



**Transboundary Agro-ecosystem Management
Programme for the Kagera River Basin**

Project Document



Food and Agriculture
Organization of the
United Nations

B - Project description

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3. THE GEF ALTERNATIVE

3.1 Justification

Land degradation is having a strong negative impact on the structural and functional integrity of the ecosystems, driven largely by changes in land use and management practices in the diverse agricultural ecosystems of the Kagera River Basin. The basin's increasing ecological vulnerability threatens the livelihoods of the 16.5 million who live in the area today and the ability of the basin to sustain the predicted increases in population over the coming decades (see Table 1, Annex 13). The agro-ecosystem resources of the region have come under increasingly severe pressure in recent years due to natural population increase and returning refugees – accelerating the break-down of traditional agricultural practices (rotations, fallow, shifting cultivation and nomadic livelihoods) and giving rise to food shortages, poverty and economic vulnerability.

Degradation as a result of unsustainable intensification is negatively affecting agricultural ecosystems and their productivity and since, in most rural areas, alternative livelihoods are absent or negligible, with deleterious impacts on human societies in the four countries and increasing risk of conflict over access to resources. Degradation is also affecting biodiversity and in particular agricultural biodiversity through fragmentation and loss of habitats, loss of plant and animal species and intra species diversity (varieties and breeds). Climate change is also negatively impacting on agricultural livelihoods through unreliable and more intense rains and higher temperatures with effects on crop and livestock systems, their productivity and viability. Improved natural resources and agro-ecosystems management (land, water, biological resources and their diversity) and protection of the more fragile areas are recognized as being critical for sustaining agricultural productivity and livelihoods and thereby maintaining hydrological, social, economic and political stability within the basin countries – and also more widely in downstream countries of the Nile Basin.

The Kagera River Basin is a regional entity where the project can successfully intervene using multiple approaches to **reverse land degradation and achieve global benefits through restoring ecosystems structure and functioning and ecosystem services**, such as water regulation, carbon storage and provision of habitats for important fauna and flora and associated species. The key entry point for Kagera TAMP will be land degradation, the project will enable local farmers and herders to break out from the vicious circle of land degradation into a virtuous circle of land restoration and sustainable use through the engine of agriculture.

Kagera TAMP will focus attention and interventions on the **agro-ecosystems** on which the large share of the population depend but which have come under increasingly severe pressure in recent years due to natural population increase and returning refugees. Ways and means will be identified to promote the widespread transition **from unsustainable to sustainable intensification** and thereby improve agricultural productivity and the conservation of natural resources leading to improved food security, reduced poverty and economic vulnerability. The reversal of land degradation processes and enhanced agricultural productivity will **reduce conflicts over resources** for instance between farmers and herders, and improve economic and social stability. **Youth** will, where appropriate, be encouraged to remain in rural areas through improved livelihoods opportunities (agrobiodiversity; local markets). **Improved practices** will be developed through participatory learning action-research (PLAR) with communities building on local knowledge and innovations and resulting in viable agro-ecological and integrated ecosystems approaches. **Alternatives** to traditional practices that are no longer viable (rotations, fallow,

shifting cultivation, nomadic livelihoods) and to practices that negatively impact on the environment (burning, repetitive tillage etc) will be developed to improve land cover, nutrient cycling and biological control, water quality and quantity, to reduce biomass losses, and enhance systems' **diversification and resilience**. Improved practices include, for example, agroforestry, crop-livestock integration, inter and relay cropping and species/variety improvements, conservation agriculture, pasture improvement and sustainable harvesting of wild species and products.

Coordinated support and effective investment by local governments, civil society and the private sector is a prerequisite to promote sustainable use of resources and thereby to maintain the ecosystem services and preserve the long term asset value of the Kagera basin. In this regard, local government support and capacity will be built to strengthen **resources planning and management capacities** of farmers, herders and their communities and thereby generating local livelihood and both local and global environmental benefits. Local communities will be empowered in decision making, planning and monitoring for improved land use systems and resources management practices through **strengthening community capacity and organization** in developing and implementing agro-environmental action plans and associated micro-projects to generate benefits in terms of food security and livelihoods (as an integral part of community and district planning processes). LVEMP and various NGOs/CSOs have shown that such community level interventions demonstrate cost-effectiveness, show impact within short periods, use of local resources, sustainability, gender sensitivity, transparency and accountability.

Coordinated resource management strategies will be developed for the basin resources as a whole to mitigate pressures on limited resources, notably, nutrient mining of croplands, soil erosion as a result of poor vegetation cover, loss of biodiversity through habitat loss and fragmentation, loss or threats to genetic resources, overgrazing of pastures and rangelands, agricultural encroachment of wetlands and deforestation. **Raised awareness and improved understanding will be created** among Kagera basin stakeholders of on-site and off-site impacts of resources management (actual and potential).

The community level action will be supported by efforts to enhance **district and regional capacity** for **cross-sectoral approaches** (integrated technical support) for sustainable agro-ecosystems management at community, micro-catchment and river basin levels. Holistic (inter-sectoral) approaches will allow Kagera TAMP to address the **land use-livelihood system** as a whole, considering both the 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). District capacity will also be enhanced for **mobilizing financial resources** (public and private sector investment) for long term agro-environmental management, while making required linkages with other sectors - health, education and infrastructure.

Sustainable land management and **capacity building** to prevent/manage resource use and degradation in the **short and long term** will be enhanced through addressing institutional issues of tenure security, land use planning capacity, local empowerment and decision making (e.g. through community by-laws) and organisation of local communities (land and water users associations, conflict resolution mechanisms). Attention will be paid to the multiple interlinking factors from **local to global levels** that provide an enabling environment for the wide adaptation and adoption by land users of productive and sustainable land management practices. The satisfactory resolution of the various land use pressures and conflicts will be tackled through **negotiation and planning capacities** at basin-wide, national and local government levels, as well as adaptation of traditional practices that are no longer sustainable or economically viable through developing **alternative livelihood strategies and off-farm income**.

The pressures on the natural ecosystems and habitats of the Kagera River Basin will be reduced through identifying ways in which **neighbouring communities** can benefit from the conservation and sustainable use of the resources in and around the protected areas (Akagera National Park, Magaju Forest Reserve, Lake Mburo and the Burigi Game Reserve) also natural forests of Gishwati and Nyungwe and remnants of previously widespread gallery forest. This could include **sustainable harvesting and improved marketing** of products from endemic plant and animal species (including species used in medicine and for wild food and local agroforestry species including *Ficus toningii*, *Markhamia lutea* and *Eritrina abyssinica* and non-wood forest products).

Actions will be identified to reduce threats on traditional **crop species/cultivars and livestock breeds** and loss of local potentially valuable gene pools by improving participatory plant breeding and cross-breeds with attention to farmer preference. This includes promoting the **use and marketing** of local drought and disease resistant varieties of cereals, pulses and tubers (including sorghum and millet, beans and cassava) and crossing the resilient Ankole cattle with more productive breeds. There has been raised awareness of the status and trends of genetic resources for food and agriculture (through reviews and national reports on plant and animal genetic resources). Kagera TAMP will illustrate effects on land use/resources management of recent trends in agriculture, increasing specialization for markets and uncoordinated sectoral support for crops, livestock and forestry and fisheries. It will go further by developing **conservation strategies and demonstrating the interactions** among components of the farming systems and the contributions of beneficial associated species (predators, pollinators and soil biota) to **systems' productivity and resilience** that have hitherto been neglected. Practices will be tested and developed through farmer learning-action-research to enhance vital **ecological functions** - nutrient and carbon cycling (including sequestration), biological control of pests and diseases and maintenance of the hydrological regime.

Raising awareness of the **impacts of climate change and variability** at community and district levels will lead to dialogue and development of **coping strategies** to adapt to change and to mitigate negative effects including reducing emissions of the greenhouse gas CO₂ (through reduced burning, alternative fuels and efficient use of energy) and enhancing carbon sequestration (through grassland management and restoration, holistic livestock management and conservation agriculture). Uganda's proposed adaptations to mitigate climate change, for example, are closely in line with Kagera TAMP aims, including diversification of crops, mulching for soil and water conservation, improvement of agriculture management and practices, development of food processing and storing. For climate change mitigation and adaptation across the arable areas of all four countries and to restore soil organic matter (C) and fertility, Kagera TAMP will promote minimum or reduced tillage combined with cover crops and green manure crops to restore nutrient losses. To cope with unreliable rains and increased temperatures, Kagera TAMP will promote improved practices for **efficient use of rainfall** (soil moisture management, runoff farming and water harvesting for household and livestock use). For livestock systems, recommended adaptation and mitigation methods include: adjusting grazing habits and management to ensure livestock have enough grazing all year round, improving market opportunities (selling and processing), diversifying economic activities of herders and use of drought resistant species.¹

Many of the land use changes which contribute to **carbon sequestration** are in-line with Kagera TAMP objectives (adoption of zero/minimal tillage systems (CA), reducing soil degradation, reducing deforestation, increasing forest stocks, agroforestry activities, rehabilitating degraded forests). Basin-wide, Kagera TAMP will specifically take-on the role as a catalyst to help groups of farmers to work together with intermediaries (existing institutions or NGOs e.g. using the EcoTrust Uganda model) to benefit from carbon offsets or other payments for environmental services, overcoming the impediments which have so far

¹ The full report is available at www.fao.org/ag/AGL/fieldpro/kagera/index.stm.

limited projects which have secured payments (under CDM or other) e.g. due to: i) the discounting operated due to the perceived risk of sequestration reversal by small-farmers; ii) the willingness of small-farmers to be competitive suppliers of credits; iii) how participation may affect food security, also the timing and amount of labour required; iv) the size and timing of investments & returns; v) problems of market integration; vi) incentives and constraints land users face in making decisions; vii) endowment of resources (land/labour/capital); viii) property rights. Kagera TAMP will demonstrate how payment for the adoption of land use systems which generate sequestration are a “win-win” solution, as both environmental and poverty reduction goals can be attained.

3.2 Global Environment and Development Objectives

The overall long-term environment and development goal of the project is to support the adoption of an integrated ecosystems approach for the management of land resources in the Kagera Basin which will generate local, national and global benefits including: restoration of degraded lands, carbon sequestration and climate change mitigation, agro-biodiversity conservation and sustainable use, protection of international waters and improved agricultural production, food security and rural livelihoods.

The environmental objective of the project is to address the causes of land degradation and restore ecosystem health and function and generate a range of global environmental benefits across the Kagera basin through the introduction of adapted agro-ecosystem management approaches.

The development objective is to improve the livelihoods and hence contribute to reduced poverty of rural communities in the Kagera Basin through more productive and sustainable resource management practices that are technically feasible and socio-economically viable.

In realizing the above closely inter-related development and environment objectives, the project is expected to achieve the following outcomes:

Outcome 1: Transboundary coordination, information sharing and monitoring and evaluation mechanisms operational and effective in promoting sustainable, productive agro-ecosystems and restoration of degraded lands.

Outcome 2: Enabling policy, planning and legislative conditions are in place to support and facilitate the sustainable management of agro-ecosystems and the restoration of degraded land.

Outcome 3: Capacity and knowledge are enhanced at all levels for the promotion of – and technical support for – sustainable management of land and agro-ecosystems in the basin.

Outcome 4: Improved land and agro-ecosystem management practices are implemented and benefiting land users for the range of agro-ecosystems in the basin.

Outcome 5: Project management structures operational and effective.

Kagera TAMP offers a unique and innovative approach, using agriculture as the engine for reversing land degradation, enhancing biodiversity conservation and carbon sequestration across a transboundary river basin and, consequently, also contributing to the protection of international waters of the Kagera. TAMP will complement the wider programmes and projects of the Nile Basin Initiative and Lake Victoria Environmental Management Programme, with the ability

to focus on land resources and agricultural ecosystems and provide greater attention to local community and district action. Kagera TAMP is designed to ensure it does not duplicate but will harmonize and work hand in hand with the NELSAP TIWRM project, which focuses on water resource issues in the Kagera Basin.

Kagera TAMP will help the countries sharing the Kagera basin to achieve the environment and development goals of the project through:

- (1) Effective coordination and collaboration mechanisms across the basin resulting in policy harmonization, conflict management and resolution of transboundary resources management issues, with particular attention to agro-environmental synergy;
- (2) An enabling policy, planning and regulatory environment and incentive measures catalyzing successful replication and uptake by farmers/communities of improved resources management practices;
- (3) 68 target communities in 21 districts benefiting from increased capacity of local institutions and partners at all levels (trained personnel, participatory learning- research-action methods, improved knowledge and information, for promoting best practices, integrated ecosystems and biodiversity management); and
- (4) Improved land use/agro-ecosystems and management practices (SLaM) developed and piloted on 43,700 hectares in 46 micro-catchments and 10 distinct agro-ecological units in the basin, and 100,000 hectares by the end of the project, generating improved livelihoods and -global environmental benefits and being scaled up across the basin.

Kagera TAMP will follow two main phases. Initial activity areas (years 1-2) will be to establish the transboundary mechanisms, set-up field-based activities and establish the baseline in target micro-catchments in the range of agro-ecosystems in all countries, including the status and trends in pasture/range, cropland, wetlands, in terms of agrobiodiversity and energy, and quantifying land cover/degradation status (for project M&E, with support of the regional GIS / RS centre and as required a competent GIS / RS institute in each country). During the third year of the project, following the mid-term review, plans will be made for scaling-up from the target micro-catchments and community action plans, during subsequent years of the project, to enable more people living across the basin to benefit from the approaches that will have been developed and proven in the target micro-catchments and agro-ecological zones.

3.3 Detailed Project Description

Outcome 1: Transboundary coordination, information sharing and monitoring and evaluation mechanisms operational and effective in promoting sustainable, productive agro-ecosystems and restoration of degraded lands.

Output 1.1 A basin-wide coordination mechanism is established to facilitate transboundary dialogue, basin-level policy harmonisation and coordination of national/sub-national actions.

Each of the four participating countries has its own policies and legal instruments for sustainable natural resource use; this output will support coordination and harmonising approaches among countries sharing the basin and across basin wide programmes through:

(i) **National-level workshops among stakeholders and decision-makers leading to the development of policy, institutional and legal mechanisms for enhanced intersectoral cooperation to address the priority transboundary issues identified, resolve conflicts and promote sustainable land and agro-ecosystems management (SLaM)** including biodiversity conservation in each beneficiary country and across the Kagera basin. These will build on results of policy and legal reviews and stakeholder consultations at local and district levels (Outcome 2) and will involve national representatives of Lake Victoria and Nile river basin programmes, LVEMP and NBI-NELSAP, as appropriate.

(ii) Appropriate, **affordable institutional mechanisms developed for sustained regional cooperation and support across the basin for SLaM**, including protocols, guidelines and other tools (conflict management procedures; benefit-sharing and sustainable financing arrangements); Memorandum of Understanding (MOU) and practical SLM collaboration mechanisms (training, co-funding, joint or back-to-back PSC meetings) during planning and implementation on the ground with LVEMP-II and NBI-NELSAP programmes, to ensure synergy in capacity building and investment.

(iii) **Regional workshop held to finalise and agree on required policy, legal and institutional mechanisms and tools and implementation arrangement across the basin** (resulting from i and ii above); for subsequent endorsement by the regional PSC in consultation with LVEMP and NELSAP decision making processes for subsequent adoption and funding by (inter)-ministerial processes (end Year 3 for implementation in years 4 and 5).

(iv) A broad **public information and awareness-raising campaign** conducted of the importance and benefits of SLaM based on pilot experiences (years 1-3) and opportunities for policy, legal, planning and decision support with a view to wider scaling up across the basin. This will target land users, local authorities and other stakeholders, decision-makers and development partners and emphasise the need for collaboration across the basin and at all levels to generate the multiple livelihood and environmental benefits of Kagera TAMP.

(v) **National and transboundary mechanisms established and functioning for coordinated and harmonised policy and legal approaches and decision making** to address gaps, inconsistencies and conflicts that are leading to degradation of resources and to promote targeted policy/legal interventions/enforcement for SLaM (e.g. legal awareness, by laws, tenure security, common property and cost-benefit arrangements). An ad-hoc basin-wide task force (the same or building from the regional technical advisory committee -RTAC) composed of high level experts from concerned sectors would guide the development and implementation process. Concrete actions to establish integrated agro-environmental processes, inter-sectoral mechanisms, synergy among planning processes, and close collaboration with basin-wide water resources programmes, will provide an enabling environment for SLaM and the generation of livelihood and global environmental benefits (reversing degradation, biodiversity conservation, carbon sequestration, ecosystem function) in accordance with UN-CCD, -CBD, and -FCCC. Coordinated approaches and mechanisms among Kagera countries will lead to increased support (especially in years 3 and 4) for district/community empowerment, policy/legal enforcement, feedback and knowledge sharing (local - policy) and will achieve progress in addressing each of the priority transboundary issues identified, thereby reversing land degradation and biodiversity loss in target communities and agro-ecological areas. Consultation with relevant projects/ programmes will help ensure that other transboundary issues are addressed, such as water hyacinth, wildlife conservation and health issues related to water quality.

Priority Kagera TAMP transboundary issues include:

- control of soil erosion and sedimentation and their impacts;

- management of water resources through rainwater capture/soil moisture management
- reduced pressures on wetlands, on fragile lands and protected areas and wildlife;
- control of bush fires, reduction in biomass burning;
- conservation of agricultural biodiversity;
- control of cross-border livestock movements, animal and plant pest and disease transmission;
- land use change and impacts on resources of (return) refugees, migrations and settlement expansion.

Output 1.2: An efficient basin-wide knowledge management system is established to support information requirements and decision-making processes at all levels.

The Kagera TAMP knowledge management system will be set up in years 1 and 2 and will be developed in close consultation and with a view to integration with other information systems on natural resources management in the basin (NELSAP, LVEMP). This will include:

- (i) **An environmental monitoring and information system for SLaM (SLaM-IS)** in place, supported by a geographic information system and remote sensing tools (GIS/RS) and linked/integrated with LVEMP and NBI-NELSAP data/information systems where feasible. This will consist of a central unit for the river basin (institution to be confirmed through bids on the basis of agreed criteria) supported as required by subsidiary units hosted in appropriate institutions in the other three countries, with:
- GIS / RS information collated and analysed to support better-informed decision making and early warning;
 - Two way information flow between participatory land use planning activities, national technical units and the basin-wide RS/GIS unit, complemented by other monitoring data and analysis (e.g. bush burning/vegetation status) using near real-time satellite imagery;

User friendly reports, maps and other products made available by central and national units for use by local and national decision makers.

(ii) **A pilot district level GIS capacity developed in each country** and staff trained to collect and use information with local stakeholders and to make use of information from regional / national centres for developing adapted community land use planning and decision support tools (despite the interest this is not proposed to be applied more widely because of high risk of departure of trained GIS persons);

(iii) **District/Community information centres** developed on land use, agricultural systems and resource management interventions, impacts on livelihoods in community territories and target micro-catchments and used by local stakeholders for keeping records, updating land use plans, etc.;

(iv) **Project information and communication system** in place, including use of internet and other media (radio, news, advocacy materials), and a central Kagera TAMP website, linked to other websites and managed from the project regional unit with password facilities for updating by beneficiary countries and FAO.

(v) **Linkages with relevant networks** established and leading to enhanced capacity building, for example with IW LEARN, WOCAT, and SARECAs SWMNet.

Output 1.3: Project monitoring and evaluation system and technical reporting supporting Kagera TAMP implementation and decision making in the basin.

Collation and sharing of information to enable periodical assessment of project performance, impacts and lessons learnt, and thereby support informed decisions in the Kagera TAMP programme and with partner institutions and projects. (see also Outcome 5 for project management). This includes:

- i. **Development of the project participatory M&E system** (with support of a consultant) building on other M&E systems and experiences and in close consultation with the GIS/RS centre. This will include participatory M&E of project impacts in target micro-catchments and land units with communities and districts (through FFS, local stakeholder workshops and field visits). The M&E system will highlight key institutional, technical and socio-economic barriers that could impinge on Kagera TAMP achieving its objectives and allow remedial measures to be taken.
- ii. **Training in participatory M&E** for accurate data collection, analysis and stocktaking, with project management, beneficiaries and partners, of project performance and impacts (environmental and socio-economic) including lessons learned, challenges faced and opportunities identified in the field. This will facilitate reporting monitoring of SLaM impacts and participatory gender disaggregated processes with stakeholders.
- iii. **Independent mid term (year 3) review and a final (year 5) project evaluation** (external) conducted to assess project performance and impacts (building from the baseline as documented through the PDFB). These will involve the review of M&E documentation, participatory thematic assessments, meetings with key informants, analysis of remote-sensing/GIS products and specific technical studies, in-depth policy analysis, and assessment of environmental and socio-economic impacts, with attention to gender considerations (see Outcome 5 for associated management review).

OUTCOME 2 ENABLING POLICY, PLANNING AND LEGISLATIVE CONDITIONS ARE IN PLACE TO SUPPORT AND FACILITATE THE SUSTAINABLE MANAGEMENT OF AGRO-ECOSYSTEMS AND THE RESTORATION OF DEGRADED LAND.

Output 2.1 Sustainable management of land and agro-ecosystems (SLaM) mainstreamed in national and district development programmes and basin institutions, enhancing synergy among sector strategies and across the river basin

The four countries have ratified the desertification (CCD), biodiversity (CBD), climate change (UNFCCC) and wetlands (RAMSAR) conventions, and the process is ongoing for the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (IT-PGRFA)² For each there are national strategies, action plans and/or programmes with targets, however in general, implementation is problematic due to the lack of synergy among the plans and with the agricultural and poverty alleviation strategies as well as financial and human resources constraints. Kagera TAMP will contribute as follows:

- i. **Mechanisms and approaches for improved synergy and harmonisation** among sectoral plans for enhanced implementation at district level, especially for addressing identified transboundary issues in the Kagera basin, in close consultation with concerned national bodies.
- ii. **SLaM Mainstreaming into policy and planning processes** to build on successful experiences and approaches and pilots in target districts in the basin to support the restoration of degraded lands through sustainable agro-ecosystem and agro-biodiversity management

² (Accession by Uganda 25/3/2003, Tanzania 30/4/2004 and Ratification by Burundi on 28/4/2006)

- iii. **Inter-sectoral workshops to review results and lessons learnt** at all levels of intervention, with decision makers from concerned ministries and institutions during year 3, to build on recommendations of RTAC and PSCs, with a view to obtaining endorsement for mainstreaming and strengthening sustainable land and agro-ecosystems management at national and river-basin levels.
- iv. **Knowledge and expertise shared with districts and communities** on the relevant conventions, treaties and national agricultural, food security and poverty alleviation strategies to support implementation of the above activities, whose feedback is in turn reflected in implementation plans and processes.

Output 2.2 Regulatory actions and conflict resolution mechanisms developed and used to promote - or remove existing barriers to - sustainable land and agro-ecosystem management.

- i. **Increased effectiveness of implementation of enhanced policies, laws and by-laws for SLaM** including those that address transboundary issues in the basin and improve land tenure security and access to resources (through community sensitisation, training of policy/law enforcers, provision of tools, establishment of agro-environmental committees at district and community levels).
- ii. **Monitoring of policy/legal application/enforcement and conflict resolution capacities** of relevant institutions dealing with identified cross-border issues strengthened (capacity building, stakeholder consultations, negotiation and development of locally adapted, acceptable by-laws).

Points (i) and (ii) above both include, *inter alia*

- o improved tenure security for land users and access to water, land, biological resources (e.g. community by-laws, land registration), with attention to vulnerable groups (youth, female headed households, orphans and widows);
 - o conservation and sustainable use of wetlands, with attention to agricultural encroachment and effects of sedimentation on wetland functions;
 - o harmonised agriculture and forest policies and by-laws and enforcement mechanisms to control deforestation and promotion of on-farm tree planting, woodlots and sustainable community management of forests/woodlands (natural and planted), use of indigenous species and non-wood forest products;
 - o provision of incentives (payments and non monetary) for sustainable management and restoration of croplands, pasture and rangelands (specifically bush burning and stocking rates), of forests/woodlands (specifically to meet community timber and fuelwood needs, including reduced use of woody biomass for brick burning, etc.), as well as agro-biodiversity conservation.
- iii. **Experiences and lessons-learnt on the above regulatory and legal issues shared among stakeholders, and appropriate mechanisms developed for their application at a wider scale** (for example, community land tenure arrangements, management of common property resources. PES schemes including experiences from other countries).

Output 2.3 A coherent strategic land use planning framework in place (from river basin to district/provincial and community levels) (based on thematic reviews, stakeholder consultations and priority setting) to support SLM efforts by rural communities.

Decentralisation processes in the beneficiary countries have mandated district, and in some case regional, offices with the responsibility for implementing sustainable agricultural development and natural resource management. This includes implementation of key national action plans, such as NAP-CCD, NBSAP-CBD, PRSPs, agriculture strategies and development of appropriate district and community plans and their coordination with plans developed under national/regional programmes and projects for poverty reduction, water resources, environment (in particular NEPAD, NBI-NELSAP and LVEMP). Successful implementation in target areas first requires a good knowledge base of land degradation threats, constraints and opportunities, instruments for priority setting, planning and implementation of identified actions and validation of mechanisms and approaches through piloting (years 1-3). The various reviews will draw upon relevant LVEMP and NELSAP studies and experts on water resources, soil erosion and wetlands and fill gaps in knowledge. In this regard, this output will include:

- i. **District consultations and priority setting for inter-sectoral processes among planners (land use; financial) and technical advisors** from the various sectors concerned with agriculture, natural resources and community development (year 1). This includes review of relevant plans and studies, including those of basin wide programmes, consultation with local stakeholders and agreement on priority actions and inter-sectoral mechanisms to meet Kagera TAMP goals and to empower rural communities for sustainable land resources and biodiversity management (i.e. transfer of responsibility from the government, benefit sharing).
- ii. **Status and trends of land degradation on croplands assessed, and cost-benefit options for improved management and restoration of degraded lands identified** and made available among government and project partners.
- iii. **Status and trends of pasture and rangelands assessed and cost-benefit options identified and a coherent strategy developed for improved range management** by pastoralists, sedentary livestock keepers and other resource users across the basin, building on local knowledge and preferences (cattle corridors, ranching, zero grazing, mixed farming, improved pastures, etc.) and giving due recognition to the multiple values of pasture and rangelands and need for de-stocking strategy and incentives.
- iv. **Status, trends and opportunities for better protection and management of wetlands across the basin identified** with specific attention to encroachment of agriculture, wetland function and development-conservation conflicts and supporting actions promoted.
- v. **Awareness raising consultations at district level** with technical specialists and target community leaders leading to the identification of **prioritised concerted actions for inclusion in district and community action plans for the conservation and sustainable use of agricultural biodiversity and associated livelihood benefits** (e.g. diversified farm-livelihood systems, associated beneficial species, promotion of indigenous plant and livestock species, improved productive potential of indigenous livestock breeds/cross-breeds).
- vi. **Status and trends of energy use and needs at community level and across the basin, and actions identified and implemented to meet energy requirements and ensure the maintenance and regeneration of trees and forest resources**, (including farm/community woodlots, agroforestry and options to reduce dependence on woody biomass and promote alternative cooking / fuel systems).
- vii. **Dialogue with local stakeholders on risk of crop and livestock pest and disease transmission leading to mechanisms identified to better manage cross-border movements** (crushes, dips, vaccination points, watering points for livestock; on farm crop pest and disease control, by-laws etc.)

- viii. **District officers and local government staff enabled to develop and implement inter-sectoral actions and plans for agriculture and natural resources management** through hands-on training in land use and action planning and land use policy enforcement with attention to the outcomes of the above reviews and workshops and to ensuring integrated land and water management and ecosystem approaches.
- ix. **Communities and districts supported (human and financial resources) to implement the above action plans and strategies** (including improved pasture, rangelands, wetlands management, agrobiodiversity conservation, sustainable supply of energy).

OUTCOME 3: CAPACITY AND KNOWLEDGE ARE ENHANCED AT ALL LEVELS FOR THE PROMOTION OF – AND TECHNICAL SUPPORT FOR – SUSTAINABLE MANAGEMENT OF LAND AND AGRO-ECOSYSTEMS IN THE BASIN.

Output 3.1 Methods and approaches to promote the adoption of SLM practices and agro-ecosystems (pastoral and cropping) developed and validated through demonstrations and study plots and participatory learning and adaptive management processes.

There have been numerous land management interventions in the basin, however, few have proven to be sustainable after project. Participatory methods and approaches are well known but they are practiced by sectors independently. Kagera TAMP will facilitate inter-sectoral approaches, linking actions with incentives and empowering communities to plan and manage their resources and agro-ecosystems in ways that generate livelihood and environmental benefits. Different approaches are required for different scales of interventions:

- √ for farmer level, participatory extension and learning-action-research approaches through Farmer Field School (FFS), demonstrations, on-farm trials and seed fairs for on-farm level and for scaling up to micro-catchment level (year 2)
- √ for community territories, community action plans can be used to empower local responsibility in resources management and decision making and to address issues of equity and sustainability;
- √ for wider land units, notably, common property resources (pastures, wetlands, riverbanks etc.) the focus will be on common interest groups and associations (farmer, pastoralist, water users, etc.) .

The main activity areas include:

- i. **District consultations and agreements** on the main areas of intervention, methods and approaches to be used and existing capacities and training needs assessed.
- ii. **Pilot micro-catchments and communities, representing the range of agro-ecosystems and target land units and contexts, selected** by district experts and project staff on the basis of remote sensing and local information, pre-established criteria, and consultation with local government and community leaders;
- iii. **Knowledge base created in target areas** on natural resources potential, status and trends of land use, degradation situation, socio-economic conditions and preferences/specificity of socio-cultural groups and the institutional set up, through participatory diagnosis and review of relevant previous or ongoing local interventions in the districts;

- iv. **Training methods and materials in beneficiary districts developed with support of subject matter specialists/trainers to support integrated agro-ecosystems approaches and FFS approaches.** These will address, *inter alia*, agrobiodiversity, gender, local knowledge and innovation, land use planning, improved management options such as conservation agriculture, holistic livestock management, water harvesting and agroforestry. For the various areas of intervention for community and district levels, these will include management guidelines, extension manuals, curriculum development workshops and modules for training of trainers (TOT) for FFS (see Outcome 4 Output 3) and will build on experiences in the basin and other projects operating in the four countries. Attention will be paid to vulnerable groups such as resource poor farmers, the elderly and people living with HIV/AIDS (30-50% of beneficiaries). Materials for training and extension purposes regularly reviewed and updated on the basis of experiences, stakeholder consultations and findings of participatory M&E processes in each of the target areas.
- v. **Varied information/materials produced and disseminated** to stakeholder groups, partner organizations, donors and the mass media to increase awareness of the threats of many current practices, of viable alternatives for generating improved livelihoods and ecosystem services. (Leaflets, posters, maps and other awareness raising literature will be prepared in collaboration with on going regional and national programmes and actors- GO, NGO and CSO).
- vi. **Development of effective extension, scaling-up, income generation and marketing strategies** to back-up activities with farmer groups and communities, including supporting farmer/community linkages to micro-finance institutions and training in savings and credit, in close consultation with partner agricultural and rural development programmes.
- vii. **Community awareness/ training sessions held on the effects of current practices on-farm and on ecosystem services and opportunities identified for reducing/ preventing negative impacts and generating benefits through integrated agro-ecosystem approaches and longer term management strategies** (including effects of burning, overgrazing, deforestation, encroachment on wetlands, use of agrochemicals and other pollutants, and sustainable options identified building on local knowledge and innovations building on local knowledge and innovations, including conservation and sustainable use of fragile areas, indigenous plants/breeds).
- viii. **Intervention areas and sites identified and agreed upon with communities and districts for demonstrations/study plots to test and locally adapt technologies building on local experiences and innovation** (years 1-3) and for subsequent wider scaling up, as appropriate (years 4-5) (see Outcome 4 Output 2). This will build from experiences such as FFS on land and water management in Bukoba, Eastern Uganda and Kenya, Participatory Village Land Use and Management Planning in Tanzania, Uganda Land management project in Mbarara, and Africa 2000 Network in Kabale) including, *inter alia*:
- √ Micro-catchment and watershed management approaches;
 - √ Restoration of degraded crop, pasture and forest lands and enhanced carbon sequestration;
 - √ Improved pasture/range management, livestock management, agro-silvo-pastoral systems;
 - √ Integrated crop-soil-water management, agro-ecological approaches
 - √ Agro-biodiversity conservation and management (habitat, species, genes, interactions);
 - √ Conservation agriculture approaches adapted to various agroecosystems
 - √ Soil moisture management/rainwater harvesting, drought resistant strategies and species;
 - √ Community actions to meet energy demand (use of indigenous species, local nurseries, mixed woodlots, protective fire breaks, agroforestry);

- √ Labour-saving technologies to address impacts of HIV/AIDS on agriculture;
- √ Identification/use of indigenous, nutritive species for vulnerable groups.

Output 3.2: Enhanced quality of services provided to rural communities in the basin for improved agro-ecosystems management, through training by intersectoral teams, participatory research and monitoring and building on local knowledge and innovations.

Communities receive support from many actors including extension staff, district authorities, agricultural researchers, private sector providers and NGOs. At district and national level there are also many sectors involved: land, environment, water, forestry, agriculture, fisheries, as well as health, education and local governance. Kagera TAMP aims to develop and strengthen intersectoral approaches for more effective support for widespread adoption of sustainable agro-ecosystem management building on local knowledge and innovations and ensuring gender sensitive approaches. Specific activity areas in each district include:

- i. **Practical training workshops held to develop the knowledge and build capacity of service providers and community leaders (male and female) on integrated agro-ecosystems approaches and the benefits of agricultural biodiversity** (cf. training materials and suggested intervention areas in Outcome 3 Output 1);
- ii. **Training of trainers held on participatory learning-action-research approaches for working with local land users** to develop more diversified and productive farming systems and reducing gender and other socio-economic constraints (e.g. FFS with farmers and pastoralists, junior farmer field and life schools (JFF&LS) for HIV/AIDS affected communities) and identifying other local opportunities;
- iii. **Short courses and exchange visits conducted for sharing knowledge and experiences among service providers and local innovators across the basin.**
- iv. **Linkages established between communities and farmer groups with private sector suppliers and researchers for improved access to inputs and training in their use** (seed, seedlings, fertilizer, adapted CA tools and other equipment, etc.).
- v. **Collaboration between researchers, service providers and land users/farmers/common interest groups promoting diversified farming systems that are productive and sustainable in the short and long term** (this should build on local knowledge, use locally adapted varieties and breeds; and create or strengthen local networks).
- vi. **Raised awareness of the importance of sustainable land management for ensuring reliable and good quality water supply and community-level opportunities identified and supported** (effective use of rainwater, protection and management of water resources with links to relevant projects).

OUTCOME 4: IMPROVED LAND AND AGRO-ECOSYSTEM MANAGEMENT PRACTICES ARE IMPLEMENTED AND BENEFITING LAND USERS FOR THE RANGE OF AGRO-ECOSYSTEMS IN THE BASIN.

This outcome is one of the most important and substantive elements of the project, initially supporting interventions in pilot communities (and selected micro-catchments) - 12 in Uganda, 12 in Tanzania, 24 in Rwanda and 20 in Burundi and in other key land units that are targeted (pasture/range, wetlands/riverbanks, woodlots), (with preliminary results by year 3), and then more widely through out-scaling approaches across the basin (years 4-5).

Output 4.1: Participatory land management plans are developed and implemented in targeted communities, micro-catchments and wider land units.

Many interventions and many sectors target rural communities for agricultural development and land management in response to multiple national policies, strategies, programmes and action plans. Community action planning is an essential prerequisite to ensure that communities are empowered and have the capacity to integrate/accommodate the various interventions and to develop their own priorities for their territories and development goals. However, many community action plans remain as a plan as they are developed primarily to secure land rights (registration, titles) rather than becoming practical land resource management and monitoring tools. Kagera TAMP will work with district level and project partners to strengthen support for developing and implementing community action plans and assessing resulting short and long term livelihood and environmental benefits. Activities include:

- i. **Training conducted and participatory land use plans developed for targeted community territories (68), micro-catchments (46), and specific land /agro-ecological units (10)** (target areas selected under output 3.1.2 including prioritised croplands, degraded pastures/range, steep forested or arable slopes, wetland fringes and riverbanks etc.) (see Annex 5).
- ii. **Capacity built for implementation and monitoring of action plans** through targeted interventions, and appropriate by-laws and incentives.
- iii. **Stakeholder review conducted of pilot results and experiences from year 1-3 leading to promotion and wider application of successful planning and management tools, processes and interventions** across the basin with the support of agricultural and rural development programmes and other partners (year 4-5).

Output 4.2: Improved land use and agro-ecosystem management practices are successfully adopted by farmers and herders in targeted communities and replicated in other areas.

Direct support will be provided to communities and land users for the testing, adaptation and wider adoption of improved SLaM by target communities and then more widely across the basin with additional co-financing support as required), including:

- i. **Target communities and land users sensitized on agro-ecosystems approaches** (see list of interventions in Outcome 3 Output 2) and their potential multiple benefits (increased yields, reduced labour requirements, increased food security, biodiversity conservation, cash income from sale of surplus or PES / carbon offset credits, drought and climate change coping strategies).
- ii. **Required back-up support provided for the uptake and adoption by farmers and herders and communities of improved land use and management practices on-farm and on common property lands**, (inter alia: grants managed by land users groups; revolving funds managed by target districts for community micro-projects; strengthened farmer organizations and networking, business and financial management skills, improved access to credit and savings; support of local and district authorities ensuring inter alia involvement of disadvantaged groups).
- iii. **Locally adapted training and technical support for community adoption of diversified land use systems, and improved management practices and participatory monitoring** (of costs and benefits generated in terms of sustainable resource use/restoration, productivity and environmental services, see list of interventions in Outcome 3, output 1).

- iv. **Community-level inventory and rapid assessment conducted by all target communities on status of and threats to agricultural biodiversity** and leading to identified actions for improved conservation, sustainable use and fair and equitable benefit sharing (including habitat, species and genetic levels, domesticated and wild species, effects of breakdown in the transfer of indigenous knowledge between generations -HIV/AIDS, youth exodus, return refugees, etc.) (building also on workshops in Output 2.3.5).
- v. **Land users, farmer groups and communities across the target micro-catchments, adopting and generating benefits** from more diversified farming systems, agro-biodiversity and opportunities for added value (processing, marketing, etc.) following participation in training/ participatory research action.

Output 4.3: Market opportunities and other cost-benefit sharing mechanisms for the provision of environmental services identified, demonstrated and promoted among land users.

Land users are invariably blamed for environmental degradation; however, they are often the poorest and least able to invest in sustainable, long-term resource management practices due to many factors. Practices that reverse land degradation are long term in nature and most often generate benefits that are difficult to fully internalise by farmers. The whole of society benefits from the environmental services generated from these practices and there has been recent recognition of the need to identify ways and means to ensure that land users benefit directly from their management of natural resources. Kagera TAMP will contribute to the following activity areas:

- i. **Mechanisms identified and supported for reduced risks, improved farmer income/benefits and reduced costs (labour, energy) and equitable sharing of costs and benefits (monetary and non-monetary) of sustainable agro ecosystem management.** (For example: collaboration between upstream and downstream land and water users, between farmers and pastoralists; market opportunities from the conservation and sustainable use of agrobiodiversity; incentives for investing in traditional crops, medicinal plants, other local products; sustainable harvesting /marketing of non-wood forest products; benefits from payments for carbon sequestration and other PES, ecotourism and alternative livelihoods.³)
- ii. **Review and testing of possible incentive measures** including inter alia: mechanisms for land users to benefit from payments for carbon sequestration and other PES; local exchange of seed/ germplasm and participatory breeding, especially proven locally adapted varieties/landraces, across the basin; rewards (field trips, prizes, certificates, other locally appropriate recognition)
- iii. **Promotion of improved farmer/community organization, empowerment and business management for agro-ecosystem management,** including participatory research, decision making, income generation and savings, marketing, micro-project development and resource mobilization, and links with friendly credit institutions and/or relevant investment projects. Close collaboration will be developed with mainstream agriculture and environment programmes and attention will be paid to gender equality, vulnerable groups, encouraging youth in SLaM and reduced dependency on government/ private sector.
- iv. **Review conducted of constraints to adoption of diversified systems and problems and needs identified for added value and improved marketing of local agro-environmental products** (sustainable use of biodiversity).

³ A recent World Bank study in Rwanda shows that coffee growers only benefit from 20% of the price at port, 40% is lost to cover costs of transport to Kigali and a further 40% to the sea port – improved roads could cut transport costs by 50%, thereby coffee farmers would triple their incomes³

OUTCOME 5: KAGERA TAMP PROJECT MANAGEMENT STRUCTURES ARE OPERATIONAL AND EFFECTIVE

Output 5.1: Project management, institutional and administrative structures in place and linked to national and regional decision making structures

Under this output project management, institutional and administrative structures are put in place during year 1, to ensure effective implementation of the Project over the four and half years in a timely and cost-effective manner:

- i. **Project management structures established and functioning effectively**, including Regional and National Project Steering Committees (to meet once a year) and a regional Technical Advisory Committee (to meet once before month 6), guided by the national focal point/institutional coordinator. Committee members consulting frequently with project management through e-mail, teleconferences, project website, and occasional visits.
- ii. **Project staff recruited and managing activities at regional and national levels**, guided by project committees and Government institutions and supported by designated district project facilitators and by national experts and consultants as required.
- iii. **Adequate office premises and equipment and support services provided** by the host Governments including a regional and national office in Kigali (if possible in the same building as NELSAP Kagera TIWRMP for close collaboration) and office space in three national host institutes in the three countries (Bukoba, Kabale and Bujumbura) and support of district authorities.
- iv. **Project coordination mechanisms established and functioning** among project teams and FAO headquarters, regional offices (as appropriate) and country Representations.
- v. **Resource mobilisation strategy and funding plan developed, regularly updated and shared with partners.**

Output 5.2: Project monitoring and evaluation system and reporting supporting project management and execution.

Collation of information to enable periodical assessment of project performance, impacts and lessons learnt, and thereby support informed management decisions in the Kagera TAMP programme and with partner institutions and projects. The M&E system will allow the project to be accountable, transparent and to share information through reports and financial statements to beneficiaries, project partners and donors. This includes:

- i. **Regular monitoring and reporting** (see Annex 7 M&E) by the project team to FAO, GEF Secretariat and financial partners and continuous stocktaking of project performance with national counterparts and project committees.
- ii. **Conduct of a project management and performance review** as part of the independent mid term (year 3) review and a final (year 5) project evaluation (external) to assess project performance and impacts.

7. SUSTAINABILITY, REPLICABILITY AND RISKS

Institutional sustainability: At the basin level, it is expected that project outcomes and achievements will be sustained due to the commitments and priorities of the countries (poverty reduction, environment and agriculture strategies and plans) to the conservation and sustainable management of the shared basin natural resources in the medium and long term and to thereby generate improvements in the livelihoods of local people. Regional co-operation will enhance joint

actions and harmonised approaches to address transboundary issues through an enabling policy and regulatory environment and community empowerment for sustainable land and agro-ecosystems management (SLaM). Sharing experiences across countries and developing a joint programme will encourage its implementation. Information and awareness raising actions will enable a larger population to be aware of opportunities and potential benefits of SLaM and to replicate relevant actions in the community, district and river basin plans.

A key component of Kagera TAMP design is building institutional and human resource capacity for inter-sectoral and multi-stakeholder approaches at community, micro-catchment, AEZ and basin levels. Partnerships among concerned sectors, institutions, civil society and service providers will promote sustainable land use/management practices and integrated ecosystems approaches that generate local socio-economic benefits as well as global environmental benefits. At community level, capacity building will focus on the development of action plans that include medium and longer term needs (restored soil fertility, food security, energy, secure income, etc.) building on a combination of farmer knowledge/innovation and modern scientific know-how, farmer empowerment and incentive measures. Adaptive management, community organization and information sharing will contribute to mobilizing change in behaviour towards improved management practices, in particular for common property resources. Participatory monitoring and evaluation will enable land users/communities to see the results/impacts of their pilot actions, which will stimulate further adoption and, in turn, mobilize further government support.

The regional PSC will operate during the life of the project but a longer term institutional arrangement will be needed to maintain transboundary dialogue and collaboration post-project. Close collaboration will be developed with NELSAP, which currently ensures transboundary cooperation for the water resources and river basin under the Nile Basin Initiative, through information sharing, coordination of planning and actions and leading to strengthened intersectoral collaboration (water, agriculture and environment). The establishment (ongoing) by the East African Community of the Lake Victoria Basin Commission (LVBC) to manage the entire basin area, among Tanzania, Uganda and Kenya, as well as Burundi and Rwanda (once joining EAC) could be the most appropriate institutional mechanism for taking over responsibility for transboundary cooperation and hence sustainability of land and agro-ecosystem management in the Kagera basin. This commission would need to have the necessary executive powers, be dedicated and focused on the task, and be endowed with a mechanism to prepare decisions and to follow them up.

Environmental sustainability Community actions, based on diagnostic of needs, constraints and opportunities, will test and demonstrate how to use land resources and agro-ecosystems more effectively, conserving the resource base, restoring ecosystem functioning, rehabilitating degraded lands, meeting household needs and generating a range of benefits (yields, income, sustainable use of biodiversity, food security, reduced labour/drudgery, accrued benefits e.g. PES). In order to bring about a change in practice, incentive measures will be required, as well as empowerment and capacity building of communities to take responsibility for planning and implementing actions to reverse land degradation and ensure sustainable resources management. However, once the improved practices/diversified land use systems will have been adopted, the benefits generated in terms of ecosystem function, and as a result the improved livelihoods and food security achieved, should incentivate/ensure their sustained uptake by land users and government support (land productivity, water supply and quality, reduced pest and disease damage, reduced risk of drought, alternative products, increased income and livelihood opportunities). The generation of socio-economic benefits as a result of improved land use systems/practices and resulting sustained ecosystem function will help ensure the wider uptake of improved practices in the target districts and across the basin.

Financial Sustainability: The mainstreaming of Kagera TAMP actions into major national development programmes, as well as district and community planning processes, will ensure the institutionalization of regular support from governments (financial and human resources) and local communities (in kind

and cash) for SLaM in the transboundary Kagera river basin. Linkages and harmonisation with transboundary investment programmes (LVEMP, NELSAP) and coordination mechanisms, will ensure continued funding and sustainability of regional activities. Also at community level, Kagera TAMP will promote the sustainable use of resources through increasing economic returns to land users through sustained productivity, payments for environmental services, opportunities for neglected biodiversity (wild foods, local animal breeds cover crops, agroforestry, niche markets, medicinal products, biomass production, etc.) and government support (carbon sequestration, drought mitigation, biodiversity conservation). Kagera TAMP is essentially a capacity building project, its success and the wider scaling up and adoption of improved diversified systems and management practices will depend on secure funding by districts, through national and regional agricultural and environmental development programmes supported by the donor community (LVEMP, NELSAP, ASSP and DASIP in Tanzania, RSSP in Rwanda, PMA/NAADS in Uganda etc.).

At the end of the Project, it is assumed that: the national project management units would be integrated into government structures and a regional cooperation framework established (NBI/Lake Victoria Commission); the four NPMs would have terminated their contracts or be integrated into government structures; a collaborative network and partnership arrangements will have been established between districts and among countries; cooperation arrangements will have been established and/or the land and agro-ecosystem management fully integrated with the water resources management programmes in the basin; the district offices (agriculture, livestock, environment) will have been strengthened through capacity building and planning tools.

The success of the project over the four and a half year funding period and in the medium to long term across the Kagera River Basin, is highly dependent on the widespread replication of successful outcomes and lessons learned from the target communities and micro-catchments, where on the ground activities will be established and tested in the initial 2 years and subsequently scaled up. A mid term evaluation will assess progress and impacts, and identify opportunities for further adaptation of SLaM to specific biophysical and socio-economic contexts and for wide dissemination and uptake of successes across the basin.. The results will be applicable more widely in the Southern and Eastern African region and information will be made available through databases, websites and products (guidelines, reports and training materials) which will have been validated through participatory processes, avoiding the risks of blanket adoption of techniques and approaches. The project's website (developed in PDF-B) will be used and promoted to show-case lessons learned to a global audience.

Lessons learned that are expected to be relevant and suitable for replication elsewhere include:

- harmonised institutional frameworks for co-operation among countries which share a river basin;
- collaborative approaches to addressing transboundary issues;
- community-based land use and agro-ecosystem management plans and improved approaches and technologies (e.g. conservation agriculture, curriculum development and training of trainers, rainwater management, community energy supply);
- establishment of tools to support improved community / local government level planning (including early warning systems based on the project's regional GIS / RS centre (EMIS)
- empowerment of local communities to sustainably manage and benefit from local natural resources (Kagera TAMP catalysing PES and other monetary benefits).

Project sustainability will depend on minimizing deleterious impacts of the following risks:

Agricultural and Environmental risks: Crop and livestock pest & disease outbreaks both in-country and transboundary, and crop failure due to climatic vagaries would seriously affect the project (Medium Risk). As a result of climate change, the basin is likely to, and already faces to some extent, extended dry spells and unreliable rains which will exacerbate drought and may affect biodiversity, invasive species and tolerance levels of new pathogens. The lowland part of the basin is a natural floodplain so very heavy rains and flooding could seriously influence settlements and land use activities in low lying areas. Severe flooding or drought, pest/disease outbreaks, large scale crop failure or animal mortality, or civil strife, would divert attention from sustainable management to emergency relief and rehabilitation (Risk: Medium).

Mitigation measures: Integrated agro-ecosystems management should contribute to reduced risk of crop and livestock pests and diseases, for example, crop rotations, inter-cropping, integrated pest management. Sensitisation will include the need to respect transboundary pest and disease prevention and control mechanisms and links made to appropriate services (livestock treatment; dips, safe use of pesticides etc.) Risk of crop failure through drought, pests and diseases are expected to be reduced in FFS through better soil health, water conservation, and regular observations to control pests. Improved land and water management practices will enhance infiltration, reduce runoff and associated risks of erosion and flooding and will also contribute to climate change adaptation. Knowledge and monitoring of biodiversity and invasive species will be enhanced in the range of farming systems and land use types (crop, livestock, forest) and as required biodiversity conservation and invasive species control mechanisms identified and tested in target communities. Opportunities for soil carbon sequestration as a mitigation measure will be explored and soil carbon will be monitored in improved land management practices.

Political and institutional risks: High staff mobility and more seriously insecurity or civil strife and refugee movements within and between countries would compromise the project (Risk: medium-high). Maintained security in the region will be essential for conflict resolution between resource user groups and for enhanced cross-border and basin wider cooperation to address transboundary issues. Lack of and political support, uncoordinated strategies, problems of sharing of data and information across the basin (ownership and mandates) and inadequate stakeholder involvement are also risks (Risk: Low).

Mitigation measures: Efforts will be made by the project team to obtain full cooperation of local and national government authorities for inter-sectoral processes and to work closely with all stakeholders to ensure timely achievement of project goals and outputs. Strengthened political support for SLAM and the generation of environmental benefits will require demonstrating clear links between natural resources management and poverty reduction/socio-economic development (agricultural productivity). The project team will work with the PSC to enhance collaboration among environment, agriculture and finance bodies/ministries to support joint planning /management in the basin and to allow sharing of data and monitoring across sectors and countries to enable adequate monitoring and evaluation of impacts (Risk: medium).

Human capacity risks: Availability of motivated, competent staff for the posts of regional coordinator and national project managers and for district level facilitators (designated by the government) and timely recruitment of national project managers (NPMs) and CTA/regional coordinator will be crucial to the success of the project. Significant mobility among involved technical/district staff, or their inadequate investment in time to project activities due to other duties, will compromise the capacity to meet objectives and targets in a timely manner. The population in the Kagera basin is already severely affected by impacts of HIV/AIDS and malaria, and combined with rural exodus of youth, results in reduced labour and financial capital which compromises involvement and uptake of better practices. Conflict between stakeholder groups in target areas would further hinder the project (Risk: High).

Mitigation measures: Labour requirements of land management practices will be assessed and practices that reduce drudgery promoted (e.g. conservation agriculture, water harvesting, etc.) and community action plans will include measures for improved water and fuelwood supply. Community

action plans will, as appropriate, address resource needs of refugees and youth and improve security of tenure and access to resources. Communities and FFS groups will be linked to other projects/ services that address health and nutrition. Conflicts over use of resources and movements of people and their livestock, their causes and impacts will be investigated and responses developed. Sensitization will take place to demonstrate to youth the opportunities of SLM for increased productivity, livelihoods, reduced drudgery, and opportunities to add value (processing; marketing, carbon trading etc.).

Financial and Economic Risks: Severe seasonal price fluctuations, inflation, market failures could restrict community capacity to invest in SLaM. Large change in exchange rates (relative to US\$) could reduce the project budget and lack of district funds/allocations to agriculture/environment would reduce the co-financing. Farmers' activities remain driven by marketable commodities with little interest to improving natural resources management. (Risk Medium-High)

Mitigation measures: The project aims to demonstrate the multiple social, economic and environmental benefits of more integrated farming systems instead of maize monocultures or large herds of cattle for example. This should reduce vulnerability to price fluctuations and better FFS organisation will enhance marketing and value of products Capacity of district planners and local authorities will be built to increase the place of agriculture and support services in their district plans and budgets (FFS grants, training, inputs, etc.)

Management risks: The project is complex involving four governments, many sectors, several regional projects/mechanisms and multiple stakeholders.

Implementation could be impeded by inadequate communication, lack of transparency, inappropriate management/organisational procedures, inadequate delegation of responsibility, lack of flexibility to adapt to change and inadequate office space and facilities. (Risk: Medium).

Mitigation measures: The potential risks have been taken into account and will be minimized through efforts to set up the regional and national project management units and recruit personnel rapidly in the host countries, with support by concerned authorities to allocate required office space and designate support staff. FAO will optimise project flexibility and a decentralized and participatory management approach through close communications and clear division of responsibility among HQ, project staff and government focal points and regular workplan and budget reviews and progress reports. Extensive consultation from local to basin-wide level with the range of stakeholders and co-ordination mechanisms and supportive district planning processes should also reduce threats of lack of continuity of activities post project. Institutions in all four countries have demonstrated their commitment to support transboundary agro-ecosystem management across the basin in order to generate global environmental and local livelihood benefits.

ANNEX 2: PROJECT LOGICAL FRAMEWORK
Kagera Transboundary Agro-Ecosystem Management Project (KAGERA TAMP)

OVERALL GOAL: Adoption of an integrated ecosystems approach for the management of land resources in the Kagera Basin will generate local, national and global benefits including: restoration of degraded lands, carbon sequestration and climate change mitigation, agro-biodiversity conservation and sustainable use, protection of international waters and improved agricultural production, leading to increased food security and improved rural livelihoods.

Summary	Indicators (OVIs)	Means of Verification	Hypotheses / critical assumptions and risks
<p>OBJECTIVES</p> <p>The <u>environmental objective</u> is to address the causes of land degradation and restore ecosystem health and functions in the Kagera basin through the introduction of adapted agro-ecosystem management approaches.</p> <p>The <u>development objective</u> is to improve the livelihood opportunities, resilience and food security of rural communities (men, women, children) in the Kagera Basin through adoption of productive and sustainable resource management practices that are technically feasible and socio-economically viable.</p>	<p>Improved land use systems/ management practices for the range of agro-ecological zones in the basin being tested and adapted (by end PY3) for arable and pastoral systems including measures to reduce pressures on wetlands, riverbanks, forests, protected areas.</p> <p>Transformation of 43,700 ha. of land by PY3 and 100,000 ha. by PY5 towards productive and sustainable agricultural ecosystems</p> <p>Potentially 6 percent of today's basin population (some 1 million people) aware of project activities in target communities, micro-catchments, agro-ecological units through demonstrations and outreach...</p>	<p>Without project information from</p> <ul style="list-style-type: none"> - prior assessments of land degradation and impacts in the river basin. -district development and economic reports <p>SLaM interventions monitored by target districts and mapped by target communities- field surveys</p> <p>Outreach assessed through polls (e.g. market places/schools)</p>	<p>Strong commitment to address land degradation within the context of sustainable development and poverty alleviation programmes in all four beneficiary countries.</p> <p>District offices commit staff and other necessary resources to TAMP implementation</p> <p>Absence of serious environmental events (drought leading to food shortage, flooding), crop and livestock (pests and diseases) shocks in project countries.</p>
<p>Outcomes:</p>			

Summary	Indicators (OVIs)	Means of Verification	Hypotheses / critical assumptions and risks
<p>Outcome 1. Transboundary (TB) coordination, information sharing and monitoring and evaluation mechanisms operational and effective in promoting sustainable, productive agro-ecosystems and restoration of degraded lands.</p>	<p>Transboundary agro-ecosystem management programme (TAMP) to reverse land degradation being implemented and monitored by the 4 riverine countries in 21 districts, reviewed by national and regional PSCs, and project activities & achievements widely shared and available (PY5).</p> <p>Best practices for addressing TB land-related constraints through integrated ecosystems and inter-sectoral approaches mainstreamed in planning and development processes, including NAPs, and pilot actions implemented to address TB issues in 68 communities (PY3) and replicated in 21 districts (PY5).</p> <p>Regular Government budget allocations to transboundary coordination & collaboration in the Kagera basin increased by 10 percent (PY5)</p>	<p>Reports and decisions of district, national, river basin policy and planning mechanisms</p> <p>Project steering committee reports</p> <p>Technical reports and project progress reports</p> <p>Field surveys</p> <p>National and district financial accounts</p>	<p>Participating countries and institutions continue to prioritise project goal to mitigate the causes and negative impacts of land degradation and need for inter-country and inter-sectoral processes for the river basin</p> <p>National and district institutions and partners agree to mainstream sustainable land management into their programmes and activities by adopting integrated and inter-sectoral policies and approaches.</p> <p>Communication and exchange of information unhindered between district, national central and river basin levels</p> <p>Regional collaboration unhindered</p>
<p>Outcome 2 Enabling policy, planning and legislative conditions are in place to support and facilitate the sustainable management of agro-ecosystems and the restoration of degraded land.</p>	<p>Priority policy, legal and transboundary issues identified and agreed at community (68), district (21) and river basin levels for SLaM (end PY2) and resulting in supporting policy decisions, regulatory mechanisms and community bye-laws for improved harmonization and application (PY5).</p> <p>At least 2 policy recommendations per country developed that support national policy-decisions and regulatory mechanisms, and 1 per country that support bye-laws, etc. at district/ community level.</p>	<p>Action plan for the establishment of a supporting policy and legal framework for SLaM across the basin.</p> <p>National and regional workshop reports</p>	<p>Incentive mechanisms and regulatory actions exist</p> <p>National and local governments agree to shift focus from enforcement to provision of an enabling /supportive environment</p>
<p>Outcome 3. Capacity and knowledge are enhanced at all levels for the promotion of – and technical support for –</p>	<p>Trained technical staff and policy makers in 21 districts - supporting SLaM planning and implementation and using project</p>	<p>Project progress reports</p> <p>Reports of staff and other</p>	<p>Local institutions and partners willing to mainstream SLaM into their programmes and activities</p>

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Summary	Indicators (OVIs)	Means of Verification	Hypotheses / critical assumptions and risks
sustainable management of land and agro-ecosystems in the basin.	<p>information resources in their district and communities (PY5)</p> <p>Community members/local decision makers sensitized on SLAM techniques for pastoral, arable, mixed systems and their on- and off-site impacts and benefits (PYs 1-5)</p> <p>FFS members trained and adopting SLM and promoting upscaling on community territory</p> <p>Training materials on best practices /approaches widely available and SLM demonstrations in place.</p>	<p>stakeholder training workshops</p> <p>Targets being monitored by the project and districts</p>	<p>2 to upgrade the capacity of their staff in sustainable land management.</p> <p>3 persons trained available for follow up support</p>
Outcome 4. Improved land and agro-ecosystem management practices are implemented and benefiting land users for the range of agro-ecosystems in the basin.	<p>SLM practices implemented by pilot communities (68 by PY3; 200 by PY5) in demonstrations and farmer plots covering a total of 45,000 ha of land (by PY5) and showing:</p> <ul style="list-style-type: none"> - Effective control of soil erosion (no new visual signs) in all target sites; - 4 target micro-catchments (PY5) identified and sediment loads monitored (subject to identifying sites where SLM interventions can be applied on a significant area of the catchment and hydrological monitoring can be supported by partner Kagera IWRM, NBI-NELSAP and LVEMP projects); - 30 percent increase in vegetation cover (above and below ground biomass) on pilot 23,000 ha arable and 7,500 ha pasture lands where alternatives to slash and burn are applied (PY5) -20 percent increase in soil carbon stores on farmer study plots and sample arable and pasture lands (PY5) inferred on 30,500 ha of 	<p>LAMIS data (RS/GIS) including field monitoring of target areas</p> <p>Sample surveys of land degradation, agro-ecological systems analysis and agro-biodiversity in target areas by FFS and technical staff will include LADA-local visual indicators of</p> <ul style="list-style-type: none"> ▪ soil properties and erosion backed up by soil C sampling; ▪ vegetation/litter cover/bare soil/ extent and effect of burning; ▪ water resources and drought ▪ inter and intra-species and habitat diversity ▪ land productivity under different land use types (inputs/ yields/ other NR products e.g fuel) <p>Household surveys in target communities /districts (comparing 360 sample households/ FFS members and controls ; analysis of</p>	<p>Involvement of local stakeholders and communities unrestricted</p> <p>District planning and development offices and mainstream agriculture and environment programmes supporting TAMP activities (financial and technical) as outlined in co-financing plan</p> <p>Absence of civil strife, major refugee movements or serious environmental events (drought leading to food shortage, flooding), crop and livestock (pests and diseases) shocks in project countries.</p>

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Summary	Indicators (OVIs)	Means of Verification	Hypotheses / critical assumptions and risks
	land where SLM is practiced/planned. - 10 percent increase in production (crop; livestock; other goods) by trained farmers/herders contributing to livelihoods (income; food security; reduced vulnerability)	land degradation, poverty; health; food security, vulnerability inter-relations)	
Outcome 5. Project management structures operational and effective	Execution of project activities and delivery of outputs in accordance with workplan and budget Regional PSC and TAC operational Backstopping by FAO and by Government institutions	Project steering committee reports Technical reports and project progress reports	Project management effective and unrestricted Security remains in the region
Outputs			
Output 1.1 A basin-wide coordination mechanism is established to facilitate trans-boundary dialogue, basin-level planning, policy harmonisation and coordination of national/sub-national actions.	Sustainable coordination mechanism for SLAM agreed upon among the 4 countries (eventually as part of wider NBI and EAC mechanisms) and reflected in a memorandum of understanding. Recommendations to harmonise policies, laws and regulations and address transboundary issues in the river basin developed by an ad-hoc basin-wide task force with stakeholders (PY3) and mechanisms in place for their implementation in 21 districts (by PY5). Transboundary SLM action plans in development/ in place with budget allocations and institutional support.	Report on options for basin wide coordination of SLAM National policies and action plans reflect regional collaboration Reports of RPSC meetings Project progress reports Relevant river basin/district reports reflecting collaboration across borders and among TAMP and partner projects (NBI-NELSAP, LVEMP, ...)	Good cooperation among national and local government and river basin institutions and among sectors (water, land, agriculture, environment and forestry, community development) Interest by existing river/lake basin processes to collaborate with land and agriculture
Output 1.2 An efficient basin-wide knowledge management system is established to support information requirements and decision-making processes at all levels.	TAMP knowledge management system established and functioning at all levels (PY2) including: 4.0 Kagera environmental monitoring and	EMIS, pilot district GIS and community information centre outputs (regularly updated) Project M & E system	Countries willing to collaborate in integrated information systems and sharing data on regional basis Good communication, information

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Summary	Indicators (OVIs)	Means of Verification	Hypotheses / critical assumptions and risks
	<p>information system (SLaM-IS) supported by a GIS and RS tools (PY1-5).</p> <p>5-o Pilot district level GISs developed and operational - 1/country (by PY3).</p> <p>6-o Community information centres set up and servicing stakeholders in target communities (PY2).</p>	Project progress reports	<p>exchange among countries and partner institutions</p> <p>District offices commit staff and other necessary resources to house / maintain pilot GISs (one in each country)</p> <p>Local stakeholders willing to participate in community information centres</p>
Output 1.3 Project monitoring and evaluation systems supporting TAMP implementation and decision making.	<p>M & E system established and functioning</p> <p>Project management and district partners trained in data collection and participatory M&E (by end PY 1)</p>	<p>regular M&E reports</p> <p>Steering committee reports</p> <p>Project progress reports</p> <p>Mid-term (PY3) and final (PY5) evaluation reports</p>	Communication and exchange of information unhindered
Output 1.4 Kagera TAMP project management structures are operational and effective.	<p>Project management structures set up (PY1)</p> <p>Project staff recruited (PY1)</p> <p>Adequate premises, equipment and support services provided (PY1).</p> <p>Resource mobilisation strategy and co-funding plan regularly updated and shared with partners, in accordance with GEF land degradation requirements (PY1- 5).</p>	<p>Reports of PSC meetings and communications with TAC members</p> <p>Project progress reports</p> <p>Co-financing reports</p>	<p>Concerned ministries of the riparian states continue to cooperate in project implementation</p> <p>Committee members are committed and supportive</p> <p>Local government co-operation effective</p>
Output 2.1 Sustainable management of land and agro-ecosystems (SLaM) mainstreamed in national development policies and programmes, enhancing synergy among sector strategies and across the river basin	<p>SLaM considerations/actions integrated in annual district development plans and budgets (21),</p> <p>- SLM practices/ approaches mainstreamed into river basin and national agriculture and NR sector action plans (e.g. biennial) and a set of results based indicators used to monitor how they contribute to NAPs (4) and NBSAPs (4) (by PY4-5).</p> <p>Successful and diverse experiences of inter-</p>	<p>District development plans</p> <p>National plans reflect SLaM considerations (NAPs, NBSAPs)</p> <p>River basin reports (Kagera, Nile, LVEMP)</p>	<p>National and local governments and institutions and partners agree to:</p> <p>7-o mainstream SLaM into their programmes and activities including NAP/ NBSAP implementation</p> <p>8-o adopt integrated and inter-sectoral policies and approaches</p> <p>9-o provide technical and financial support</p>

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Summary	Indicators (OVIs)	Means of Verification	Hypotheses / critical assumptions and risks
	sectoral processes and systems approaches for SLAM documented annually in 21 districts and the river basin reports and case studies/findings made available for decision making by PSC members (PY4-5)		
Output 2.2 Regulatory actions developed and used to promote - or remove existing barriers to - sustainable land and agro-ecosystem management	Locally adapted bye-laws developed and agreed at community level (24 cases/ country) (PY3) and implemented (PY5) Best practices for effective policy and legal application/enforcement disseminated in the basin (PY 2-5).	Compendium of byelaws and regulations Reports of stakeholder consultations Project progress reports	Districts agree to/support stakeholder consultations to identify policy and legal constraints and opportunities
Output 2.3 A coherent strategic and planning framework developed and implemented (from river basin to district/provincial and community levels) to support SLM efforts by rural communities.	National and local government staff trained in land use planning (at least 42 district level; 64 community level) (PY1-5) Land use policy being effectively applied/enforced in 68 communities by PY5. Participatory strategies and action plans developed for SLAM in 21 districts across the basin (PY1-3) 10.o improved pasture and rangelands management (at least 15 areas; 7,500ha) 11.o transboundary livestock movements (5 borders) 12.o conservation and sustainable use of wetlands (at least 9 areas; 6,000 ha), 13.o conservation and sustainable use of agro-biodiversity (68 communities) 14.o sustained energy supply (68 communities)	Reports of workshops Reviews of status and trends and opportunities/options for SLAM EMIS maps, analyses and reports District and community action plans Project progress reports	National and district level planning authorities recognize the benefits of SLM strategies District planners agree to improve implementation and monitoring of land use plans for SLAM Local government are willing to embrace SLM and to support improved management for common property resources
Output 3.1 Methods and approaches to promote the adoption of SLM practices and agro-ecosystems (pastoral and cropping) are identified, developed and	Demonstration sites (68) and FFS study plots (136) identified and agreed upon (end PY1), established (end PY2) and FFS study plots	Documentary, educational & training material produced (video films technical and advocacy leaflets,	Local governments agree to participatory extension approaches

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Summary	Indicators (OVIs)	Means of Verification	Hypotheses / critical assumptions and risks
validated through participatory action-research.	scaled-up x 3 (PY4-5) Training materials developed and used in training in 21 districts Advocacy and training materials disseminated and used in 21 districts and 68 communities (PY3), available from community information centres and districts as and when required in the basin (PY 5)	maps, etc.) Training reports Project progress and technical reports	
Output 3.2 The quality of services provided to rural communities enhanced, particularly through intersectoral approaches that build on local knowledge and innovations for improved agro-ecosystems management	FFS facilitators/extensionists (150); district staff (4 x 21), community leaders (150) and partner NGO staff (42) trained in PLAR /FFS approaches (PY 2+) and best practices for SLaM. Target communities (68) benefiting from improved access to service providers competent in SLaM (planning; intersectoral/ systems approaches) and SLM support - 300 technical staff and 200-250 policy makers (15/districts) trained to support SLaM planning and implementation and using project information resources in their district and communities (PY5) 120,000 community members/local decision makers sensitized on SLaM techniques for pastoral, arable, mixed systems and their on- and off-site impacts and benefits (PYs 1-5)	Field surveys and interviews Training workshop reports District and community reports Project progress reports District polls to assess outreach from SLM demonstrations, information centres, radio, education materials, etc)	Service providers interested and available to support the programme and to benefit from targeted training
Output 4.1 Participatory land management plans are developed and implemented in targeted communities, micro-catchments and wider land units.	100 participatory land use plans and action plans developed (PY2) and being implemented (PY2-4) and replicated x 2 (PY5) 15.0 community action plans (68) 16.0 micro-catchments (46);	Community / district land use plans and management reports Technical reports GIS / RS outputs Project progress reports	Communities and districts agree to develop and implement improved action plans for SLaM and integrated them with other planning processes

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	<p>17.o pasture/ range areas (15);</p> <p>18.o target wetlands (10);</p> <p>19.o riverbanks (1000km)</p> <p>Capacity built for implementation and monitoring of community action plans (PY1-5) in 136 communities.</p>	<p>A set of agreed indicators for monitoring SLM action plans e.g.</p> <ul style="list-style-type: none"> - reduced degradation (burning, erosion, etc.) - improved vegetation cover, soil, water and range quality, resilience to drought - enhanced crop and livestock productivity and effects on livelihoods - increased awareness, information, expertise and institutional support for SLM 	
<p>Output 4.2 Improved land use and agro-ecosystem management practices are successfully adopted by farmers and herders in targeted communities and replicated in other areas.</p>	<p>136 communities implementing SLAM (PY5)</p> <p>Wide adoption of improved agricultural systems, management practices including biodiversity conservation by members of 72 farmer/herder groups (PY3) and replicated x 3 (PY5)</p> <p>1,800 farmers trained and adopting /upscaling SLM through FFS approaches (PY3) and a further 1,800 farmers by PY5</p> <p>Local-level indicators of benefits of SLAM (income, household food security, reduced risk) confirmed by all target farmer groups and a sample 10 percent of the target population (100,000 persons) (by PY5)</p>	<p>Training reports</p> <p>FFS records</p> <p>GIS / RS maps, analyses and reports</p> <p>Project progress reports</p>	<p>Farmers available to participate in training and interested in applying SLAM</p>
<p>Output 4.3 Market opportunities and other incentive/ benefit sharing mechanisms for the provision of environmental services identified, demonstrated and promoted among land users.</p>	<p>Incentive and benefit sharing mechanisms (monetary; non-monetary) identified and supporting adoption of SLAM and biodiversity conservation, including payments for environmental services (PES), products added-value and marketing in 34 communities (PY 1-5)</p>	<p>Technical Reports</p> <p>Reviews and records of incentive/benefit sharing measures and options and SLM investments</p>	<p>Incentives (e.g. competitions, access to grants etc) encourage farmers to implement SLAM</p> <p>District agriculture programmes and NGOs support diversification and marketing</p> <p>PES (including carbon offset credits)</p>

Summary	Indicators (OVIs)	Means of Verification	Hypotheses / critical assumptions and risks
	Incentive/ support mechanisms reaching vulnerable groups (tenant farmers, youth, HIV/AIDS widows/orphans; female headed households) 15 percent of target population (PY5)	Local surveys on poverty, health, income, vulnerability etc Project progress reports	available to Kagera farmers Lack of major price fluctuations (inputs/ products), inflation, market failures
Output 5. Project management structures operational and effective	Regional project coordinator and national project managers recruited and execution of activities and delivery of outputs in accordance with workplan and budget Regional PSC and TAC operational and providing guidance and decision making Backstopping provided by FAO Lead technical unit and project task force and by Government institutions Constructive recommendations by mid term evaluation to address key problems identified	Technical reports and project progress reports Project steering committee reports Reports of visits and meetings by FAO and Government Report of midterm evaluation	FAO backstopping and in country project staff remain in place for project duration Project technical, financial and personnel management well coordinated

