibility of increase in high production; • Capacity to increase yields with higher inputs; • Vitally important in food security; • The sector is profitable if all production factors are controlled; • The environmental impacts are positive due to its biomass contributes to improving the physical qualities of the soil; 	<ul style="list-style-type: none"> • Post harvest conservation difficulties; • The cycle of the crop before the start of production is long (1 year); • Low capacity to generate employment , the activities around the culture remain family; • The technical and organizational capacities of actors are very low.

<ul style="list-style-type: none"> Long tradition of artisanal processing (juice, beer and banana wine). 	
Opportunities	Threats
<ul style="list-style-type: none"> Existence of the market and the demand for different products of the industry; Considerable possibilities for extension of the regional market; Production of plants by in-vitro propagation⁷⁰ by IRAZ and by private sector (and AGROBIOTEC PHYTO LAB); Sufficiently remunerative price, which is steadily rising; Obvious interest of actors in the development of the sector. 	<ul style="list-style-type: none"> Diseases of plants - resistance of plants produced by in-vitro propagation unknown; Bacterial wilt (<i>Xanthomonas campestris</i>); Need for provision of wooden supports for protection against the wind; Uncontrolled import of bad non-compliant plants from neighbouring countries.

Groundnut (peanut)

The groundnut cultivation is grown in medium and low altitude (regions of Moso , Imbo , Bugesera Kiri mi ro , Buyogoma and Bweru).

Strengths	Weaknesses
<ul style="list-style-type: none"> Presence of peanut varieties of mouth low oil content (21%); Culture adapted to the low-lying regions; Peanut enriches the soil with nitrogen and fits well with the rotations; Product storable and capable of being the used to secure credit; Presence of cattle feed manufacturing units (Mutoyi) 	<ul style="list-style-type: none"> Poor availability of seed selected for high grade oil; Lack of organic manure; Low mastery of cultivation techniques; Competition with bean growing; No access to credit; Craft storage problems (high losses due to rot); Poorly controlled processing technologies (simple flour, butter, oil); Processed products unknown to local people (butter, oil and groundnut cake)
Opportunities	Threats
<ul style="list-style-type: none"> Ability to achieve high yields (2.5 t / ha) if technical procedures followed; Satisfactory profitability of the primary production of confectionery groundnut (high prices : 1500-2000 FBU / kg); Ability to produce other derivatives of peanuts : oil, food flour, butter, cakes, etc.; Growing demand for food meal and oil for animal feed 	<ul style="list-style-type: none"> High sensitivity to climatic hazards; Limited extent of farmland; Insufficient production to transform; High price of peanuts; For peanut oil, uncertain competitiveness with refined palm oil; Risk of aflatoxin if peanuts are poorly dried.

Potato

The potato is a profitable crop that responds well to organic and mineral fertilizers.

Strengths	Weaknesses
<ul style="list-style-type: none"> Experience in the potato sector; 	<ul style="list-style-type: none"> Low availability of quality seeds and pesticides; Lack of organic manure; Technical supervision and training insufficiency;

⁷⁰ Disease resistant clones

<ul style="list-style-type: none"> • Can be stored for a shorter or longer period, depending on the conditions and conservation technology; • Strong urban demand (mainly Bujumbura) 	<ul style="list-style-type: none"> • Lack of infrastructure and post- harvest processing equipment, especially for seed saving and to condition the potato; • Poor hygiene during the post- harvest operations; • Absence of potato processing units; • Poor organization of the circuit from primary production to marketing.
Opportunities	Threats
<ul style="list-style-type: none"> • Potentially high returns on high- altitude land; • Wide range of processed products (chips , mashed potatoes, frozen French fries, potato blasted , dehydrated potato, starch) • Extensive local and regional market : R.D.C and East African Community 	<ul style="list-style-type: none"> • Limited extent of land available; • Crop high prone to diseases; • Erosion stronger or weaker depending on the slopes.

ANNEX 19: Details of Closely Related Projects and Summary of Other On-Going / Planned Projects GIZ funded Support Project for Décentralisation and the Fight against Poverty (Le Programme d’appui à la Décentralisation et la Lutte contre la pauvreté - ADLP)

Started in 2012 and completed in 2014 (in 2016 awaiting a possible second phase), the project supports the transfer of decision making from the central government processes to the local level to strengthen citizen participation in local development. This is as a basis for stable coexistence and sustainable social and economic development.

ADLP / GIZ provide advice to important players in the decentralized framework (i.e. Ministry of Communal Development, provincial governments and municipalities). It particularly focuses on strengthening institutional capacities of different actors as well as the development and implementation of effective strategies.

ADLP / GIZ advise the Ministry of Communal Development in the development and implementation of a national programme of initial and continuing training for public administration employees. At the same time, local strategies are developed in cooperation with 17 municipalities of the two pilot provinces (Gitega and Mwaro – both also IAP intervention areas), to increase both: (i) the financial returns of commons; (ii) to strengthen transparency and accountability in the management of their spending.

Providing advice on local production sectors, such as bananas, potatoes and milk, the project aims to strengthen the local economic potential and lay the foundations for economic growth in the municipalities. The project comprises three components: 1 - Decentralisation at national and local levels; 2 - Local governance; 3 - Local economic development.

The aspects of the project with synergies to the IAP include

- 1.4 Strengthening the capacity of non- state actors.
- 2.1 Supporting the development of Communal Community Development Plans.
- 3.1 Strengthening the technical and organizational capacities of communities for their support for their development;
- 3.2 Coordination and harmonization of technical approaches to land stakeholders across the Agriculture and Rural Development Sectorial Group;
- 3.3 Support the development and implementation of an economic development plan for the Province Gitega;

- 3.4 Determining the values of chains with a focus on banana and potato (production, conservation and marketing).

World Bank and GIZ's Safe Access to Fuel and Energy (SAFE) project

Timescale: planned started date - hopefully 2017 - 2020

Safe Access to Fuel and Energy (SAFE) is a formulation of the current project by WFP to support the community of the town of Bugendana in Gitega Province. It covers the following activities:

1. promotion of alternative forms of energy: improved stoves and briquettes;
2. the development of agroforestry: choice of agroforestry fast growing species and adapted to the environment , production and plantation products plants;
3. community nutrition capacity building.

Since the project will be implemented in the same area as the IPA project, synergies and partnership will be initiated between the two projects.

World Bank - "Agriculture Project in Burundi: Landscape Restoration Project"

This project is being developed over the next 12 to 18 months and the goal is the stabilization / soil conservation and payment for work for business name (economic crisis) and so to help implement the commitment of Government of Burundi to restore 2 million ha before 2030 - more than 72% of the country - 27,834 km²) (contribution to the " Bonn Challenge").

Components

1. Capacity building in landscapes, landscapes restoration assessments, planning, south-south knowledge sharing, mutual learning in/outside of the country;
2. Restore degraded land in priority regions, land users adopting sustainable land management practices, targeted community members benefit from project interventions, promote ecosystems connectivity, buffer zone near protected areas, climate-smart agriculture and improve food security and livelihood community on landscapes;
3. Project management, Monitoring and Evaluation.

Criteria of selection of project interventions zones

1. Degree of land degradation;
2. Poverty;
3. Risk of floods and land shocks;
4. Proximity to protected areas;
5. Potential socio-economic infrastructures need to be protected;
6. Coordinating with others projects partners.

The project intervention areas have not yet been firmly identified, but the priority is being given to Bujumbura Rural (not included in the GEF project as an on-the-ground intervention area.

IUCN has the mandate, in close collaboration with IGEBU (Geographic Institute in Burundi), to produce maps which highlight different types of land degradation.

Steps for designing the project

April 2016: First mission to explore how to design and implement the project

July 2016: Second mission

September 2016: Project preparation mission

September 2017: start negotiations between the WB and the Government.

Early 2018: Implementation of the project.

The GEF investment will be beneficial to the World Bank project activities as both focus on the use of SLM / INRM technologies and FFS approaches and the landscape restoration project will eventually benefit from the provision of training materials for training of Master Trainers and Facilitators, thus scaling-up the impact of the GEF investment for transformational change. However, this project is not expected to start until 2018.

Project teams should work to ensure complementarity.

Energizing Development Initiative (EnDev)

GIZ facilitates access to energy for rural households and communal infrastructure as part of EnDev, supported by the Dutch and German Governments

Partners: Ministry of Energy and Mines / General Directorate of Water and Rural Energies / International Fertilization and Development Committee (IFDC)

Implementers: GIZ

Project Duration: EnDev 1: September 2005- September 2009; EnDev September 2010-June 2018

Approach: EnDev Burundi focuses on providing access to electricity through market introduction of solar photovoltaic systems for households, SMEs and social institutions.

The country project funds PV systems to electrify social infrastructure (schools, health posts, city halls and street light), and promotes picoPV and Solar Home Systems (SHS) through road shows.

Through promotion of solar multi service stations (SMSS), EnDev Burundi initiates the reach out of energy services to rural areas. In the SMSS PV Panels provide power for battery and mobile phone charging as well as supply power to SMEs in the direct neighbourhood. Typically a hairdresser powers an electric trimmer with this power. The SMSS act as a sales point for additional energy efficient devices such as PicoPV Systems and improved stoves. EnDev facilitates hereby the linkages between imported/producers, distributor, sales point and customers. The regional focus for electrification was initially put on Gitega Province and has been extend to Mwaro Province.

EnDev Burundi additionally facilitates the promotion and distribution of improved cookstoves through third parties. Herein EnDev creates a platform to share experiences, especially from neighbouring Kenya and Uganda. The project will ensure that Burundi will benefit from knowledge transfer in the development of improved cook stoves.

Planned Outcomes of EnDev 2

- ✓ Access to electricity: 10,900 people
- ✓ Access to modern cooking energy : 9,400 people
- ✓ Access to modern energy services : 26 social institutions and 158 SMEs

Since the project will be implemented in the same area as the IPA project, synergies and partnership will be initiated between the two projects, particularly on improved cook stoves.

Climate Change Adaptation for Soil and Water Resources Conservation Project (Le Projet de Réduction des effets du changement climatique sur la disponibilité des ressources en eau et en sols - ACCES) Project, financed by the Special Fund for Energy and Climate (2013-2018)

The project is funded by the German Federal Ministry for Economic Cooperation and Development and the political supervision of both the MEEATU and MINAGRIE.

The project is part of the intervention pole priority "Water" of the German-Burundian cooperation and contributes to increase the resilience of the population against the negative effects of climate change in the following areas:

- systematic integration of climate change and adaptation in all decision-making and at all levels of society;
- implementation of adaptation measures in particularly vulnerable watersheds;
- support for the implementation of an early warning system covering the whole country.

Support is provided to decision makers and institutions in relevant sectors at national, provincial and local levels in order to incorporate adaptation to climate change in their strategies and investment plans and apply a sensible climate policy. The local user groups, municipalities and utilities of some watersheds selected in particularly vulnerable regions are also supported to ensure autonomous planning and implementation as well as management and monitoring measures for CCA.

In conclusion, numerous interventions are being conducted across Burundi within the framework of the fight against land degradation. There are successful experiences of farm and micro-catchment levels, but these are very small-scale, sectoral, with no long-term scaling-up or knowledge sharing strategies and are not widely published.

Project/ Programme	Development Partners	Principal Objectives	Geographical Coverage (Provinces)	Dates	Project / Programme Components (where known)
Send a Cow	DIFD and JOAC	Promotion of activities to encourage the fight against poverty, malnutrition and social and economic development (Agriculture, Livestock, Environment, Social Development)	Mwaro	2015-2017	
WORLD VISION	Many donors	Food security, conservation of water and soils, improvement of living conditions for populations	Gitega, Muramvya	2012-2020	
Project MAW	FAO/GL O Organisation	Extension and duplication of Kagera TAMP interventions for sustainable land management, capacity building for cooperatives and new CEP created by Kagera TAMP	Mwaro	2015 - 2016	<ol style="list-style-type: none"> 1. Integrated Watershed Management 2. Promotion of small livestock for improving food security and nutrition 3. Diversification and improvement of horticulture, 4. Strengthen organizational and

Project/ Programme	Development Partners	Principal Objectives	Geographical Coverage (Provinces)	Dates	Project / Programme Components (where known)
					technical capacity of CEP.
Safe Access to Fuel and Energy (SAFE)	WFP	Promotion of alternative forms of energy Develop of agroforestry Community capacity building in nutrition	Gitega (Commune Bugendana)	2017 - 2020	1. Promotion of alternative forms of energy 2. Development of agroforestry 3. Nutrition Community Capacity Building

ANNEX 20: The Concept of a Global Hunger Index

Concepts of Hunger⁷¹

The words that refer to different concepts of hunger can be confusing.

Hunger is usually understood to refer to the distress associated with lack of food. The Food and Agriculture Organization of the United Nations (FAO) defines food deprivation, or undernourishment, as the consumption of fewer than about 1,800 kilocalories a day—the minimum that most people require to live a healthy and productive life.

Undernutrition goes beyond calories and signifies deficiencies in any or all of the following: energy, protein, or essential vitamins and minerals. Undernutrition is the result of inadequate intake of food—in terms of either quantity or quality—poor utilization of nutrients due to infections or other illnesses, or a combination of these factors. These in turn are caused by a range of factors including household food insecurity; inadequate maternal health or childcare practices; or inadequate access to health services, safe water, and sanitation.

Malnutrition refers more broadly to both undernutrition (problems of deficiencies) and over nutrition (problems of unbalanced diets, such as consuming too many calories in relation to requirements with or without low intake of micronutrient-rich foods). In this report, “hunger” refers to the index based on the three component indicators described below.

Global Hunger Index

The Global Hunger Index (GHI) is a tool designed to comprehensively measure and track hunger globally and by region and country. It highlights successes and failures in hunger reduction and provides insights into the drivers of hunger and nutrition insecurity. Calculated each year by the International Food Policy Research Institute (IFPRI), the GHI is designed to raise awareness and understanding of regional and country differences. It is hoped that the report will trigger action to reduce hunger around the world.

A number of different indicators can be used to measure hunger (Box 1.1). To reflect the multidimensional nature of hunger, the GHI combines three equally weighted indicators into one index:

1. Undernourishment: the proportion of undernourished people as a % of the population (reflecting the share of the population with insufficient caloric intake);
2. Child underweight: the proportion of children under the age of five who are underweight (that is, have low weight for their age, reflecting wasting, stunted growth, or both), which is one indicator of child undernutrition;
3. Child mortality: the mortality rate of children under the age of five (partially reflecting the fatal synergy of inadequate food intake and unhealthy environments).

How GHI Scores Are Calculated

A country’s GHI score is calculated by averaging the percentage of the population that is undernourished, the percentage of children younger than five years of age who are underweight, and the percentage of children who die before the age of five. This calculation results in a 100-point scale on which zero is the best score (no hunger) and 100 the worst, although neither of these extremes is reached in practice. A value of 100 would be reached only if the whole population was undernourished, all children younger than five were underweight, and all children died before their fifth birthday. A value of zero would mean that a country had no undernourished people in the population, no children younger than five who were underweight, and no children who died before their fifth birthday. The scale at the right shows the severity of hunger—from “low” to “extremely alarming”—associated with the range of possible GHI scores.

⁷¹ Source: IFPRI (2014b)

ANNEX 21: Revival of Cultivation of Neglected / Orphan Crops for Food Security

The project will aim to encourage land users to resume growing crops which have fallen out of favour (variously termed “neglected”, “underused” and “orphan” crops). These are domesticated plant species that have been used for centuries or even millennia for their food, fibre, fodder, oil or medicinal properties, but have been reduced in importance over time owing to particular supply and use constraints. These can include, *inter alia*, poor shelf life, unrecognized nutritional value, poor consumer awareness and reputational problems (famine food or “poor people’s food”, sometimes due to the modernization of agricultural practices).

The two likely crops which have been identified in the PPG are taro and finger millet:

Taro holds a very important place in the general supply of food to Burundians and particularly in the project’s intervention area. Taro is more appreciated than sweet potato and cassava, as the tubers were consumed daily; it is also the foodstuff which aids survival until the next harvest, once the last grains were sown in fields. Grown alone, taro has a yield of 10 to 30 t/ha, which is twice that of sweet potato. More drought resistant than all other local food crops and generally not affected by pests and diseases, the plant is better suited to the soil and harsh and unpredictable weather conditions in Burundi.

Finger millet⁷² is a seeded annual cereal which belongs to the grass family, *Poaceae*. The height of a mature plant ranges from 30-150 cm in the cool, high-altitude regions of Africa and Asia, where it is grown for its seeds. The seeds, which may be white, light brown, or dark brown, are consumed in a variety of forms including as unleavened bread made from milled flour. Various types of porridge and alcoholic beverages are also prepared from the seeds. [Finger millet has long been appreciated in the region – it was reportedly domesticated about 5,000 years ago from the wild subspecies in the highlands that range from Ethiopia to Uganda.]

Finger millet (known in India as ragi) has many health benefits⁷³:

- ✓ high protein content - the grain’s protein content is comparable to that of rice. However, some ragi varieties have shown double that level. More importantly, this protein content is quite unique. The main protein fraction is eleusin, which has a high biological value, meaning that it is easily incorporated into the body. There are also significant quantities of tryptophan, cystine, methionine and total aromatic amino acids – all considered crucial to human health, and that most cereals are deficient in these components. This high protein content makes finger millet a very important factor in preventing malnutrition. The cereal can be an especially good source of protein for vegetarians because of its methionine content that constitutes about 5% of the protein.
- ✓ rich source of minerals – has between 5-30 times the calcium content found in other cereals, also rich in phosphorus, potassium and iron;
- ✓ controls diabetes;
- ✓ anti-microbial properties;
- ✓ anti-cancer potential;
- ✓ keeps you young;
- ✓ reduces “bad” cholesterol, thus preventing cardiovascular disease.

⁷² Source: <http://www.fao.org/traditional-crops/fingermillet/en/?b%10=>

⁷³ Source: <http://isha.sadhguru.org/blog/lifestyle/food/7-health-benefits-of-ragi-6-great-ragi-recipes/>

The study, “The Lost Crops of Africa,” published by the United States National Academies sees finger millet as a potential “super cereal” and points out that “the world’s attitude towards finger millet must be reversed. Of all major cereals, this crop is one of the most nutritious.” The study notes that people in Uganda and southern Sudan have healthy, strapping physiques despite eating just one meal a day, and attributes this to finger millet.

ANNEX 22: Review of Farm Input Subsidy Programmes

ACB (2016) reviews the working of farm input subsidy programmes in sub-Saharan Africa (not including Burundi) and given the widely negative findings, it is considered important that the IAP not only catalyses an assessment of the impacts of the Burundian scheme, but then also reviews and revises the policy to ensure it achieves its goals and does not have the range of damaging impacts of some other SSA country schemes.

Some of the key findings of the ACB study are summarised here to guide the assessment and review of the Burundian scheme.

- **FISPs consume large parts of agricultural and even national budgets:** Zambia's agricultural budget allocation was equal to 13.6% of the national budget in 2011; and Malawi's agricultural budget allocation was equal to 6.3% of its national budget in 2013.
- **The motivation for these programmes is aligned to non-economic rationales for subsidy use;** (i.e. enhancing food security and reducing poverty). But in Malawi there is a net transfer away from rural households who have embraced Green Revolution inputs because the additional cost is not always recouped from the sale of the harvest. In Mauritius it is only the organic compost subsidy scheme that effectively lowers prices for producers, while also providing direct environmental benefits to those outside the target group.
- **FISPs are largely ineffective, social transfer schemes that create dependency.** This is particularly true in Botswana, where increasing numbers of rural farmers are receiving subsidies, and Madagascar, where the subsidy scheme is part of a social protection safety net.
- **Some subsidy schemes in SADC are used as tools to gain political favour.** This is the case especially for the Malawian, Tanzanian and Zambian schemes.
- **There is significant elite capture, leakage and diversion** (vouchers and/or fertilisers are stolen before reaching the intended beneficiary group, or they are sold on by beneficiaries) in Botswana, Zambia, Malawi and the United Republic of Tanzania. About 60% of subsidised fertiliser is diverted/leaked in Tanzania, 35% in Zambia and 33% in Malawi, representing a significant loss of public funds.
- **Direct beneficiaries of FISPs include input suppliers such as multinational seed and agrochemical companies** who do not bear the costs of administration, distribution or marketing. Input suppliers to South Africa's Massive Food Production Programme made about US\$ 60 million from the scheme and cartels operate throughout Africa's fertiliser market.
- **FISPs do not directly benefit the poor and most vulnerable, who are mostly women and who are often side-lined as beneficiaries by district officials and village chiefs. These people often cannot afford to pay the balance of the subsidy or the membership fees of farmer organisations. They also cannot meet FISP criteria, such as a minimum land allocation for planting subsidised maize, or provide proof of land tenure and access to labour.**

Critically, the main conclusion is:

FISPs do not contribute to building sustainable (ecological, social and economic) farming systems capable of adapting to a changing climate and global economic market. Instead, they act to shift farmers further away from independent choices based on their own lived experience and inherent and practical knowledge of their soil, seeds and social systems. The knowledge necessary for a transition to resilient and sustainable food systems can be generated only in partnership with food producers. Local, regional and global food systems must be shifted dramatically to encompass the principles of "diversity, multi-functionality and resilience". This means supporting agroecological initiatives and working actively to place the sustainable option at the centre of policy debates.

In 2012, the Government of Burundi launched the National Fertilizer Subsidy Programme (*Programme National de Subvention des Engrais au Burundi - PNSEB*), with the aim to increase agricultural productivity

through greater input utilization in the country. During the PPG it was recommended that more robust impact assessments are needed to evaluate the effectiveness of the programme.

Annex 23: IAP-FS Tracking Tool

Separate file

Annex 24: Monitoring and Quantification of Project's Carbon Benefits

According to FAO EX-ACT tool the project will contribute to a reduction of 2,522,673t CO₂eq of greenhouse gas emissions in a total area of 30,079ha over a period of 20 years (5 year project and 15 year capitalization phase). The activities benefitting the reduction and avoidance of greenhouse gas emissions follow below.

Basic assumptions

The project will be implemented in highlands of Burundi with a tropical mountain climate, Ferrasol soils⁷⁴ (LAC in EX-ACT). The project implementation phase is 5 years with a total capitalization phase of 15 years.

Description of activities

The main activities that will generate carbon benefits (the overall objective level target of 30,079 ha of FFSs) are:

- a) Afforestation/Reforestation - includes reforestation of LD hotspots plus increasing numbers of trees in cropping systems (i.e. agroforestry)

With the implementation of the project 8,000 ha of already degraded land will be forested with indigenous and exotics including multi-purpose trees and shrubs for shade / fuel wood / timber / fruits / medicinal products / fodder / soil improvement (e.g. leguminous species) such as: *Erythrina abyssinica*, *Ficus* div. sp. and *Chenopodium ugandae*, *Cordia africana*, *Albizia gummifera* considérées *Tetradenia riparia*, *Plectranthus barbatus*, *Momordica foetida*, also *Maesopsis eminii* and *Markhamia lutea* (latter two are indigenous agroforestry species); already locally grown multipurpose species including *Maesopsis eminii* (woodfuel, also providing excellent shade tree for the coffee / animal fodder), *Euphorbia tirucalli* (woodfuel, hedging / erosion control and animal fodder), *Parinari curatellifolia* (woodfuel, also fruits for nutrition/food security and *Polyscias fulva* (woodfuel). (also described in ProDoc).

- b) Cropland management – adoption of SLM technologies and use of improved varieties (increasing SOM and yields)

Currently a total area of 7,500 ha of root crops with a mean yield of 6.95 t/ha/yr (FAO Statistical Yearbook 2014 Africa⁷⁵) is managed as conventional with no input of fertilizers and whereby crop residues are removed through burning. Without the project these practices will remain the same in the area. With implementation of the project, improved crop varieties, crop rotation, retention of residues and application of manure as organic fertilizer will be implemented and yields are anticipated to rise by 25% (to 8.69 t/ha/yr).

⁷⁴ Based on the VI-Africa soil map

(http://www.fao.org/fileadmin/user_upload/soils/docs/Soil_map_FAOUNESCO/acrobat/Africa_VI.pdf) the dominant soil type is Ferrasols (so Ferrasols in the EX-ACT classification) – which EX-ACT groups as LAC.

⁷⁵ <http://www.fao.org/3/a-i3620e.pdf>

In addition, with the project another 7,500 ha of conventionally grown beans and pulses will be under improved management. Currently the yields are 0.77 t/ha/year (FAO Statistical Yearbook 2014 Africa (ibid.)) and it is expected to increase to 0.96 t/ha/year (a 25% boost). If the project is not implemented, the production will remain conventional.

Also the project will catalyse land users to adopt SLM technologies on land growing 7,079 ha of perennial crops. This will particularly involve efforts to raise yields of banana, the most commonly grown crop. The average banana yield (2014) for Burundi was 8.28t/ha/yr (Source <http://www.fao.org/faostat/en>). Project interventions (improved planting materials and SLM) are anticipated to raise this to 10.35t/ha/yr, a 25% increase.

EX-ACT spreadsheet - Separate file