



# PROJECT IDENTIFICATION FORM (PIF) <sup>1</sup>

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

## PART I: PROJECT IDENTIFICATION

Project Title:	Integrating traditional crop genetic diversity into technology: using a biodiversity portfolio approach to buffer against unpredictable environmental change in the Nepal Himalayas		
Country(ies):	Nepal	GEF Project ID: <sup>2</sup>	
GEF Agency(ies):	UNEP (select) (select)	GEF Agency Project ID:	
Other Executing Partner(s):	Nepal Agricultural Research Council, Nepal; Local Initiatives for Biodiversity Research and Development (LI-BIRD) Nepal; Bioversity International, Italy	Submission Date:	
GEF Focal Area (s):	Biodiversity	Project Duration (Months)	60
Name of parent program (if applicable): ➤ For SFM/REDD+ <input type="checkbox"/>		Agency Fee (\$):	230,000

### A. FOCAL AREA STRATEGY FRAMEWORK<sup>3</sup>:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
(select) BD-2	<p>Outcome 2.1 Increase in sustainable managed landscapes and seascapes that integrate biodiversity conservation</p> <p>Outcome 2.2 Measures to conserve and sustainably use biodiversity incorporated in policy and regulatory frameworks</p>	<p>Output 2.1: 230,000 ha. of existing mountain agricultural ecosystems would be affected by sustainable use and management of agricultural biodiversity in these production landscapes</p> <p>Output 2.2.1: Two policy and regulatory frameworks mainstreaming the use of agricultural biodiversity in the agricultural production sectors of mountain systems;</p> <p>Output 2.2.2 At least three Sub-national land use plans that incorporate biodiversity and ecosystem services valuation from the use of agricultural biodiversity</p>	GEFTF	1,210,000	2,371,000
(select) BD-4	Outcome 4.1 Legal and regulatory frameworks, and administrative procedures established that enable access to genetic resources and benefit sharing in accordance with the CBD provisions	Output 4.1 Five access and benefit-sharing agreements with farmer communities that recognize the core ABS principles of Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) including the fair and equitable sharing of benefits	GEFTF	870,000	2,297,000

<sup>1</sup> It is very important to consult the PIF preparation guidelines when completing this template.

<sup>2</sup> Project ID number will be assigned by GEFSEC.

<sup>3</sup> Refer to the reference attached on the [Focal Area Results Framework](#) when filling up the table in item A.

(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)	Others	(select)		
			Sub-Total	2,080,000	4,668,000
			Project Management Cost <sup>4</sup>	GEFTF	220,000
			<b>Total Project Cost</b>		2,300,000
					5,405,000

## B. PROJECT FRAMEWORK

<b>Project Objective: To mainstream the conservation and use of agricultural biodiversity in the mountain agricultural production landscapes of Nepal to improve ecosystem resilience, ecosystem services and access and benefits sharing capacity in mountain ecosystems</b>						
<b>Project Component</b>	<b>Grant Type</b>	<b>Expected Outcomes</b>	<b>Expected Outputs</b>	<b>Trust Fund</b>	<b>Indicative Grant Amount (\$)</b>	<b>Indicative Cofinancing (\$)</b>
1. Mainstreaming mechanisms that integrate diversity-rich solutions into breeding and technology	TA	The area devoted to sustainably managed agricultural biodiversity in agricultural production systems is improved through increase use of diversity rich solutions and products	<p>Diverse sets of varieties are developed through breeding and technology adapted to buffer against unpredictable temperature and precipitation change</p> <p>Participatory breeding programs in place that use local diversity to produce cultivars that are superior in marginal environments and at the same time continue to have a broad genetic base.</p> <p>Strengthened supply of important local cultivars by national gene banks back to farmers.</p> <p>Technology/ processing advancements adapted to traditional varieties and developed for varietal mixtures</p> <p>Local genetic resources and knowledge included in national extension packages and linked to ecoagricultural programmes</p> <p>Enhanced capacity of local schools and technical</p>	GEFTF	790,000	1,547,000

<sup>4</sup> GEF will finance management cost that is solely linked to GEF financing of the project.

			colleges and other community institutions to support the conservation and use of local genetic resources.			
2.Increasing access to local agricultural biodiversity planting materials (seeds, clones)	TA	Farmers benefit from having locally adapted materials in populations sizes large enough to buffer against change to ensure sustainable agriculture	<p>Seed flows and seed production systems supply farmers with locally adapted diverse materials</p> <p>Community and regional biodiversity fairs implemented to improve access and knowledge of available materials across communities and ecosystems,</p> <p>Mainstreaming of community biodiversity registries to improve access to information on local materials and location of materials,</p> <p>Community seed banks for local access to diversity established</p> <p>Organize community based seed production of diversified materials,</p> <p>Increase capacity of community deployment of quality seeds linked to national seed</p>	GEFTF	700,000	1,488,000
3.Promoting an enabling environment for access and benefit sharing of local agricultural biodiversity planting materials	TA	Benefit sharing mechanisms in place that support diversification of varieties	<p>Ecosystem services from agricultural biodiversity management practices valued and utilized in agricultural extension packages</p> <p>Certification of geographically identifiable agriculture products that contain a diverse genetic base</p> <p>Increased national registration and release of farmer bred materials, which contain a diverse genetic base.</p> <p>Leadership and capacity built to enable a higher</p>	(select)	450,000	1,473,000



GEF Agency	UNEP	(select)	To be defined during PPG
(select)		(select)	
(select)		(select)	
(select)		(select)	
<b>Total Cofinancing</b>			5,405,000

**D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY<sup>1</sup>**

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (a)	Agency Fee (b) <sup>2</sup>	Total c=a+b
UNEP	GEF TF	Biodiversity	Nepal	2,300,000	230,000	2,530,000
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
<b>Total Grant Resources</b>				2,300,000	230,000	2,530,000

<sup>1</sup> In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table

<sup>2</sup> Please indicate fees related to this project.

## **PART II: PROJECT JUSTIFICATION**

### **A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:**

#### **A.1.1 The GEF focal area/LDCF/SCCF strategies:**

The proposed project is consistent with **FA Objectives 2 and 4 of the GEF-5 Bioersity Results Framework**. In particular, the project will contribute to **Outcomes 2.1** by mainstreaming the sustainable use and management of agricultural biodiversity in the existng mountain agricultural production landscapes of Nepal. This will be done through mainstreaming community-based breeding activities and technologies that enable farmers to benefit from diversity rich solutions, and providing them with access and benefit sharing mechanisms. It will also be done through improved awareness in Nepal, based on solid evidence, on how the maintenance of crop genetic diversity in the fragile mountain agricultural production systems, means an agricultural sustainability related not only to *productivity*, but also to the *resilience* of the mountain systems and the maintenance of *ecosystem services* (including the maintenance of associated agricultural biodiversity (pollinators) and the retaining of water within the ecosystems surrounding agricultural fields; the latter is extremely important in the Himalyan region where high altitude wetlands appear to be shrinking at a higher rate than wetlands in other parts of the world). The project will contribute to **Outcome 2.2** by developing policy and regulatory frameworks that allow for an enabling environment for local and national agencies to move away from recommending that farmers yield to economic pressures of cultivating only one variety, towards recommending a diversification of varieties to support agricultural ecosystems with unpredictable temperature and precipitation conditions. In addition, this project will contribute. **Outcome 2.2** will also be supported through supporting the certification of geographically identifiable agriculture products that contain a diversity genetic base. This will include the certification production landscapes that supply diversity rich products from indigenous and local communities, and the certification of environmentally friendly practices that demonstrate the functional benefits of the genetic diversity in the Himalayan region of Nepal in supporting and improving specific ecosystem services. **Outcome 4.1** is specifically addressed through Components 2 and 3 of this proposal. Component 2 is focused on increassing access to local agricultural genetic resources, so that farmers benefit from having locally adaptive materials in population sizes large enough to buffer against change and ensure sustianble agriculture. Component three is specifically aimed at promoting an enabling environment for access and benefit sharing of local agricultural biodiversity. Component 3 focuses on building the capacity to enable the custodians of agricultural genetic resources to share in the benefits of the materials they are conserving. Efforts for international level access and benefit sharing are often oriented in favour of national governments and do not necessarily fully take account of the interest of the farmers and communities maintaining the materials. The project contributes substantially to **Outcome 4.1** through promoting an approach to benefit sharing with indigenous and local communities as central to the project, and by developing benefit sharing means such that the goods and services from crop diversity benefit the stakeholders responsible for their production and management.

#### **A.1.2. For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities:**

Not Applicable

### **A.2. National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e.**

#### **NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:**

The Biodiversity Profiles of Nepal 1996 (BPN) was the first initiative of its kind to document all the information on Nepal's biodiversity recorded till the year 1995. This was followed by the Nepal's Biodiversity Strategy (NBS) 2002, as an important output of the Biodiversity Conservation Project of the Ministry of Forests and Soil Conservation (MFSC), which emphasizes the commitment of the Nepalese government to a participatory approach to the conservation and use of biodiversity. In order to include the role of agricultural biodiversity within Nepal's biodiversity strategies and regulations, the National Agrobiodiversity Policy was formulated in 2006, a strategy built on the experiences of a project on "Strengthening scientific basis of *in-situ* conservation of agricultural biodiversity on-farm" called as "*in-situ* project" hereafter, implemented in Nepal in two phases from 1997 to 2006. The National Seed Policy 1999 has emphasized the need for conservation of agricultural biodiversity and establishing rights over plant variety for the development of new plant varieties. In addition, a recent amendment of the 'Seed Regulatory Act' of 2054 B.S of Clause 11 under the Annex 1 of Section B has added a new provision on plant variety registration that enhances access and benefit sharing for Nepalese farmers. The added new provision included farmers' field trial data and other various participatory data of at least one season cycle. Therefore, registration of landraces is now possible as a mechanism to contribute for safeguarding the local

biodiversity and access and benefit sharing. The National Agricultural Biodiversity Policy 2007 of Nepal has proposed participatory plant breeding (PPB) as a working strategy to enhance genetic performance of the local plant varieties and landraces (MoAC, 2007). The Seed Act 1988 (Amendment 2008) and the Seeds Regulation 1997, through making provisions for registration of new plant varieties including varieties developed by NGO and farmers, have influenced the development of Nepal's 2007-2010: Three Year Interim Plan to "conserve, promote and utilize agricultural biodiversity through the development and dissemination and environmental friendly technologies." In addition, to respond to the effects of climate change, the Nepal Government, Ministry of Tourism and Civil Aviation, and the Nepal Tourism Board have jointly created a special fund: the 'Climate Neutral Planet Fund-Nepal.' The National Adaptation Programme of Action (NAPA) was stated as a top priority by the Nepalese Prime Minister in November 2010, and has given priority to agrobiodiversity management as an adaptation strategy in agriculture to contribute to enhanced food security and recognized community based biodiversity and promotion of crop varieties and livestock breeds resistant to climate change as a strategy of adaptation in agriculture. The Nepal Climate Change and Development Portal, launched in November 2010 has brought together six line ministries and more than 80 institutions including civil society, private sector and the media to create a platform to link community based agricultural biodiversity management with ecosystem resilience, sustainable agriculture and climate change.

## **B. PROJECT OVERVIEW:**

### **B.1. Describe the baseline project and the problem that it seeks to address:**

The Himalayan system, which includes outlying subranges, stretches across six countries: Afghanistan, Bhutan, China, India, Nepal, and Pakistan. Some of the world's major rivers, the Indus, the Ganges, the Brahmaputra, and the Yangtze, rise in the Himalayas, and their combined drainage basin is home to some 1.3 billion people. Nepal has the longest division of the Himalaya, extending about 800 Km, west from the Mahakali River to the east by the Tista River. The region is characterized by extreme variations in topography, from 50 meters above sea level to Mt. Everest at 8,848 meters; in Nepal, this variation is all within a distance of 150 km. A total of 172 plant families, 294 genera, and 551 species are being cultivated as agricultural crops. The extreme changes in elevation and micro-environments, centuries of traditional agricultural management, and the domestication and re-domestication from a reservoir of wild relatives found in this region, has influenced the development of centers of unique diversity of globally important crop species, including rice, barley, buckwheat, amaranth, and minor millets. This diversity has the potential to continue to evolve, as farmers access the wild landscape to use the reservoir of wild relatives for these crops in the region to increase intra-specific diversity in the production system and manage the traditional varieties currently within their system.

The area is also one of high diversity of indigenous people, 55 ethnic groups occupy this area of Nepal. It is here in the Nepalese Himalayas where unique high elevation traditional rice varieties (*Oryza sativa*) are grown at the world's highest elevations, at 2,800m, containing cold tolerance traits that are recognized globally. Naked barley (*Hordeum vulgare* var. *nudum*) and buckwheat (*Fagopyrum esculentum* and *F. tararicum*) reach their highest elevations in the world here, grown at mountain slopes at elevations reaching 3800m and 4700 m, respectively. In the rain shadow areas, where the monsoon rain is attenuated to a three-month rainy season only, farmers continue to manage a portfolio of short duration varieties to tolerate drought, including, buckwheat (*Fagopyrum esculentum* and *F. tararicum* with *F. cymosum* and *F. megacarpum* as wild species), amaranths (*A. caudatus* and *A. leucocarpus*) and minor millets such as proso millet (*Panicum miliaceum*), foxtail (*Setaria italica*), and finger millet (*Eleusine coracana* L.). They either tolerate drought, because of high stress tolerance or avoid drought conditions by growing to maturity very quickly. Buckwheat is believed to have its center of origin in the Eastern Himalayans. High genetic diversity of wild relatives of buckwheat was also reported even in the middle mountains of Nepal using molecular markers. Studies in Nepal have shown over 150 traditional varieties (landraces) of buckwheat continue to be planted, characterized by resistance to cold and drought conditions, but with a diversity of other traits such as diverse levels of bitterness, cooking quality, color, earliness, soil fertility, and disease resistance. In addition, buckwheat provides an important ecosystem service in the region by supplying an early flowering source for pollinators for local fruit orchards. Buckwheat flowers prolong season-long visitation throughout the protracted flowering season, thus increasing the chances of pollinator population survival to the next growing season, as well as increasing the types of pollinators visiting at different times during the season. Key, in the sustainability of these high elevation mountain agricultural ecosystems is that farmers have been able to maintain traits for cold and drought stress tolerance in the agricultural biodiversity they manage, while at the same time continuing to keep a large diversity of other traits within the numerous traditional crop varieties they manage to meet current and future needs.

Mountain environments are considered to be one of the first areas to be severely affected by increased unpredictability of climatic parameters. The greater Himalayan region has the largest concentration of snow and ice outside the two poles. Warming in the Himalayan region has been much greater than the global average and the rising temperatures are leading to rapid melting of the glaciers. Weather patterns are becoming more unpredictable and extreme with prolonged dry spells and very strong storm events. This phenomenon is causing concern over the long-term reduction in total water supply, affecting the lives and livelihoods of the Himalayan people, especially in agriculture practices and long-term food security. Population increase in these fragile mountain landscapes has contributed to decreased food availability and increased poverty for the millions of people living in these mountainous areas, resulting in extensive labor migration of farmers to urban areas, leaving areas of traditional varieties without the labor or economic incentives needed to maintain them. Government research has put its funding emphasis on breeding modern varieties for large scale single solutions that assume constant levels of temperature and precipitation, leaving few funds for exploiting the huge potential of the diversity of the *in situ* materials in these heterogeneous environments. Subsidies for modern varieties and associated agricultural inputs mainstreamed by government extension services, because the value using local crop biodiversity to improve agricultural productivity and resilience is not fully recognized, causing the replacement of local crop biodiversity with modern varieties. This is a particular issue in areas where crop biodiversity resources were lost during the civil unrest period in Nepal, to a large extent in the high mountain agricultural areas. Farmers are further hindered from maintaining current areas and increasing their farm land grown to traditional crop biodiversity resources, because of a lack of availability and access to quality and sufficient quantity of seeds of traditional materials. A further barrier to institutionalizing the integration of crop biodiversity rich practices into mainstream agriculture, are laws and policies developed to regulate or affect both data-sharing and access and use of the genetic material without taking into account how these laws and policies can constrain benefit-sharing with farming communities now and in the future. This includes a lack of national capacity and knowledge to ensure that access to local crop biodiversity is compatible with national laws promulgated to comply with international treaties.

Despite these challenges, a number of significant achievements have been carried out to use diversity rich solutions to overcome the barriers listed above. Nepal has a commitment to mobilizing local agricultural biodiversity for sustainable agricultural production in fragile mountain environments. Nepal's 2007-2010 Three Year Interim Plan to "conserve, promote and utilize agricultural biodiversity through the development and dissemination and environmental friendly technologies" is evidence this. Collaborative agreements established between the Nepal Agricultural Research Council (NARC) and the Civil Society Organization: Local Initiatives for Biodiversity Research and Development (LIBIRD) have resulted in the assessment, monitoring and use of local crop genetic resources in Nepal for sustainable development. This government-CSO partnership led to the formulation the National Agro biodiversity Coordination Committee (NABC) and the establishment in 2007 of the **National Agrobiodiversity Policy of Nepal**, formulated by the NABC in recognition of the CBD and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). The NABC committee has become a lobbying body in the Nepalese government for the conservation and use of agricultural biodiversity and led to the allocation of 1.2 million USD from the Nepalese government for the recent establishment in 2010 of the Nepal National Agriculture Genetic Resources Centre." The Center contains the first national genebank supported entirely from national funds. In addition, the Nepalese government has allocated funds to mainstreaming good practices for the assessment, monitoring and use of on-farm genetic resources, giving 20,000 USD to pilot good practices of on-farm management of agro biodiversity in 29 districts in the country. Over the last 10 years the collaboration of the Nepalese Agriculture Research Council and the CSO LIBIRD has resulted in the development of national expertise in locally based, participatory plant breeding programs to exploit the diversity of Nepalese germplasm. This program has resulted in the first Nepalese State Seed Board formal release and registration of an enhanced landrace population from a collaborative breeding effort with farmers program. Farmer communities together with extension workers have been sensitized to the importance of local crop genetic diversity as a means for sustainable livelihoods through the significant collaborative platforms from central to local government that link the government sector to local and national NGOs.

Some of the achievements above were supported through recent projects that contributed to the proposed project baseline. As part of a ten year global initiative, led by Bioversity International on "Strengthening the scientific basis of *in situ* conservation of agricultural biodiversity", of which Nepal was one of eight participating countries, collaborative agreements were formulated among the Nepal Agricultural Research Council (NARC) and the Nepalese Ministry of Agriculture and Cooperatives (MOAC) and non-government organizations. The global initiative supported the assessment, conservation, management, use and access and benefit sharing of local crop biodiversity in Nepal. Over 3 million USD



from the Netherlands (DGIS), Switzerland (SDC), Canada (IDRC) and Japan (JICA) was invested specifically in Nepal for this programme from 1996-2007. The project produced national and global indicators to monitor the amount and distribution of crop genetic diversity on farm, while at the same time increased access to farmers and other stakeholders to local genetic resources materials, and improved local and national capacity to support to the maintenance of crop genetic diversity on-farm. The best practices and cross sector, government-non-government, partnerships created in the earlier global and national *In Situ* conservation of agricultural biodiversity projects has and continues to support the implementation of the agricultural biodiversity in Nepal. The Swiss Agency for Development and Cooperation have recently approved 980,000 CHF to the LIBIRD for continued support to the conservation and use of local agricultural biodiversity in Nepal's home gardens (2009 –2013). DFID "Research into Use Project" has supported the strengthening community of seed production groups and farmer seed system by supporting the deployment of farmer-selected varieties into the system by developing wide range of partners and stakeholders in Nepal (2008-2011). In addition, as the Eastern Himalayan Region of Nepal falls within the South Asia Network on Plant Genetic Resources (SANPGR) established in 1990 covering six countries in the South Asia region: Bangladesh, Bhutan, India, Nepal, Maldives and Sri Lanka, it has built capacity and networks for Nepal to support south-south exchange of information, tools and practices for agricultural biodiversity conservation. National partners in Nepal together with those of China and India have also been participating in the UNEP supported Mount Kailash Sacred Landscape Conservation Initiative: Developing a Transboundary Framework for Conservation and Sustainable Development in the Greater Mt. Kailash Region of China, India, and Nepal (2009-2011). The initiative led by UNEP in collaboration with ICIMOD with financial support by the Ecosystem Management Funds from Norway has set up a framework to promote transboundary biodiversity, including the diversity within agricultural ecosystems, and cultural conservation, ecosystem management, sustainable development, and climate change adaptation within the Mt. Kailash Sacred Landscape (KSL). Most recently, the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU) has approved a programme on Ecosystem Based Adaptation in Mountain Ecosystems for Nepal, Peru and Uganda (2011-2014) with total budget of Euro 10,000,000. The programme supports a partnership of UNEP, UNDP and IUCN to mainstream ecosystem based adaptation options for mountain systems in the three countries. UNEP will provide overall coordination of the project with total budget of Euro 3,037,531, out of which approximately 1/3 will be used for the Nepal project component. The programme at the local level will be carried out by District Development Committees and Village Development Committees in mountain regions under the leadership of LIBIRD and Action Aid.

The Government of Nepal, through its *Three Year Interim Plan*, mentioned above, notes the need to mainstream solutions that employ the unique diversity of these mountain environments, a solution that not only protects the conservation and available use diversity locally, but one that expands the options for farmers to use more diversity within their agricultural ecosystems. In line with this, the Nepal Agriculture Research Council recognizes that simplification has proven not to be the answer in highly heterogeneous marginal environments. The new Nepal Agriculture Research Council's Strategic Vision for Agriculture Research (2011-2030) specifically states that "Indigenous knowledge, traditional practices and local resources – including soil, water, genetic material and skills – will be used in research and technology development in a sustainable way" and "conserving, promoting, and harnessing agricultural biodiversity through the development and dissemination of environment friendly techniques."

With such threats of drought, floods, and cold fronts, farmers will need to maintain a portfolio of options with in their production systems to be able adapt to this unpredictability. To do this Nepalese farmers will need an appropriate legal and policy enabling environment that supports the use of local crop genetic resources, along with other methods, as part of their available options offered through both the formal and informal sectors.

The proposed project will build on and strengthen past, present and proposed future activities supported by the Nepalese Government and its long term partnerships with national CSO, to mainstream the conservation and use of agricultural biodiversity in the mountain agricultural production landscapes of Nepal to improve ecosystem resilience, ecosystem services and access and benefits sharing capacity in mountain ecosystems.

**B. 2. Incremental/Additional cost reasoning: describe the incremental (GEF Trust Fund) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:**

Building on past work, the Nepal Government will be committing a significant amount of resources to sustainable agricultural development in mountain areas. In 2009/2010 the Nepal Ministry of Agriculture and Cooperation (MOAC) allocated 7.6 Million USD to the Nepal Agricultural Research Council, with approximately 1 million USD allocated to operational activities in the mid and high-hills. In addition, the government of Nepal allocates 200,000 USD annually for running costs the National Agricultural Genetic Resources Center which will support the conservation of crop and livestock genetic resources. However, much of these resources will be allocated for salaries and operational costs. The Government of Nepal has a commitment to mobilizing local agricultural biodiversity for sustainable agricultural production but, on-going government support is not sufficient to support methods and knowledge learned through earlier projects, nor to fully capitalize on the collaborative partnerships developed among formal and formal sectors to enable the use of agricultural biodiversity and diversity rich practices to overcome the above barriers and achieve the Global Environmental Benefits included in this project.

To this end, the GEF Alternative is necessary for local agricultural diversity rich methods to be mainstreamed at a large scale through the national and regional agricultural and environmental extension programmes in Nepal leading to the following **global environmental benefits**: (i) Conservation of globally important biodiversity, of seven crop species which form the basis for food security on many high elevation agricultural systems throughout the world, including an increased area sustainably managed for the biodiversity of these seven species, (ii) increased coverage of hectares in this important ecological system that provide ecosystem services for associated biodiversity (pollinators) through two methods, increased coverage of hectares that provide habitats for pollinators, and by replacing external inputs (pesticides) with a diverse biodiversity rich solution in this globally important ecosystem, (iii) a set of globally applicable technologies increase the conservation through improved use of crop biodiversity within cold mountain environments, and (iv) improved production practices in agriculture will be obtained through globally applicable community based conservation models and tools that support indigenous and local communities and the scientific and development communities to conserve and use local crop biodiversity in areas of high environmental instability and variability. This will be accomplished through the following three project components.

**1. Mainstreaming mechanisms that integrate diversity-rich solutions into breeding and technology.** Key to the sustainability of mountain agricultural ecosystems systems is that farmers have been able to maintain major adaptive traits for cold and drought stress tolerance, while at the same time continuing to keep a large diversity of other traits within the numerous traditional crop varieties they manage. The different range of diversity-rich practices and options will be compared to determine appropriate spatial and temporal scales to manage cold and drought stress. This will include providing different sets of local varieties from project site materials and earlier collected materials (including from ex situ collections) from project sites and similar agroecosystems, and promoting interchange of this materials among farming communities from the same sites, between sites and other mountain ecosystems with similar agroecological conditions.

The majority of varieties bred today are for large scale single solutions that assume constant levels of temperature and precipitation. High mountain agro-ecosystems are complex transitional system of sub-tropical and temperate environments and therefore, single large solutions are not sufficient to meet both the current and future needs of the farmers who live in these high elevation areas. Temperate crops such as barley and buckwheat, found in these high elevation agroecosystems are rich in intra-specific diversity but their useful traits are not adequately used to benefit local communities in mountain areas by classical national breeding programmes. Rice and minor millets reached their upper limit of production, and the genetic base of these materials are narrow because they are naturally selected for chilling tolerance. Locally-based, participatory breeding programs, which link farmer identification of agronomic traits with molecular characterization will be used to exploit the local diversity to produce cultivars that are superior in marginal environments to the products of formal, centralized programs, but at the same time continue to have a broad genetic base, thereby maintaining levels of diversity within and among crop varieties and crop varietal mixtures. Programmes will include strengthening the supply of important local varieties by the Nepal Agricultural Research Council (NARC) national and regional gene banks back to farmers.

Technical solutions are also integral to the future use of crop biodiversity diversification strategies. Such solutions range from simple adjustments to machinery for planting and harvesting, to more complicated devices designed for separation of diversity varieties into different harvested products. They will include the application of technology advancements such as seed cleaning that is commonly used only for improved varieties to be adapted to traditional varieties. This will also

include developing the appropriate technology that can process diversified varieties into high quality products, and processing technologies for varietal mixtures.

**2. Increasing access to local agricultural biodiversity planting materials** (seeds, clones). Many indigenous farmers in the Eastern Himalayas still obtain a large number of their seed through the informal system and participate in dynamic informal networks of seed exchange. Strong informal seed supply systems can foster increased use of diversity while fulfilling certain types of farmer seed demand. Strong seed supply systems enable farmers to have access to a high level of crop diversity over time, despite losses of seed stock, production bottlenecks, and other regular or unanticipated losses of crop genetic diversity. Strong informal seed supply systems can directly stimulate the poverty reduction in the given area, and also help maintain the local knowledge associated with crops and their varieties. As climatic conditions change, seed flows and seed production systems will need to be able to supply material based on large enough population sizes for adaptive capacity of the system to continue to meet farmers' needs and preferences. Farmers will also need to have the ability to access and use appropriate materials for rehabilitation of degraded land areas particularly under cold environments. Activities to ensure farmers have the diversity of quality seeds they need at the time when they need them will include (i) community and regional biodiversity fairs to improve access and knowledge of available materials across communities and ecosystems, (ii) the mainstreaming of community biodiversity registries to improve documentation and access to information on local materials and the location of local materials, (iii) community seed banks for local access to genetic resources, (iv) organize community based seed production of diversified materials, and (v) and increase capacity of community deployment of quality seeds linked to national seed distribution systems. Capacity will be built for rural institutions to characterize, evaluate, select, store and disseminate materials. Extension staff and researchers will be trained to support farmers' seed systems will be enhanced through training and action research. The training capacity of universities in the region on farmers' seed systems will be enhanced through curriculum development and participation in research and training activities. National policies and institutions will be more directed to supporting farmers' seed systems with due consideration for conservation issues through providing needs assessments of producers, consumers and food processors to national seed certification boards.

**3. Promoting an enabling environment for access and benefit sharing of local agricultural biodiversity planting materials.** Individuals and communities are more likely to commit to implementing laws and policies that they perceive as legitimate because of their relevance to the local situation. The project promotes a policy development approach based on using sound field data and a "field" testing of the mechanisms that considers the community's socio-economic, cultural, scientific, technical, and institutional situations and on the involvement of all stakeholders. National laws may regulate or affect both data-sharing (access and use of information) and access and use of the genetic material itself. Promoting a policy development process involves gaining an understanding of the incentives and disincentives, which stakeholders have in their willingness to sharing information and genetic material. These incentives and disincentives can create constraints that may prevent benefit-sharing with farming communities now and in the future. Project activities will include the analysis and testing the suitability of new incentives, including the (i) valuation of ecosystem services from agricultural biodiversity management practices for use in agricultural extension packages, (ii) certification of geographically identifiable agriculture products that contain a diverse genetic base, (iii) certification of food safety products with a diverse genetic base, and (iv) registration or release programs that include unique local and farmer bred materials, which allow for bulked lines with fixed quality or adaptive traits and diversity for other traits. An important and often forgotten benefit of conserving genetic diversity is the additional delivery of current and future ecosystem services. Therefore, in addition to calculating future production values of improved varieties, calculations will be done to evaluate the value of improved delivery of ecosystem services by crop genetic diversity in agricultural ecosystems. For example, are varieties that are drought-tolerant not for increasing productivity in areas suffering drought, but for their role in preventing soil erosion and desertification, increase soil organic matter and thus soil carbon sequestration, and possibly stabilize slopes and maintaining watersheds. Activities will include determining which national laws and policies encourage benefit-sharing (monetary and non-monetary) with farming communities and the formulation of provisions or the practices on data sharing and access to materials. A portfolio of potential benefit-sharing mechanisms will be developed. Activities will also include the identification of disincentives or incentives regarding participation in the creation of the products. Capacity will be built for national partners in local and national government agencies in institution and policy analysis within the agricultural and environmental government sectors to have the ability to form sound policies based on outputs from local communities and local and national research institutes. This component will also include building leadership capacity for farmers and their rural institutions to have a voice in decision-making processes by first reviewing and increasing provisions for participation

and achievements and then supplying the facilities, training and support to build leadership capacity that will enable farmers to participate in decision-making arenas. The output will be the development of mechanisms that enable a higher level of involvement of farming communities in the decision-making processes for access and benefic sharing. This will require not only building leadership capacity, but having in place information systems that are applicable for indigenous and local communities to access and share data on locally adapted materials. The capacity to supported these systems by local and national institutions will be built and information on issues of access to local crop biodiversity will be packaged and presented to national and international governmental forum. This will also include recommendations made to put in place policies and laws, which ensure that access to local crop biodiversity is compatible with national laws promulgated to comply with international treaties. By valuing diversity rich solutions to unpredictability of temperatures and precipitation, providing mechanisms that give farmers access to locally adapted materials, and developing payment schemes for ecosystems services, recurrent costs will be virtually eliminated. This will promote adoption by farming communities outside the project area with farmers using their own resources to replicate practices and achieve scale up well beyond what would be possible with only GEF funds. This will reduce food insecurity and stability of mountain ecosystems.

Without the components proposed in this project, Nepal risks losing an opportunity for a globally relevant, systematic mainstreaming of biodiversity into Regional and International protocols. In the absence of this project, agrobiodiversity conservation will remain removed from development goals and receive less support from public policy and these ecosystems, particularly rich in unique diversity, will continue to face the threat of genetic erosion and the loss of valuable genetic resources. In addition to this global consequence, implementation of the project will also help meet national priorities and will provide means for the country to benefit through shared best practices and experiences in the sustainable management of biodiversity. Without this project, an opportunity to enhance the conservation and sustainable use of valuable resources to meet environmental and development goals will be lost in the Himalayan region of Nepal.

**B.3. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCE/SCCF). As a background information, read [Mainstreaming Gender at the GEF.](#)":**

The management of agricultural biodiversity is strongly shaped by the dynamics and power relations within communities. Communities themselves are heterogeneous and differentiated along the lines of gender, caste, class, ethnicity and age. Much of how resources are divided, shared and used between different groups is determined along these lines of differentiation, making them fundamental variables in determining both poverty levels and potential poverty solutions. Pervasive inequities, gender and other biases persist in the development of interventions to increase the use of diversity for sustainable agriculture, knowledge of and access to technologies and training, and representation in decision making-including within research projects. It is not enough to recognize that different knowledge of women and men, as well as the importance of ensuring equitable benefits from the programme outputs, requires that information be disaggregated by gender and age. It requires that that training and management opportunities be equitably distributed. In response to this, the project not only promotes activities to enhance the ability or farmers to take decisions concerning the management diversity rich options, but promotes equitable training opportunities for men and women, and actively seeks to increase women's participation in decision making positions within the project management implementation structure. Each component of the project, therefore, includes activities that build leadership and capacity of indigenous and local communities to participate more effectively in local and national decision-making fora. This includes actively increasing the number of women in management, research and decision-making role at community and national levels, in both national government and non-government institutions participating in this project.

**B.4 Indicate risks, including climate change risks that might prevent the project objectives from being achieved, and if possible, propose measures that address these risks to be further developed during the project design:**

The potential risks to project implementation and mitigation measures that will be taken are as follows:

<b>Risk</b>	<b>Level</b>	<b>Mitigation Strategy</b>
Diversity exists or is available within the project communities suitable for creating a portfolio of varieties to buffer against risk	L	Achievement of the project outcomes is based on availability of suitable crop genetic resources in respect to managing risk. The areas selected for project implementation are rich in diversity of the target local crops in the traditional farming systems. Specific site (village/community) identification will be based on participatory field surveys ensuring that areas of high diversity are selected
Decision makers and farmers are cooperative and open to the adoption of diversity approaches	L	Sustainability of the project will be achieved when farmers and communities are able to benefit from diversity rich approaches. The design phase of the project with the farmer at the centre of importance for adopting working practices that reflect farmer's needs and concerns in diversity management.
A stable and favorable political environment exists	L	Nepal has a stable government system in place, which seeks to respond to the needs of the rural poor.
Sufficient marketing channels exist where certification scheme would work	L	The mountainous regions of Nepal are the most touristic zone of Nepal, over 60% of the tourists (approximately 200,000) visit every year from around the globe, giving farmers direct access to existing local marketing outlets such as local hotel and restaurants to sell the organic local products. In addition, new certification mechanisms have become accessible to Nepali farmers; the Ministry of Agriculture and Cooperatives of government of Nepal has developed guidelines and standard for organic agriculture production and approved Participatory Guarantee System.
Policy makers and partners are committed to project implementation	L	The development of the project will rely on representative partnerships which will be comprised of stakeholders of all levels. This will ensure their commitment to the project.
Climate change risks	L	The core idea of the project is to buffer communities from climate changes risk by increasing their available portfolio of agricultural biodiversity to hedge against unpredictability of climate

**B.5. Identify key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable:**

Farmers are the direct beneficiaries from and implementers of the use of crop genetic diversity in their production systems, and their participation both as implementers and decision makers helping to set research and development activities is crucial to the programme. Farmers, extension workers, local educational institutions, and community-based organizations will benefit from representative partnerships built with local and national researchers of Nepal. Staff of local and national research and education institutes in Nepal will benefit from receiving specific training on how to use diverse local crop materials and local knowledge, and how to apply econometric methods (non-linear methods and a logistic model specification and choice experiment studies that use stated preference (willingness to pay/accept) to investigate the public's valuation of the use of crop genetic resources for sustainable agriculture. This will in turn be used to partner with policy makers at the Ministries of Agriculture and the Environment to develop policies, legal measures and incentives that support production systems with less dependence on external inputs. Active recruiting of women researchers, managers, technicians and farmers for management positions and training opportunities will ensure gender balance and equity in national capacity building and therefore universities and technical institutes, extension workers and local development organizations will be better equipped to support farmers in their use of local crop diversity. Private sector consumers and retailers will be actively sought as partners in the development of diversity rich practices; this will include activities and public awareness campaigns to change consumer norms and behaviors to support agricultural production systems that use local crop genetic diversity to reduce vulnerability in farmers' fields.

**B.6. Outline the coordination with other related initiatives:**

The close conformity with Nepal's Three Year Interim Plan, and NARC's Strategic Vision for Agricultural Research (2011-2030) has been described in Section A above. In addition, this project will be closely coordinated with Nepal's Community Based Biodiversity Management Project that is coordinated by the NGO-Local Initiatives for Biodiversity Research and Development (LI-BIRD): one of the national executing agency for this project) in partnership with Department of Agriculture in Nepal. The project will also be complementary to a new project that Nepal is currently developing, funded by

Development Fund, Norway, to collaborate with civil society institutions of India, Bangladesh and Sri Lanka on community based management practices in agricultural ecosystems. The national partners for the proposed project already are closely linked with the UNDP/GEF Western Terai Landscape Complex Project conducted in three districts of Far Western region of Nepal in landscape level providing expertise and training to the Terai project in agrobiodiversity management and benefit sharing, including aspects of payment for ecosystem services. (PES) The project will coordinate the with community seed production groups being supported by the DFID Research into Use Project; which is being implemented to strengthening community seed production groups and farmer seed system by deploying farmer-selected varieties into the system by developing wide range of partners and stakeholders in Nepal. Discussions have already been underway to coordinate the Nepal Country Component of the UNEP/GEF project “Conservation and Management of Pollinators for Sustainable Agriculture through an Ecosystem Approach” in terms of linking the utility of *crop genetic* diversity within the agroecosystem to provide flowering services to pollinators. The pollinator project linkage is important as local crop diversity in anthropogenetic landscapes in the high elevation sites in Nepal is supporting diverse pollinator populations. The project will link closely with the capacity to be built to integrate marginal groups into value chains and markets from the recent loan agreement signed by the Government of Nepal with the International Fund for Agricultural Development (IFAD) for increased agricultural diversification in the hills and mountain regions of Nepal. Project partners are also already working closely with EcoAgriculture Partners network of Nepalese partners in Nepal, particularly in multi-stakeholder management of a landscape for the goals of biodiversity conservation and rural livelihood improvement. At the regional level the results of the proposed project will feed into the The International Centre for Integrated Mountain Development (ICIMOD), supported project “Transboundary Landscape Conservation Policy and Institutional Innovations in the Eastern Himalayas: Promoting landscape as a strategy to climate change adaptation and sustenance of ecosystem services”, and the South Asia Network on Plant Genetic Resources (SANPGR). These linkages will be coordinated to support south-south exchange of information, tools and practices for agricultural biodiversity conservation. The proposed project will seek synergies and close collaboration with UNEP supported project, implemented in collaboration with ICIMOD “Developing a Transboundary Framework for Conservation and Sustainable Development in the Greater Mt. Kailash Region of China, India, and Nepal.” The project will also establish close linkages, and seek full complementarily, with the UNEP/UNDP/IUCN programme “Ecosystem Based Adaptation (EBA) in Mountain Ecosystems for Nepal, Peru and Uganda”. Although both projects are targeting mountain ecosystems in Nepal, the EBA targets the mountain ecosystems of the eastern Himalayans, while this proposed project is focused on sites in the western Himalayans. However, as both projects seek sustainable solutions for the mountain environments of Nepal, and the national executing partners are the same, the methodology and good practices of community-based approaches developed by LBIRD and other national partners can be mainstreamed into both projects causing cross fertilization of ideas and added value to both projects. The project will also fully complements the following UNEP/GEF projects: “Building capacity for regionally harmonized national processes for implementing CBD provisions on access to genetic resources and sharing of benefits”; “Strengthening the implementation of ABS regimes in Latin America and the Caribbean”; “Supporting the Development and Implementation of Access and Benefits Sharing Polices in Africa”; “Capacity Building for Access and Benefit Sharing and Conservation and Sustainable Use of Medicinal Plants”; “Strengthening the implementation of the Biological Diversity Act and Rules with focus on its Access and Benefit Sharing Provisions”; “Capacity building for the early entry into force of the Protocol on Access and Benefit Sharing.” Globally the project will benefit form UNEP’s direct interface to environment ministries and leading scientific organizations, and use Bioversity’s linkages to the the Global Mountain Program (GMP): a System Wide program of the CGIAR system established in response to international commitments made to Agenda 21 chapter 13: ‘Managing Fragile Ecosystems: Sustainable Mountain Development’ and the Millennium Development Goals (MDGs) in mountains; and Bioversity International’s own extensive global and regional plant genetic resources conservation networks for global dissemination activities to other mountain ecosystems, where the conservation and local of local crop genetic diversity within the agricultural production system is important.

### **C. DESCRIBE THE GEF AGENCY’S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:**

UNEP’s comparative advantage derives from its mandate to coordinate UN activities with regard to the environment, including its convening power, its ability to engage with different stakeholders to develop innovative solutions and its capacity to transform these into policy- and implementation-relevant tools. UNEP’s comparative advantages in the GEF are aligned with its mandate, functions and Medium Term Strategy and its biennial Programme of Work (2010-2011 and 2012-2103). The proposed project is consistent with the following 4 of 6 thematic priorities outlined in UNEP’s Medium-term Strategy: Ecosystem management, Environmental governance, Climate change, Resource efficiency. Functionally, the projects is aligned with the following mandates as described in UNEP’s Programme of Work 2010-2011: Assisting

science-based inventories and assessments (at the global, regional and national scales), and building capacity for environmental information management and decision support systems, as well as providing early warning of emerging issues; Providing environmental policy advice based on sound science, through among others stronger mainstreaming of environment into other sectors; Delivering technology support and capacity building services in line with country priorities, including innovative methods, tools and technologies; institutional capacities; demonstrating best practices; barrier removal for market transformation; and awareness raising, knowledge generation/dissemination, and environmental education.

This proposed project is in line with UNEP's role in the GEF to catalyze the development of scientific and technical analysis and advancing environmental management in GEF-financed activities. In particular, the project further complements UNEP's aim to promote specific methodologies and tools that could be replicated on a larger scale by other partners.

### **C.1 Indicate the co-financing amount the GEF agency is bringing to the project:**

UNEP's potential for leveraging co-financing for GEF projects resides in its ability to secure a robust partnership around projects. At this early stage of the proposed project conceptualization, UNEP managed to secure co-financing commitment of \$5,450,000 from different national and international partners. During the project preparation phase, UNEP will define its exact additional contribution, in particular, related to UNEP's ABS programme and the recently approved Ecosystem Based Adaptation in Mountain Ecosystems programme for Nepal, Peru and Uganda.

### **C.2 How does the project fit into the GEF agency's program (reflected in documents such as UNDAF, CAS, etc.) and staff capacity in the country to follow up project implementation:**

The proposed project will benefit from UNEP's extensive work on conservation and management of natural resources within the ecosystem context, and building capacity in access and benefit sharing (ABS). The project fully complements UNEP's Ecosystem Management sub-programme and particularly the following projects, implemented with-in the framework of this sub-programme: *Ecosystem management of the Himalayan mountain range*; *Evaluating the Trade-offs and Benefits of Sustainable Food Production Systems*; and *Developing Approaches for Equitable Sharing of Benefits From Ecosystem Service*. The project is also in line with the increasing commitment of UNEP to improving the sustainability of agro-ecosystems and supports the work on the medium- to long-term response to the food crisis and to the future of agriculture and environment, including the issue of food prices and volatility, sustainability of responses, the role of agricultural biodiversity for food security and the linkages to the climate change challenge. It directly supports Option 4 of the "Seven Options for Improving Food security" of the 2009 UNEP Rapid Response Assessment of the environment's role in averting future food crises, to "Support farmers in developing diversified and resilient ecoagriculture systems that provide critical ecosystem services" and "minimize dependency on external inputs like artificial fertilizers, pesticides and blue irrigation, and the development, implementation and support of green technology also for small-scale famers" ([http://www.grida.no/res/site/file/publications/FoodCrisis\\_lores.pdf](http://www.grida.no/res/site/file/publications/FoodCrisis_lores.pdf): p 8). Within the framework of Environmental Governance Sub-programme UNEP uses its expertise in environmental policy and law to (i) help governments in the development and implementation of access and benefits sharing (ABS) policies, and (ii) to build capacity for harmonized national processes to implement the CBD provisions on access to genetic resources and sharing of benefits. This project is in line with the UNEP's Division of Environmental Laws and Conventions current work in assisting national partners, including Nepal, in providing support for regional and national ABS capacity building activities and development of biodiversity strategies and action plans that will have specific focus on ABS issues.

In responding to country demand for accessing GEF projects and providing requested services, UNEP has been successful in establishment of broad-based effective partnerships at community, national, regional and global level. As a GEF Agency for this project, UNEP will provide a platform for a collaborative partnership between several national and international organizations, which will bring the best available expertise in science and knowledge from the scientific and development community in both social and natural sciences. With-in the framework of the Memorandum of understanding for collaboration with CGIAR centers, UNEP's has been working very closely with its collaborating partner Bioversity International in the area of ABS, agrobiodiversity conservation, climate change, and ecosystem management, and because of its extensive national, regional and international networks to link scientific and technical expertise in these areas. Bioversity International, the executing agency for this project, will provide scientific support and technical expertise in line with UNEP's mandate in GEF to catalyze the development of scientific and technical analysis and advancing environmental


management in GEF-financed activities. Technical support will be also provided through UNEP's Division of Environmental Policy Implementation, Division for Environmental Law and Conventions and UNEP's Regional Office for Asia and Pacific (ROAP) located in Bangkok and regional networks and platforms supported by the ROAP. With respect to UNDAF, UNEP was invited to review and comment on the UNDAF for Nepal (2008-2012). One of the outputs to be achieved is to enhance capacity of national and local government for landscape biodiversity conservation and equitable benefit sharing from forest, land, water resources and energy services. UNEP will further support other UN agencies in Nepal to strengthen government capacity to effectively manage land and water resources, enhance government capacity to conserve biodiversity and ecosystems, empower communities to increasingly benefit from the development of eco-based livelihood resources and strengthen government capacity to develop and implement policies that ensure compliance with environmental health and safety requirements.



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

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

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Lal Shankar Ghimire	Joint Secretary	FINANCE	11/24/2010

<b>This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.</b>					
<b>Agency Coordinator, Agency name</b>	<b>Signature</b>	<b>DATE (MM/dd/yyyy)</b>	<b>Project Contact Person</b>	<b>Telephone</b>	<b>Email Address</b>
GEF Agency Coordinator: Maryam Niamir-Fuller Director, GEF Coordination Office, UNEP		February 02, 2011	Marieta Sakalian, PhD UNEP Senior Programme Management /Liaison Officer (CGIAR/FAO), Biodiversity	+39 06570 55969	Marieta.Sakalian@unep.org