



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT IDENTIFICATION

Project Title:	Mainstreaming agrobiodiversity conservation and utilization in agricultural sector to ensure ecosystem services and reduce vulnerability		
Country(ies):	India	GEF Project ID:	5137
GEF Agency(ies):	UNEP	GEF Agency Project ID:	00906
Other Executing Partner(s):	Indian Council of Agricultural Research (ICAR); Bioversity International, Office for South Asia	Submission Date:	07/09/2012
		Resubmission Date:	01/24/2013
GEF Focal Area (s):	Biodiversity	Project Duration (Months)	60
Name of parent program (if applicable):	NA	Agency Fee (\$):	289,403
➤ For SFM/REDD+ <input type="checkbox"/>			

A. FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
BD-2	Outcome 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation.	Output 2.1: 150,000 ha of agricultural land would be affected by sustainable utilization and management of agrobiodiversity by 25,000 farmers across four agro-ecoregions of India.	GEFTF	1,621,006	3,662,250
BD-2	Outcome 2.2: Measures to conserve and sustainably use biodiversity incorporated in policy and regulatory frameworks.	Regional (four) and national (one) strategies and plans on integrated sustainable agricultural improvement and use of agrobiodiversity developed and supported by implementation programmes of work	GEFTF	1,148,400	4,059,000
Sub-Total				2,769,406	7,721,250
Project Management Cost			GEFTF	276,941	883,500
Total Project Cost				3,046,347	8,604,750

B. PROJECT FRAMEWORK

Project Objective: To mainstream the conservation and use of agrobiodiversity for resilience agriculture and sustainable production to improve livelihood and access and benefit sharing capacity of farmer communities across four agro-ecoregion of India.						
Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
1. Adaptive management for conservation and use of crop	TA	1.1: Farmers (25,000) across four agro-ecoregions covering 150,000 ha in India maintain and use an increased diversity	1.1.1: Extent and distribution of genetic diversity of 12 crops in 4 agro-ecoregions determined,	GEFTF	1,073,934	3,499,250

<p>agrobiodiversity for resilient agriculture and sustainable production.</p>		<p>of 12 crops through improved availability of traditional local varieties and enhanced access to new adapted and resilient diversity.</p>	<p>together with documentation of social, economic and cultural factors that shape farmer decisions on diversity maintenance and information on contribution of existing traditional varieties to ecosystem services, adaptability and resilience.</p> <p>1.1.2: Farmer needs for additional or new diversity determined and challenges presented by climate change mapped and assessed.</p> <p>1.1.3: New crop genetic diversity able to enhance ecosystem function, resilience and adaptation to climate change identified.</p> <p>1.1.4: Farmer identification, improvement and use of adaptive crop diversity through field experimental networks (35% of villages), Participatory Plant Breeding (PPB) and Participatory Variety Selection (PVS) programmes (at least 1 PVS or PPB per crop for 12 crops in each agro-ecoregion).</p> <p>1.1.5: Improved farmers' access to genetic materials through establishment of community biodiversity registers (4 per agro-ecoregion), organising diversity fairs (2 per agro-ecoregion annually), strengthening seed exchange networks and incorporating local crop diversity and traditional varieties into agricultural extension packages.</p> <p>1.1.6: Community genebanks (4 per agro-ecoregion) established and community-based seed production organised at project sites to facilitate access to adaptive crop diversity.</p>			
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		<p>1.2: Improved income generation opportunities through increased use of agrobiodiversity of small and marginal farmers (25,000) across four agro-ecoregions covering 150,000 ha in India.</p>	<p>1.2.1: Market and non-market incentives and disincentives to maintenance of crop genetic diversity of 12 crops in four agro-ecoregions identified and relevant intervention strategies developed.</p> <p>1.2.2: Value added products identified (1 for each of 12 crops) and market chains strengthened (for 12 crops across four agro-ecoregions) to provide improved market opportunities for agrobiodiversity.</p> <p>1.2.3: Improved non-market benefits from sustainable use of agrobiodiversity obtained by farmers in four agro-ecoregions and potential strategies for capturing and enhancing such benefits at the national level identified.</p>			
<p>2. Strategies and policies for sustainable conservation and use of crop diversity.</p>	TA	<p>2.1: Measures (policies and guidelines) for the sustainable use and conservation of crop diversity are integrated into national (one) and regional (four) plans for agriculture.</p>	<p>2.1.1: Analyses of public policies and regulations and gaps and incentives for sustainable use and conservation of agrobiodiversity at national (one) and regional levels (four).</p> <p>2.1.2: Mechanisms of coordination and strategic alliances established between institutions, ministries, civil society and private sector organizations at national and regional level regarding development and implementation of policies and practices that promote and conserve agrobiodiversity.</p> <p>2.1.3: Regional (four) and national (one) strategies and plans on integrated sustainable agricultural improvement and use of agrobiodiversity developed and supported by implementation programmes</p>	GEFTF	601,330	1,914,000

		<p>2.2: Farmers communities and other stakeholders in four agro-ecoregions in India benefit from the access and benefit sharing provisions under Biological Diversity Act and Protection of Plant Varieties and Farmers' Rights Act, in India</p>	<p>of work.</p> <p>2.1.4: Seed system function improved with respect to seed quality and numbers of different varieties available to farmers for 12 crops across four agro-ecoregions.</p> <p>2.2.1: An advocacy campaign to promote the leadership and capacity building to enable a higher level of involvement in local communities and indigenous organizations in local and national decision making forum</p> <p>2.2.2: Six access and benefit-sharing agreements with farmer communities that recognize the core ABS principles of prior Informed Consent (PIC) and Mutually Agreed Terms (MTA), including the fair and equitable sharing of benefits</p> <p>2.2.3: Unique farmers' varieties identified and registered with Protection of Plant Varieties and Farmers' Rights Authority and National Biodiversity Authority of India for benefit sharing.</p> <p>2.2.4: Developing and testing model agreements that regulate the access to crop genetic resources and traditional knowledge maintained by farmers in accordance with national laws and objectives.</p>			
3. Institutional frameworks, increasing capacity and building partnership among policy-makers, researchers, extension	TA	3.1: Improved institutional frameworks at national (1), regional (4) and local levels ensure improved agrobiodiversity conservation, adaptability, resilience and farmer livelihoods.	3.1.1: One national and eight regional level awareness raising campaigns on value of agrobiodiversity and importance of its maintenance and use for different stakeholder groups including farmers, government ministries and	GEFTF	766,762	1,819,000

workers and farmers.		<p>3.2: Improved agricultural support systems (research, outreach and extension) supporting the mainstreaming of agrobiodiversity for improved conservation, adaptability, resilience and farmer livelihoods.</p>	<p>agencies, researchers, extension workers, teachers and consumers.</p> <p>3.1.2: Agrobiodiversity awareness by national and regional level policy makers is enhanced and its conservation and use constitute a recognised component of national and regional policy implementation.</p> <p>3.1.3: Increased capacity of communities and local institutions for production and management of increased diversity of quality seed linked to public and private seed systems.</p> <p>3.2.1: Enhanced capacities of researchers, farming communities and local institutions in selecting and deploying adapted crop diversity through participatory approaches.</p> <p>3.2.2: Research programmes which support mainstreaming of agrobiodiversity and its improved use to support ecosystem function, resilience and adaptability activities are in progress.</p> <p>3.2.3: Trained national and regional extension and outreach staff across four agro-ecoregions provided support to farmers on crop diversity maintenance and use and the introduction of new materials for resilient crop production.</p>			
4. Project monitoring and evaluation and knowledge management	TA	4.1 Project implementation based on results based management and application of project lessons learned in future operations facilitated	<p>4.1.1 Project monitoring system operating providing systematic information on progress in meeting project outcome and output targets.</p> <p>4.1.2 Midterm and final evaluation conducted.</p> <p>4.1.3 Project-related “best-practices” and “lessons-learned” published.</p>	GEFTF	327,380	489,000

		4.1.4 Website to share the experience and information dissemination.			
Sub-Total				2,769,406	7,721,250
Project Management Cost			GEFTF	276,941	883,500
Total Project Costs				3,046,347	8,604,750

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
National Government	Indian Council of Agricultural Research (ICAR)	Grant	2,941,000
National Government	Indian Council of Agricultural Research (ICAR)	In-kind	2,068,500
National Government	Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA)	Grant	455,000
National Government	Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA)	In-kind	315,000
National Government	National Biodiversity Authority (NBA)	Grant	75,000
National Government	National Biodiversity Authority (NBA)	In-kind	100,000
National Government	Climate Change, Agriculture and Food Security (CCAFS)	Grant	800,000
National Government	Climate Change, Agriculture and Food Security (CCAFS)	In-kind	150,000
Other Multilateral Agency	Bioversity International	Grant	350,000
Other Multilateral Agency	Bioversity International	In-kind	850,000
NGO	Gene Campaign and other NGOs	In-kind	300,000
NGO	Humana People to People India	In-kind	100,000
GEF Agency	UNEP	In-kind	100,250
Total Co-financing			8,604,750

C. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (a)	Agency Fee (b)	Total c=a+b
UNEP	GEF TF	Biodiversity	India	3,046,347	289,403	3,335,750
Total Grant Resources				3,046,347	289,403	3,335,750

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 Bioversity Results Framework**.

Project Component 1 will contribute to **Outcome 2.1** by mainstreaming the sustainable use and management of crop diversity across four agro-ecoregions of India. This will be done through mainstreaming a number of tested community-based participatory approaches which support the maintenance of existing crop diversity, the introduction and deployment of appropriate new materials of 12 crops. The approaches include strengthening seed supply systems and the establishment of community genebanks, seed fairs, diversity fora and other adaptive technologies that enable farmers to benefit from diversity rich solutions. The project will also help mainstream crop diversity through working with farmers to use diversity to address challenges posed by climate change. This will include identification of suitable crop diversity to address such challenges, improved awareness and information on varietal adaptation based on scientifically sound evidence and its validation by farmers and communities. Income and other livelihood improvement actions will also support mainstreaming. While Component 1 will help secure the maintenance of crop diversity and its adaptation to changing climatic conditions, Component 2 focuses on increasing farmers' access to crop genetic resources, so that farmers benefit from having locally adapted materials in population sizes large enough to buffer against change in climate and other factors and ensure sustainable agriculture. The project will contribute to **Outcome 2.2** by developing one national and four regional level strategies and plans on integrated sustainable agricultural improvement and use of agrobiodiversity that will provide an enabling environment for diversity deployment in order to support adaptation of agricultural ecosystems with unpredictable temperature and precipitation conditions. Component 3 will focus on strengthening relevant institutions and building the capacity of rural communities to enable the custodians of agricultural genetic resources to share in the benefits of the materials they are conserving and ensure recognition by the agricultural sector of the role of agrobiodiversity. Component 3 will also strengthen the capacity of research, extension and outreach workers to identify and support the implementation of diversity rich solutions in close collaboration with farmers and rural communities. This reorientation of research and extension is a necessary element of effective mainstreaming.

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

N.A.

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.:

India has a long history of conservation and sustainable use of natural resources. Formal laws, policies and programs for conservation and sustainable utilization of bio-resources date back to several decades. Over the years, India has developed a stable organizational structure and a strong legal policy framework for protection of environment in the country. India is committed to contributing towards achieving three objectives of the Convention on Biological Diversity (CBD) and the Strategic Plan and has contributed achieving 2010 targets of CBD. Strategies and plans for conservation and sustainable use of biological resources based on local knowledge systems and practices are ingrained in Indian ethos and are enshrined in the Constitution of India [Article 48A and Article 51 A (g)] in the form of environment protection. In recent times, the major components of policy framework, legislations and action plans that drive the country in achieving all the three objectives of CBD include, among others, Biological Diversity Act (BDA), 2002; National Environment Policy (NEP), 2006; National Biodiversity Action Plan (NBAP), 2008; and National Action Plan on Climate Change (NAPCC), 2008. Pursuant to the CBD, a first major step was the development of the National Policy and Macro Level Action Strategy (1999) that called for consolidating existing biodiversity conservation programs and initiating new steps in conformity with the spirit of the convention followed by development of National Biodiversity Strategy and Action Plan (NBSAP) and its implementation.

The Indian National Biodiversity Action Plan (NBAP) identifies threats and constraints in biodiversity

conservation and sets out the necessary actions to address them. The project responds directly to Section 4.1 (Strengthening and integration of *in situ*, on farm and *ex situ* conservation) of the NBAP objectives which emphasises the need to protect and conserve major national bio-geographic zones, critical ecological systems and genetic resources which are essential for life support, livelihoods, food and nutritional security through *in situ*, on farm and *ex situ* conservation. As noted below in Section 5.1 of the NBAP identifies actions which include: (i) identify hotspots of agro-biodiversity under different agro-ecozones and cropping systems and promote on farm conservation; (ii) provide economically feasible and socially acceptable incentives such as value addition and direct market access in the face of replacement by other economically remunerative cultivars; and (iii) develop mutually supportive linkages and increased coherence between *in situ*, on farm and *ex situ* conservation programmes. These elements of the NBAP are addressed through Outputs 1.1.1 of Outcome 1.1; Outputs 1.2.1, 1.2.2, and 1.2.3 of Outcome 1.2 and Outputs 2.1.1 and 2.1.2 of Outcome 2.1 of the proposed project.

The NBAP also identifies activities which will build national capacities for biodiversity conservation and appropriate use of new technologies (Section 5.9). This section of the NBAP is addressed through Outputs 3.1.3 of Outcome 3.1; Outputs 3.2.1, 3.2.2 and 3.2.3 of Outcome 3.2. The project will also respond to Section 3.1 on habitat fragmentation, degradation and loss, and shrinking of genetic diversity which identifies the importance of efforts to conserve and maintain biodiversity on farm for its continued evolution and adaptation to changing conditions. This objective will be addressed through Outputs 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, and 1.1.6 of Outcome 1.1.

Besides a number of policy mechanisms as relevant to the Convention include National Forestry Policy (NFP), 1988; National Agricultural Policy (NAP), 2000; National Seed Policy (NSP), 2002; National Environment Policy (NEP), 2006; The Protection of Plant Variety and Farmer's Rights Act (PPV & FRA), 2001; and National Action Plan on Climate Change (NAPCC), 2008 has been brought into public domain for implementation.

After an extensive and intensive consultation process involving the stakeholders, the Indian Government revised the Biological Diversity Act, 2002 to include specific provisions: (i) to regulate access to biological resources of the country with the purpose of securing equitable share in benefits arising out of the use of biological resources and associated knowledge relating to biological resources; (ii) to conserve and sustainably use biological diversity; (iii) to respect and protect knowledge of local communities related to biodiversity; (iv) to secure sharing of benefits with local people as conservers of biological resources and holders of knowledge and information relating to the use of biological resources; (v) conservation and development of areas of importance from the standpoint of biological diversity by declaring them as biological diversity heritage sites; (vi) protection and rehabilitation of threatened species; and (vii) involvement of institutions of state governments in the broad scheme of the implementation of the Biological Diversity Act through constitution of committees. The National Biodiversity Action Plan, 2008 is consistent with the ecological, social, cultural and economic mosaic of the country and its preparation is in pursuance of Article 6 (a) of CBD as well as section 36 (1) and (3) of BDA, 2002.

In recent years, India has made significant strides in agriculture to integrate and mainstream biodiversity consideration through a strong back-up of policies. Major achievements include: (i) creation of National Gene Fund for conservation and development of plant genetic resources; (ii) establishment of protection of Plant Varieties and Farmer's Rights Authority (PPV&FR Authority) and granting incentives to farmers in the form of "Plant Genome Savior Community Recognition"; (iii) establishment of a multilateral system to facilitate access to Plant Genetic Resources for Food and Agriculture (PGRFA) through International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). For ensuring Access and Benefit Sharing (ABS), India has taken significant legislative measures. The PPV&FR Act, 2001 and the PPV&FR Rules, 2003 provides measures to protect plant breeders' rights over new varieties developed by them. It also ensure farmers' rights to register new varieties that they have developed and also to save, breed, use, exchange, share or sell the plant varieties, improved and maintained over many generations. The National Biodiversity Authority (NBA) was set up in October 2003 to deal with all matters relating to requests for access by foreign individuals, institutions or companies.

The proposed project is fully consistent with the above national regulations and commitments and directly addresses its concern with the promotion of the increasing use of agrobiodiversity, strengthening capacity to support maintenance of agrobiodiversity, enhancing benefit-sharing and the promotion of conservation and use. The project would enable India to accelerate the implementation of the national priorities and policies listed above. It reflects the importance given by the Indian government to maintenance of diversity in production systems, livelihood and income generation, policy development and the development of the capacity needed to support maintenance and use of agrobiodiversity as described in Section B.

B. PROJECT OVERVIEW:

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

India has a biogeographically diverse landscape and is situated north of the equator between 66⁰E to 98⁰E and 8⁰N to 36⁰N. The varied edaphic, climatic and topographic conditions have resulted in a wide range of ecosystems and habitats. With only 2.4% of the world's total land area, India accounts for 7.8% of the world's recorded species. Based on available data India ranks 10th in the world and fourth in Asia in plant diversity. India is floristically extremely rich with about 33 percent of its botanical wealth (over 15,000 species of higher plants) being endemic. There are about 141 endemic genera distributed over 47 families. Of the 4,900 endemic species, a larger percentage is localized in the Himalayas (about 2532 species) than in other regions, namely, the peninsular tract (1,788 species), and the Andaman and Nicobar Islands (185 species). As described below, the country also possesses globally important agricultural biodiversity central to the livelihood strategies of small-scale farmers, rural communities and indigenous peoples.

The Indian sub-continent as gene centre and its genetic diversity distribution: India is recognized as one of the twelve Vavilov centres of diversity of crop plants in the world. The diverse agro eco-climate of the "Hindustani Centre" possesses about 166 species of agricultural or horticultural crop plants, a rich diversity of wild relatives of crop plants, numbering at least 320 species. In addition, Indian agriculture has been enriched by a continuous stream of introductions of new crops and their cultivars since ancient times. The Indian gene centre has strong linkages and contiguity with the Indo-Chinese-Indonesian, Chinese-Japanese and the Central-Asian regions and centres. The influx of germplasm in the distant past from the Mediterranean, African, and more recently from tropical American regions, has also contributed to an enormous locally adapted variability. Thus, India is:

1. A primary centre of diversity for rice, black gram, moth bean, pigeonpea, cucurbits, tree cotton, *capsularis* jute, jack fruit, banana, mango, large cardamom, black pepper and several minor millets and medicinal plants.
2. A secondary centre of diversity for finger millet, sorghum, cowpea, cluster bean, okra, sesame, niger and safflower; tropical American types like maize, tomato, pumpkin/*Cucurbita* spp., chillies and *Amaranthus*
3. A centre of regional (Asiatic) diversity for crops like maize, barley, amaranth, buckwheat, proso millet, foxtail millet, mung bean/green gram, chickpea and cucumber

Geographical contiguity with the Far-East and/or the Indo-Malayan (South/South-East Asian region) belt is largely responsible for additional significant regional diversity in mung bean, rice bean, sword bean, tomato, citrus, small cardamom, *Saccharum*, ginger, turmeric, tuber crops, particularly taros and yams, and bamboos.

The floristic diversity available in the wild relatives and related types of cultivated plants in India is estimated to about 320 species, of which about 60 are endemic taxa. The range of species strength in different genera of wild relatives of crop plants and related taxa is different with taxa such as *Cicer* (1), *Sesamum* (3), *Mangifera* (3), *Vigna* (10) *Alyosia* (15), *Solarium* (32) and *Piper* (50). Category-wise, the number of such species of agri-horticultural importance is as follows: cereals and millets (51), legumes (31), fruits (109), vegetables (54), oilseeds (12), fibre plants (24), spices and condiments (27), and others (26). This diversity is largely distributed in the warm humid tropical, sub-tropical regions, western Himalayas and the north-eastern region. In wild rice, both annual and perennial types occur, and of these *Oryza nivara* (annual; source of rice tungro virus resistance) from eastern peninsular region is important. Among legumes, much variability occurs in wild forms of green gram, black gram and moth bean. Some types locally called *van-moong* (wild *Vigna radiate* – *sublobata* type)

provide sources of resistance to yellow-vein-mosaic virus. Many forms of this taxa resembling black gram and green gram occur as forest undergrowth in the Western Ghats along with the wild forms of pigeonpea (*arhar*), i.e., bushy species of *Atylosia* (*A. sericea*, and *A. lineata*) which are reported to be resistant to wilt. Another important wild relative of pigeonpea, i.e., *Atylosia cajanifolia* occurs in the Eastern Ghats. Much variability in wild types in rice bean, *Vigna umbellate* occurs in the North-Eastern region and sporadically in the Western Himalayas, the Eastern Ghats and Western Ghats. Among others, *Cicer microphyllum*, a species related to the cultivated gram, occurs in the Western Himalayan cold arid region. Among oilseeds, a wild sesame, *Sesamum prostratum*, occurs in the coastal tract of Andhra Pradesh, and is resistant to phyllody and caterpillar pests.

Resource poor farmers in India depend, to a significant extent, on the agrobiodiversity found in their production systems. Minor crops, their wild relatives and other useful semi-cultivated or uncultivated species of plants and animals often make important contributions to their food security and livelihoods. The rich mosaic of people and cultures have contributed to the enormous diversity of cultivated plants in the Indian gene centre. Plant genetic resources for food and agriculture (PGRFA), which constitute a major part of current agrobiodiversity, are an essential resource to meet food security. However, while the threats to these resources are growing, the efforts to conserve and use genetic diversity are still insufficient. The large scale adoption of few improved varieties is displacing traditional varieties in farmers' fields although many such varieties still remain, albeit in reduced areas. The traditional knowledge associated with the use of traditional varieties has remained undocumented and is also threatened. The reduction of agrobiodiversity on farm has a number of negative effects – it can increase risks to farmers livelihoods and food security, increase system vulnerability as a result of adoption of a few varieties, increase use of scarce natural resources such as water and increase pollution of the environment. However, the introduction of limited improved varieties can bring short term benefits to many farmers. Maintenance of agrobiodiversity in production systems therefore depends on ensuring that farmers benefit directly in terms of food and nutrition security and other livelihood benefits in both the short and long term through appropriate mainstreaming strategies.

Climate change represents an additional challenge to farmers. While climate change threatens current diversity and current patterns of distribution and use, it also creates a greater need for agrobiodiversity to meet changing production conditions and environments. Access to crop diversity, both as traditional varieties and as new potentially useful adapted materials suited to smallholder farming conditions, is essential to enable farmers to respond to the emerging challenge of climate change. Varieties that can help farmers deal with changing environmental conditions and enhanced stresses, such as drought or flood, will be required. Traditional varieties provide one entry point for this with their proven diversity and adaptability. Exploring a wider range of genetic resources available provides another. These two approaches will require new tools, technologies and innovative approaches for their conservation and use. Hence, effective conservation and sustainable use of available genetic resources through appropriate mainstreaming actions becomes a major priority in India.

Despite some genetic erosion, traditional varieties of the many crops and populations of their wild relatives can still be found with diverse qualities, nutritional status, adaptability to climate conditions and maturity characteristics. Associated with this diversity is a large repository of traditional knowledge which often still needs to be documented and made available to national and global communities. So far conservation activities in India have focussed on *ex situ* conservation. PGRFA conservation and use activities in India were initiated as early as 1910 with sporadic collections of wheat germplasm followed by more organised PGR programme and a National Bureau of Plant Genetic Resources (NBPGR) was established in 1977. Through its various incarnations the Bureau has played a very distinctive and significant role in crop improvement and diversification in India in augmenting genetic diversity. Presently a total of 385,645 seed germplasm accessions of various agro-horticultural crops are being conserved in the national genebank. However, despite this strong *ex situ* conservation programme at national level, efforts to support maintenance of diversity *in situ* and mainstreaming crop diversity on farm in the country are very limited and substantial threats exists to this diversity due to several factors.

The following barriers and constraints to the successful conservation and use of Indian agrobiodiversity have been identified, which the proposed project aims to address:

Barrier 1: Substantial threats exist to crop genetic diversity and to sustainable production due to continuing adoption of high-yielding varieties which require production practices that are likely to be unsustainable in the long term.

Barrier 2: There is limited emphasis on the use of agrobiodiversity in production by the research and extension services

Barrier 3: Access to adapted crop diversity is becoming increasingly difficult for local farmers as traditional seed systems become disrupted and as climates change requiring new or different adaptations in varieties.

Barrier 4: There is a lack of coordination and collaboration between different agencies implementing the various programmes relating to conservation and use of crops diversity, environmental protection and access and benefit sharing.

Barrier 5: National and local markets do not favour smallholder farming nor do they provide an incentive for using agrobiodiversity to enhance sustainability.

Barrier 6: The research and extension personnel are poorly equipped to work directly with farmers and communities on key issues relevant to mainstreaming agrobiodiversity and there is an almost complete absence of farmer experimental networks.

Barrier 7: There is a lack of farmers' awareness of the issues and possibilities regarding access and benefit sharing of the diversity which they have created and maintained.

Barrier 8: An absence of policy and advocacy activities to integrate traditional agrobiodiversity conservation and use methodologies and practices into informal education system.

Barrier 9: A lack of policy guidelines and incentives to support conservation of agrobiodiversity *in situ* on farm

Baseline for the proposed project: The government of India has recognized these barriers and the risks associated with the loss of agrobiodiversity. A national strategy has been developed which addresses number of aspects of the maintenance of agrobiodiversity in the production system. Nonetheless, more efforts are now needed to ensure its coordinated implementation to address all the barriers. In particular, efforts are needed to integrate dispersed current initiatives and develop participatory actions that will ensure effective mainstreaming of agrobiodiversity conservation in ways that help to improve the wellbeing of farmers and communities. These aspects are presently insufficiently developed in the national implementation plan for conservation and use of agrobiodiversity. While India has extensive experience on *ex situ* conservation its experience of *in situ* conservation of traditional crop varieties is much more limited. The mainstreaming of crop diversity conservation and its sustainable use into agricultural landscapes requires that right materials are available to farmers and that mechanisms are available to help farmers identify, maintain and deploy crop diversity in production systems across diverse agro-ecosystems in the country. This has become even more important considering the challenges that climate change has placed on agriculture.

The government of India also has made progress in the legal and policy frameworks for enhanced conservation of agrobiodiversity and access and benefit sharing (ABS) of plant genetic resources as mentioned under section A2. India has also taken various initiatives for the implementation of the multilateral system related to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), an important legal ABS instrument. These have included the organization of national workshop to discuss strategies for implementing the International Treaty's multilateral system of ABS in India. A guideline for the implementation of the ITPGRFA has been under finalization and will be published soon. Several Material Transfer Agreements (MTAs) has been signed for Indian materials under the Global Crop Diversity Trust with CGIAR genebanks as well as for bilateral projects with the Indian Council of Agricultural Research (ICAR). However, when it comes to the legal framework for farmers' rights and access to plant genetic resources the legislation is unclear and is likely to need a systematic revision to be practical and applicable.

The Indian Government, supported by the International Fund for Agricultural Development (IFAD) is undertaking a number of projects in the country aimed at improving the livelihoods of vulnerable groups in a sustainable manner through improved management of their resource base in a way that contributes to the preservation and restoration of the environment and conservation and use of crop diversity for sustainable production. To date support has been provided to 24 agriculture and rural development projects, including a

number in the agro-ecoregions targeted by the proposed project. The total cost of the project portfolio is US\$1.9 billion, including US\$656 million in loans and US\$877 million in counterpart funds from the Indian Government. These projects provide a useful basis for a number of the necessary elements of mainstreaming but lack a specifically targeted concern with ensuring the conservation of unique agrobiodiversity and crop traditional landraces.

The last decades have shown also an increasing interest in traditional landraces or minor crops by farmer organizations and civil society groups that has resulted in a thriving NGO sector within India working directly or indirectly on agricultural biodiversity which can be seen as unique and a leading force in this area of work in the world. NGOs in India that have been active on the promotion and sales of local diversity, biodiversity-rich farming production systems, community-based biodiversity management, establishment of community genebanks and the strengthening and recognition of farmers' rights are Navdanya, Gene Campaign, Humana People to People India (HPPI), Dhan Foundation, Lifetrust, LIBIRD, BAIF, Swaminathan Foundation, Green Foundation, Society for Sustainable Agriculture among many others. They have documented the importance of local traditional varieties of many crops, initiated work to support local seed-supply systems, worked with communities to establish community seed banks and raised the issues of developing appropriate ABS agreements which embody PIC and MTA.

Thus, India is one of the key source countries of agricultural biodiversity in the world and harbours three features that are not in place along each other in other countries: i) a strong governmental R&D sector and genebank system in place for *ex situ* conservation, ii) a strong and unique legislative and legal enforcement system for the protection of agricultural biodiversity and farmers' rights iii) a strong and thriving NGO sector that is closely linked with farming communities that underwrites the value of agricultural biodiversity. However, the barriers described above have prevented farming communities, scientists, and rural development and conservation practitioners from taking the full advantages of this unique situation. This project will provide a first integrated national effort to create direct linkages between the *ex situ* government system and the *on farm/in situ* conservation efforts of farming communities and the NGO sector in India to secure and unleash the benefits of agricultural biodiversity to cope with climate change and can function as a leading example for an fully integrated conservation system for other countries and regions to find practical solutions for climate change, improve resilience and conserve agricultural biodiversity.

However, much need to be done such as the effective implementation of policies, creation of beneficial linkages between farmers and the research & genebank system, effective selection procedures to identify adaptive and suitable germplasm to cope with climate change still needs to be strengthened and developed. The project will address this through the involvement of farming communities in the decision making process related to indicating the agronomic traits required to cope with climate change, crop and variety evaluation trials and selecting and distributing the elite germplasm that can strengthen their farm production system against weather shocks or changing climate patterns in rainfall, temperature or duration of cropping seasons. Therefore, the project will stand on the pillars of community mobilization, participation and capacity building of village-level institutions to increase the sense of ownership and establish models of sustainable management over natural resources as an adaptive strategy to climate change. The project will address the specific cultural, regulatory and institutional constraints and barriers that prevented collaborations between the government sector, NGOs and farming communities, which is presently not being addressed by national programmes.

Recently, ICAR has constituted a National Advisory Board on Management of Genetic Resources" comprising eminent experts from various stakeholder groups. The Board is developing future road-map for sustainable management of agrobiodiversity on farm through participatory action by researchers and community participation. Further, the ICAR, in its XII Five Year Plan has plans to launch an "Agrobiodiversity Platform" to be coordinated by the National Bureau of Plant Genetic Resources (NBPGR) and it is proposed to undertake various case studies on agro ecosystem health assessment, especially in the context of climate change. Currently ICAR/NBPGR is spending about US\$ 1.63 million annually on similar activities (expected to rise to \$2 million annually). In addition supported by the Benefit Sharing Fund of the ITPGRFA, ICAR in partnership with Bioversity International, Gene Campaign and Humana People to People India (HPPI), is investing US\$ 0.6

million to ensure that rural communities are able to maintain and adapt traditional genetic diversity which have been collected and conserved in *ex situ* collections. However, this work remains primarily focussed on *ex situ* conservation, and with on farm conservation seen as a complementary strategy to *ex situ* conservation. Further development of on farm efforts will be needed to ensure effective mainstreaming and build on the existing framework provided by current government efforts.

Much needs to be done to provide integrated sets of tools, practices and policies for sustainable land management and use of agrobiodiversity as well as maintain the production level taking account of climate change that can be used not only by the NGO community but also by the substantial agricultural development systems that are in place in India. The project will address this through community's involvement in decision making and, by making communities more responsible for management of development programmes, will secure a greater sense of ownership of development interventions as outcomes of this project. The project stands on the pillars of community mobilization and participation and capacity building of village-level institutions to increase the sense of ownership for community resources and to develop community-based land management models for sustainable management of natural resources as an adaptive strategy to climate change. The project recognizes that this will also require action to address the regulatory and institutional constraints to mainstreaming of agrobiodiversity conservation into livelihoods, which is presently not being addressed by national programmes.

Strategies to increase consumer demand for diverse crop resources include improved processing, packaging and marketing of landrace products, public awareness initiative to educate consumers about the value of agrobiodiversity, and linking with other types of products, such as organic products are necessary for mainstreaming of agrobiodiversity. However, projects targeting such value addition to local landraces by increasing consumers demand are lacking in India for most of the food crops.

In view of the above, the proposed project plans to address the various challenges and barriers through strategic interventions at the national, regional and local levels that strengthen on farm maintenance, improve farmer involvement and participation, link conservation and use and contribute to the development of an improved policy framework and capacity. The work will be undertaken in four agro-ecoregions:

1. **Western Himalayas including the cold arid tract:** Rich genetic diversity occurs in wheat, barley (particularly hull-less types), buckwheat, prosomillet, amaranth, chenopods, field peas, lentil and several other crops, possessing adaptability to cold and tolerance to drought conditions. In barley, bluish/black grain types occur at high altitudes (above 3300 m). In wheat, both awned and awnless, tall types occur and collections from Lahaul and Spiti have exhibited resistance/tolerance to rust. Further, rich diversity in rice, maize, French bean, peas, buckwheat, amaranth and other crops occurs in the sub-humid hill regions of Jammu and Kashmir, Himachal Pradesh and Uttarakhand.
2. **North-eastern region and the Eastern Himalayas:** The tribal dominated belts of Mizoram, Manipur, Meghalaya, Tripura, Sikkim, North Bengal and parts of Nagaland and Arunachal Pradesh, are rich in local variability of cereals - rice, maize (including the primitive pop-corn), barley, wheat; pseudocereals - buckwheat, *Chenopodium*, amaranth and soft-shelled forms in *Coix*); millets - finger millet, foxtail millet; legumes - rice bean, winged bean, adzuki bean, black gram sem/*Dolichos*, soybean, sword bean, peas; oilseeds - *Brassica* spp., *Perilla*, sesame, niger; vegetables - cucurbits (*Cyclanthera*, *Cucurbita*, *Momordica*, *Cucumis*, *Luffa*, *Lagenaria*, *Benincasa*); fibres - *Corchorus* spp., tree cotton, kenaf and mesta; taro/yam and several other tuberous/rhizomatous/bulbous types, and in *Citrus*, *Musa* and bamboos.
3. **Western arid/semi-arid region:** In Rajasthan and Gujarat (including Saurashtra), rich diversity occurs in sorghum, pearl millet, moth bean, cluster bean, cowpea, black gram, green gram, Brassicae, sesame, cucurbits, forage legumes and grasses.
4. **Central tribal region:** Madhya Pradesh and adjoining tract of Maharashtra possess rich diversity in wheat, rice, sorghum, minor millets, grain legumes - particularly cowpea, chickpea, pigeonpea, black gram and green gram; oilseeds - niger, sesame, Brassicae; and cucurbits.

These agro-ecoregions have been chosen because they are rich in agrobiodiversity of the target crops and are

different geographically, ecologically and culturally. These four agro-ecoregions include a range of agro-ecosystems allowing for the conservation of varieties with a range of characteristics supporting the adaptation of agro-ecosystem at a global level. At the same time, they have common problems of increasing population and rapid development leading to land use and land cover changes, which is exerting pressure on the local agrobiodiversity. All the regions also have been selected on the basis of their current process of implementation of Biological Diversity Act, 2002 and preparedness of the State Governments for the conservation and sustainable use of agrobiodiversity.

Using a landscape framework, target project sites across the four agro-ecoregion will be selected through baseline surveys undertaken during the implementation of PPG grant of this proposal and will comprise a mixture of households and communities with varying degrees of vulnerability and risk, and capacity to increase production and improve livelihoods through conservation and use of crop diversity. The project will focus on a set of crops which still have high crop diversity available on farm and are important for food and nutrition security of small and marginal farmers in India as well as having global significance. The selected crops are at risk of becoming increasingly marginalized and, despite their adaptability and potential for enhancing resilience, receive little attention from the scientific and agricultural community, both at national and global level. Of this large group of crops, the following crops are proposed which need immediate intervention: Rice (*Oryza sativa*), Wheat (*Triticum aestivum* and *Triticum durum*), Barley (*Hordeum vulgare*), Buckwheat (*Fagopyrum esculentum*), Finger millet (*Eleusine coracana*), Pearl millet (*Pennisetum glaucum*), Sesame (*Sesamum indicum*), Pigeonpea (*Cajanus cajan*), Chickpea (*Cicer arietinum*), Black gram (*Vigna mungo*), Green gram (*Vigna radiata*), and Moth bean (*Vigna aconitifolia*).

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:

The project will provide direct support for *in situ* conservation of the unique diversity of crop traditional varieties that occur in the four selected agro-ecoregions. In this way it will directly respond to India's NBAP undertaking, in particular, activities relevant to Section 5.1 (Strengthening and integration of *in situ*, on farm and *ex situ* conservation) and Section 5.9 on building national capacities for biodiversity conservation. This will complement existing activities on *ex situ* conservation and support the continued maintenance of traditional varieties in production systems, ensuring their continuing evolution and adaptation to changing climatic conditions. Working with farmers and communities will help secure maintenance through the contribution that such varieties will continue to make to rural livelihoods.

Further it will address the development of appropriate strategies and actions that will ensure that agrobiodiversity supports the resilience and adaptability. In this context, this project would bring different stakeholders closer and will further strengthen the partnership for sustainable conservation and use of crop diversity and environmental protection. This project will thus provide the required stimulus and operational framework to bring the different actors together, including farmers, in ways that are relevant to the small-scale farmers and communities involved. GEF involvement will support the necessary integration, coordination and collaboration between stakeholders, adding value to the project in terms of linking mainstreaming actions at the community level to wider policy perspectives and initiatives, which is very weak. The project also addresses the development of appropriate agriculture biodiversity strategies and policies that will provide a framework for supporting the resilient agriculture, thus maximizing effective conservation and use of agricultural biodiversity. The overall aim of the project is thus to ensure that rural communities are able to maintain existing traditional crop diversity and its mainstreaming as well as to have access to new crop diversity in the existing farming system that will ensure a more resilient agricultural production landscape.

The project will take advantage of the on-going project on "Conservation and sustainable use of cultivated and wild tropical fruit diversity: promoting sustainable livelihoods, food security and ecosystem services" (TFTGR),

being implemented in India as part of a regional GEF project which has developed conceptual model of community-based approaches (Community Biodiversity Management) for managing and using local biodiversity to realize *in situ* and *on farm* conservation of agricultural biodiversity, including participatory tools and methods to communicate knowledge and information effectively and efficiently with farming communities to empower local institutions; develop custodian farmers networks; select elite material; establish community nurseries/seed production; promote use in local food culture; protect diversity in conservation blocks and to create added value products for income generation.

The project will build on the TFTGR project by embedding the key lessons learnt in that project. Thus, the design of this project reflects the importance of (a) ensuring that governmental agrobiodiversity R&D agencies are able to adopt participatory approaches that empower local communities, (b) strengthening linkages between government institutions and relevant NGOs, (c) adopting new approaches for training of trainers, and (d) strengthening the involvement of the private sector using participatory market chain approaches.

To incorporate these key elements, the project will take up and carry forward several novel and emerging participatory tools & methods such as Four Cell Analysis to gauge the level of diversity, Venn diagram/CLIP method to identify local institutions, Diversity Fairs to create awareness, Community Biodiversity Register to document and monitor diversity, to identify Good Practices and Custodian Farmers and participatory tools to identify value added products and market opportunities such as Rapid Market Appraisal and Impact filters. These approaches, methods & tools are closely linked and integrated with some of the key methods and tools of the project such as Participatory Plant Breeding and Participatory Variety Selection/Evaluation. The project will make use of the knowledge and framework developed for selecting high diversity and high potential impact sites, communities and farmer groups by using specific indicators (e.g. diversity rich areas, proximity to forest and buffer zones with wild relatives, income level, feasibility etc) and identifying impact groups (e.g. rain fed farming households, smallholders, women groups, agricultural laborers, collecting traders etc).

The project will actively contribute to the creation of a practitioners platform in India that can facilitate close linkages between several important players within the field of community-based agrobiodiversity conservation such as Gene Campaign, HPPI, Dhan Foundation, Lifetrust, LIBIRD, ATREE, BAIF, Swaminathan Foundation, Green Foundation, Society for Sustainable Agriculture among others and market development oriented players such as Access for Development. This will improve coordination, help mobilize direct financing and integrate *on-farm*, *in-situ* and *ex-situ* conservation programmes and projects and create a stronger and sustainable footing for advocacy and the direct involvement of policy makers. The project is thus expected to support policy implementation regarding the sustainable use of agricultural biodiversity and farmers' rights. It builds on the lessons learnt from the TFTGR in its design and takes forward the TFTGR work through its emphasis on a different range of crops (annuals), wider geographic range and focus on linking a wide alliance of concerned organizations with government agencies.

The project will add to the on-going efforts of the National Biodiversity Authority (NBA) and Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA) of India on developing public awareness and partnership programmes on ABS and establishing NGO and private sector partnership to further strengthen the ABS aspects of existing legislation. Since this project requires researchers working closely with farmers and farming communities for its success, the capacity of researchers in participatory research methods, which is presently also lacking in the country, will be enhanced through the implementation of this project. In addition, the project will develop and integrate multidisciplinary, multi-institutional and multi-sectoral approach to address the issues that have been highlighted.

Under this project, efforts will be made to mainstream existing on farm diversity and incorporate new adaptive crop diversity within agricultural production systems. How agriculture can be intensified while enhancing crop diversity conservation is a critical question that this project plans to address. A model approach on linking crop diversity conservation with livelihood security will be developed under this project, which can be suitably replicated to other agroecological regions. In this way the project will build on current Indian strengths adding new capacities and approaches that secure unique agrobiodiversity *in situ*.

In addition to the direct benefits to Indian agrobiodiversity maintenance and mainstreaming and conservation of unique biodiversity as mentioned above, the project will provide global benefits which includes: (i) conservation of unique genetic and ecosystem agrobiodiversity in the respective hot spots across the Indian centres of diversity in four key agro-ecoregions; (ii) more effective mainstreaming of agrobiodiversity in globally significant agro-ecoregions through increasing the availability of diversity and strengthening the conditions needed for its improved deployment to provide improved livelihoods for local farmers; (iii) providing a policy and technical framework and ABS systems so as to ensure continued access to and use of crop agrobiodiversity for sustainable production, thus reducing potential damage from undesirable agricultural inputs; and (iv) providing enhanced resilience and adaptability in the face of climate change thus providing long term adaptation (and possibly mitigation) options.

Unique genetic diversity found in Indian traditional varieties of the target crops will be conserved through this project and, through the emphasis on conservation on farm, evolution and continuing adaptation will be secured. Valuable characteristics that will be maintained are expected to include adaptation to drought, tolerance to eco-edaphic stresses, resistance to pests and diseases including tungro virus and bacterial blight (rice), rust (wheat), and yellow rust, loose smut and powdery mildew (barley). Important unique diversity for valuable agronomic traits has also been identified in pearl millet, chickpea, pigeonpea and mung bean. The maintenance of traditional varieties will also support maintenance of important properties such as straw for roofing and cattle feed, for which modern varieties are often poorly suited. Varieties which are used in special religious or cultural ceremonies and celebrations and other crop varieties which are used to meet nutritional needs will also be maintained.

In addition to the global environmental benefits derived from the maintenance of unique gene diversity and combinations of useful traits, the target crops provide the essential crop framework for the maintenance of the integrated agro-ecosystems that have been selected for the project. The maintenance of the target crop diversity is expected to provide a necessary element in the maintenance of these agro-ecosystems, the ecosystem services they provide and the associated biodiversity found in them (e.g. pollinators, soil biota, useful wild medical and other species occurring in surrounding landscapes).

The project will also contribute to global benefits through links with several other on-going projects and by making available new tools such as climate analogues and mapping of similar agro-ecological sites to current and predicted future climate, experiences and methodologies developed during the project as part of an ongoing commitment to supporting the maintenance and use of agrobiodiversity worldwide.

The incremental activities proposed in the three components of the proposal are supporting and complementing each other. In order to avoid duplication actions and to optimize economic resources and obtain positive impacts, strategic alliances will be developed and actions will be coordinated with national and state government agencies and local NGOs.

Component 1. Adaptive management for conservation and use of crop agrobiodiversity for resilient agriculture and sustainable production.

Through detailed surveys and information synthesis existing diversity of the target crops will be documented on farm and gaps in local diversity (from past losses of traditional varieties or from changing conditions) which can strengthen adaptation and resilience will be identified. Existing adaptive crop diversity as well as new diversity will be mainstreamed through the establishment of farmers field experimental networks and strengthening of local seed system networks, as well as through capacity building of farmers and local institutions. Further, the project will add value to the traditional crop diversity with respect to resistance to biotic and abiotic stresses and important quality and nutrition traits. Links between farmers, extension workers and researchers will be strengthened through PVS and PPB programmes and the development of ways of building Public Private Partnerships (PPP). Sustainability of project outputs will be ensured through the establishment of 16 community genebanks across the four agro-ecoregions and the community based local seed system will be strengthened to

provide better access of diversity by smallholder and marginal farmers. In order to upscale the project outcomes and outputs, four Farmers' Climate Field Schools (FCFSs) and 16 Village Climate Risk Management Committees (VCRMCs) will be established to strengthen the capacity of farmers and rural communities to conserve and manage crop diversity and support base-broadening of farming systems at village level. Ultimately it is expected that about 25,000 households will benefit and be able to use adaptive crop diversity for income generation and improved livelihood in about 150,000 ha of land across the four agro-ecoregions. This project will also map and assess the threat due to current and future climate change for the target crops diversity, both at inter- and intra-species level, through the use of modern technologies such as GIS, climate analogues and crop modelling.

Through the partnership of national and local governmental organizations, NGOs, indigenous and farmers' organization across the four agro-ecoregions of India, Component 1 will promote: (i) implementation of local territorial development and land-use plan incorporating *in situ* conservation of agrobiodiversity; (ii) systematic mapping of characteristics of local varieties for the future resilience of target specific agro-ecological system as well as similar agro-systems; (iii) strengthening of local seed banks and seed systems multiplying and distributing local varieties through seed exchange fairs and sustaining the up-scaling of the use and conservation of agrobiodiversity; (iv) up-scaling of sustainable incorporation of best practices for agrobiodiversity conservation and use in agro-ecosystem, product processing value, and market through a label system guaranteeing that the products come from production system and practices favourable to the maintenance of agrobiodiversity.

Component 2. Strategies and policies for sustainable conservation and use of crop diversity.

Based on the outcomes of Component 1, the project will develop policy recommendations and guidelines for the sustainable use and conservation of crop diversity to be integrated into national and regional plans for agriculture and in the national extension packages through national and state government agencies for its wider adaptation. The project will analyse current policies and regulations to identify current incentives and gaps in respect of the maintenance of agrobiodiversity. It will build the necessary strategic alliances between different types of stakeholders (including farmers groups, institutions, government and regional ministries and agencies, civil society organizations and indigenous peoples groups). It will also undertake actions that strengthen local seed systems and identify the policies needed to ensure that farmers have access to both an improved diversity and an improved quality of seeds (these are often seen as conflicting objectives). The project will closely liaise with National Biodiversity Authority (NBA) and Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA) of India to promote and organise awareness and capacity building programmes on ABS and will promote farmers and communities to register local diversity with these authorities for benefit sharing, if there are any. It is expected to have at least six ABS with farmers communities across the four agro-ecoregions proposed for this project. Component 2 will concentrate on the specification of policies and programmes, implementation of policies through a concrete strategy and by integrating agrobiodiversity conservation in the planning of local state development and land-use plans, and by strengthening the implementation of ABS through capacity building and awareness raising workshops.

Component 3. Institutional frameworks, increasing capacity and building partnership among policy-makers, researchers, extension workers and farmers.

This component will address education and awareness-raising programmes for all stakeholders, including decision-makers, farmers, extension workers, researchers, teachers, and consumers and their respective representative organizations. Thus, awareness programme and workshops will be organised for policy makers to make sure that conservation and use of crop diversity remains high on the agenda of Government of India and attracts more funding support. Enhanced capacity of farming communities and local institutions will be needed to support selection and deployment of crop diversity and strengthen local seed systems. Training of researchers will build their capacity to work in partnership with farmers and enhance national capacity in identifying threats for climate change and identification of local crop diversity for adaptation for sustainable production. The incremental resources under this component will also be used for awareness of teachers and consumers. Through education, awareness raising and training programmes and incorporation in the curriculum of rural education centres these actors will get increased knowledge and awareness of ecological, cultural and nutritional value of native agrobiodiversity. The project will also develop and strengthen coordination mechanism for climate change

adaptation through the use of crop diversity.

Without the components proposed in this project, India risks losing an opportunity for a globally relevant, systematic mainstreaming of agrobiodiversity into Regional and International protocols. In the absence of this project, agrobiodiversity conservation will remain lacking from development goals and receive less support from public policy and these ecosystems, rich in unique diversity of the target crops, will continue to face the threat of genetic erosion and the loss of valuable genetic resources for ever. 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 across the four proposed agro-ecoregions of India.

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 (LDCF/SCCF). As a background information, read [Mainstreaming Gender at the GEF.](#)"

The immediate beneficiaries includes: farmers, farming communities, scientists, researchers, and policy-makers. The various benefits as an outcome of this project are described below:

Rural and tribal communities and more broadly the farming community in India will be beneficiaries of this project. With the increasing feminization of agriculture and the rise in women headed farm households, women's knowledge of agrobiodiversity and access to this diversity will enable them to effectively use plant genetic resources to stabilize and enhance the food available for the family. Compiling the properties of traditional varieties will give them the flexibility to make effective choices both on the farm and at home when they select appropriate varieties for keeping and cooking qualities.

The work will help farmers adapt their agriculture to climate turbulence by giving them a range of local adaptive varieties to select from what is best suited to their particular land type and agriculture conditions. The concept of genetic diversity as a major adaptation mechanism to cope with global warming and climate change will receive greater acceptance and therefore better policy and financial support. The food security of the region and areas beyond it will get great support from this program which apart from deploying genetic diversity for stabilizing agriculture productivity, will also build skills to conserve and use these resources at the local level for the benefit of the farming community. Farmers and scientists will be better equipped to engage in PPB with a number of well characterized varieties available to breed high performance varieties suited to local conditions.

The national and international scientific community and their research and breeding programs will benefit from access to germplasm of target crops, the properties of which have been accurately documented through field characterization and the knowledge collected from the farm families. This characterization will help to identify useful traits for breeding like tolerance to biotic and abiotic stress, yield, keeping and cooking quality, etc. The training and awareness programs, diversity fairs, farmer exchange visits, etc. will sensitize farmers again about the importance of crop genetic diversity to food security and the crucial need for its conservation. A scientifically managed program of this kind will give them the confidence to rely on traditional varieties for improving productivity when faced with uncertain weather.

The establishment of Farmers Climate Field Schools, strengthening local seed systems and establishing community seed banks will facilitate *in situ* conservation by conserving existing local crop diversity as well as returning lost traditional varieties either from national genebanks or from a similar agro-ecoregion and make available a range of varietal options to farmers to fit into their land types. The implementation of this program will sensitize the scientists in participating institutions and the broader scientific community, about the crucial role of agrobiodiversity in stabilizing food production when faced with global warming and climate turbulence. Policy makers should be encouraged by the successful outcome of this project to shift policy in favour of conservation and sustainable use of PGR and give this the centrality in agriculture planning that it deserves.

The project not only promotes activities to enhance the ability of 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:

Risk	Level	Mitigation Strategy
Suitable diversity does not exist or is not available within the project communities 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 sites 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. If necessary, this diversity will be supplemented by accessions from the National Gene Bank.
Decision-makers and farmers do not cooperate and are not open to the adoption of diversity approaches, limiting sustainability	M	The project aims to place farmers and their needs at the centre of activities and the design phase seeks to involve farmers in order to develop working practices that reflect their needs and concerns in diversity management. Sustainability of the project will be achieved when farmers and communities are able to benefit from diversity rich approaches.
The political environment fails to remain stable and favourable with regard to the project	L	India has a stable research and development agenda in place, which seeks to respond to the needs of the rural poor. The project has been designed to align with India's biodiversity conservation priorities and to work using a complementary approach to facilitate political engagement and support.
Policy-makers and partners fail to remain committed to project implementation and open to collaboration	L	The development of the project will rely on partnerships with a representative set of stakeholders of all levels. Feedback will be collected and consultations held throughout the project to ensure continued commitment to the project.
Availability of adequate funding	L	The project team will continue to explore local and international opportunities for funding to promote the sustainability of the project. The project will also seek to identify key partners which may be able to offer expertise and support through in-kind contributions. Further, the project activities are linked to National Agricultural Policy and National Action Plan for Climate Change, which are committed to support such initiatives as described in this project.
Progress may be uneven across project sites and ecosystems	M	Addressing this risk will be built explicitly into the M&E strategy, determining roles and responsibilities for all actors and identifying potential bottlenecks and solutions.
Partner teams may be unable to develop the trust of households in vulnerable communities, resulting in a poor understanding of how local	M	Project teams will be recruited from participating communities, and will be trained in participatory data gathering, participatory research approach and in gender sensitivity.

biodiversity fits into production systems.		
Climate risk	L	The core idea of the project is to buffer communities to climatic risks, even if climate change does not take place to the projected level, adaption to current climates for community livelihood protection is still a priority. Therefore, the project will still be of value to local counterparts.

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, extension workers, local educational institutions, community-based organizations and indigenous peoples will benefit from representative partnerships built with local and national researchers and other relevant organizations in India through the implementation of this project. Staff of local and national research and education institutes in India will benefit from receiving specific training on how to use diverse local crop materials and local knowledge, and how to apply econometric methods 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 Ministry of Agriculture and the Ministry of Environment and Forests 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. Indigenous community groups will be active participants in the project as noted below (e.g. NESFAS). Private sector consumers and retailers will be active partners in the development of diversity rich practices; this will include activities and public awareness campaigns to change consumer norms and behaviours to support agricultural production systems that use local crop genetic diversity to reduce vulnerability in farmers' fields. The following key stakeholders have been identified:

1. Ministry of Agriculture, New Delhi
2. Ministry of Environment and Forests, New Delhi
3. National Bureau of Plant Genetic Resources, New Delhi
4. Indian Agricultural Research Institute, New Delhi
5. Central Arid Zone Research Institute, Jodhpur, Rajasthan
6. All India Coordinated Research Project on Small Millets, Bangalore, Karnataka
7. All India Coordinated Research Project on Pearl Millet, Jodhpur, Rajasthan
8. Central Research Institute for Dryland Agriculture, Hyderabad, Andhra Pradesh
9. ICAR Research Complex for NEH Region, Barapani
10. Indian Institute of Pulses Research, Kanpur, Uttar Pradesh
11. National Biodiversity Authority (NBA) of India, Chennai
12. Protection of Plant Variety and Farmers Rights Authority (PPV&FRA), New Delhi
13. Govind Ballabh Pant University of Agriculture and Technology, Pantnagar
14. Maharana Pratap University of Agriculture and Technology, Udaipur
15. Ch. Sarvan Kumar Krishi Vishvavidyalaya, Palampur
16. Gene Campaign - NGO
17. Humana People to People (HPPI) - NGO
18. Seva Mandir - NGO
19. Society for Conservation of Natural Resources and Empowering Rural Youth - farmers organization
20. North East Slow Food and Agrobiodiversity Society (NESFAS), Meghalaya – indigenous civil society
21. Meghalaya Rural Development Society (MRDS) - local institution
22. Action for Social Advancement, Bhopal - NGO

B.6 Outline the coordination with other related initiatives:

The proposed project will build on lessons learnt from a number of past and current national, regional and global agrobiodiversity management initiatives.

At the national level, direct links will be developed with the several initiatives coordinated by the Indian Council of Agricultural Research under the National Agricultural Innovation Programme addressing the rural livelihood security through innovation in land and ecosystem management and strengthening institutional and community capacity on sustainable land and ecosystem management approaches. These include the following projects:

1. Harmonizing biodiversity conservation and agricultural intensification through integration of plant, animal and fish genetic resources for livelihood security in fragile ecosystems.
2. Strategies to enhance adaptive capacity to climate change in vulnerable regions
3. Strategies for sustainable management of degraded coastal land and water for enhancing livelihood security of the farming communities

The project design will also ensure that proper coordination is maintained with the national projects supported by the Benefit Sharing Fund of the ITPGRFA: "Seeds for Life – Action with farmers in Uttar Pradesh – Indo-Gangetic Plains (IGP) region to enhance Food Security in the context of Climate Change" and "Using rice genetic diversity to support farmers' adaptation to climate change for sustainable production and improved livelihoods in India" and with the project jointly implemented by the National Bureau of Plant Genetic Resources (NBPGR) and the Bioversity International on "Utilization of *ex situ* collections and climate analogues for enhancing adaptive capacity of farmers to climate change"

Collaboration and linkages with several regional and national projects implemented by the Indian Government in collaboration with IFAD, listed below will contribute to the achievement of the proposed project goals. These among others include several agriculture and rural development projects in Meghalaya focused on sustainable agriculture production and improving livelihoods of marginal farmers; the North Eastern Region Community Resource Management Project, a livelihood and rural development project aiming to transform the lives of the poor and marginalized tribal families in North East India.

The proposed project will also establish close linkages, and seek full complementarity with IFAD funded project "*Reinforcing the resilience of poor rural communities in the face of food insecurity, poverty and climate change through on-farm conservation of local agrobiodiversity*" implementation in Bolivia, India and Nepal. The project seeks to facilitate more effective use, management and conservation of local agrobiodiversity by communities and stakeholders, particularly in the context of food security, nutrition, income generating potential and adaptation to climate change.

Direct links will be developed with "*Community based Biodiversity Management for Climate Change Resilience*" project implemented in 11 countries (Bangladesh, Benin, Brazil, Ecuador, India, Guatemala, Malawi, Nepal, Nicaragua, Zambia, and Zimbabwe) and funded by the ITPGRFA. The project seeks to develop Strategic action plans (SAPs) to integrate 'Community based biodiversity management' (CBM) as strategy for on-farm management of plant genetic resources for food and agriculture and community resilience that ensure sustainable food security in Africa, Central and Latin America and South Asia. The proposed project will build on the results on methodologies to mainstream community biodiversity practices into national and regional frameworks.

The project will draw important lessons from the "Payments for Agrobiodiversity Conservation Services" project coordinated by Bioversity International in collaboration with the M S Swaminathan Research Foundation (MSSRF), India; the Fundaciyn para la Promociyn e Investigaciyn de Productos Andinos (PROINPA), Bolivia; the Centro de Investigaciyn de Recursos Naturales y Medio Ambiente (CIRNMA), Peru; and the Department of Land Economy, University of Cambridge, United Kingdom.

The proposed project will benefit from the results and lessons learned from a number of major international UNEP/GEF projects concerned with different aspects of the maintenance and use of agrobiodiversity that have recently concluded or are still ongoing. These are summarized in the UNEP publication "*Securing Sustainability*

through the Conservation and Use of Agricultural Biodiversity” and cover crop traditional varieties, Central Asian horticultural species, tropical fruits, soil biodiversity, pollinators and the use of biodiversity to manage pests and diseases. The results of these projects will be reviewed during the project preparation phase and the relevant findings, methods and approaches will be taken into consideration during the development of the proposed project. Some of the most relevant initiatives are described below.

The project will take forward some major outputs and results from the UNEP/GEF project “*Conservation and sustainable use of cultivated and wild tropical fruit diversity: promoting sustainable livelihoods, food security and ecosystem services*” which aims at strengthening sustainable livelihoods through improved management and utilization of tropical fruit genetic diversity by strengthening the capacity of farmers, local communities and institutions in Indonesia, India, Malaysia, Thailand. As described above, the tools, methodologies and generic lessons related to conservation of diversity, support of stakeholder benefits and building capacity leadership and partnerships from this project will be studied and considered for their potential use by the partners of the proposed project

The project will link with the expertise developed in the UNEP/GEF project “*In situ/on farm conservation and use of agricultural biodiversity (horticultural crops and wild fruit species) in Central Asia*”, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and exchange information with partners on the provision of knowledge, methodologies and enabling policies to help farmers, institutes and local communities.

The proposed project will closely collaborate with the UNEP/GEF project “*Conservation and Management of Pollinators for Sustainable Agriculture through an Ecosystem Approach*” implemented in Brazil, Ghana, India, Kenya, Nepal, Pakistan, South Africa. The scope of the project is fully complementary to this proposal, particularly the activities related to the strengthening the importance of linkages between conservation of ecosystem functions and sustainable production systems.

Direct links will be also developed with the UNEP/GEF project “*Strengthening the implementation of the Biological Diversity Act and Rules with focus on its Access and Benefit Sharing Provisions*” implemented in India. This ongoing project deals with assessing and quantifying the economic value of biological diversity present at local, state and national levels using appropriate methodologies to determine benefit sharing which will help in better implementation of the Act and inform national decision makers on prioritizing conservation action.

The proposed project will also take forward relevant outputs and lessons learned from the following UNDP/GEF projects: “Strengthening Institutional Structures to Implement the Biological Diversity Act”. “Sustainable land management in shifting cultivation areas of Nagaland for ecological and livelihood security”; Sustainable participatory management of natural resources to promote ecosystem health and resilience in the Thar desert ecosystem; “Integrated land management to combat land degradation in Madhya Pradesh”; and the World bank/GEF project “Sustainable rural livelihood security through innovations in land and ecosystem management”.

The project will also ensure complementarity with the UNEP “SWITCH-Asia” regional project supported by the European Commission. The overall objective of the project is to strengthen national and regional policy frameworks to promote the shift towards more sustainable consumption and production patterns and resource efficiency. The proposed project will draw on best practices implemented in the entire Asian region on mainstreaming sustainable consumption and production and resource efficiency policies in national plans and strategies and their further implementation.

Other relevant national, regional and international initiatives will be further reviewed during the project preparation phase and coordination mechanisms will be established where appropriate with the proposed project which will help to identify potential synergies and avoid duplication efforts.

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. The organisation has the mandate of advancing global environmental protection, particularly with its current Medium Term Strategy and its strategic framework for 2010-2011 and 2012-2013 for Subprogramme 3 (Ecosystem Management) and Subprogramme 4 (Environmental Governance). Subprogramme 3 focuses on facilitating cross-sectoral, integrated approaches to ecosystem management; Subprogramme 4 on ensuring that environmental governance at country, regional and global levels are strengthened to address agreed environmental priorities. The project will also feed policy recommendations into the UNEP-led initiative on "Sustainable Agri-Food Systems" under the Marrakech Process and will contribute to follow-up on the Millennium Ecosystem Assessment (MEA) and International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD).

The project is in line with the collaboration between UNEP and ITPGRFA in the area of conservation and sustainable use of the plant genetic resources for food and agriculture. UNEP has been a strategic partner of the ITPGRFA for managing and ensuring appropriate developments in the field of access and benefit-sharing (ABS) for genetic resources. This strategic partnership was recently formalized in a MOU. The MoU spells out wide-ranging collaboration, focusing on ABS for genetic resources, capacity building and joint promotion of agrobiodiversity. UNEP has been also invited to become one of the Implementing Entities of the Benefit-sharing Fund of the ITPGRFA.

The project also benefits from UNEP's comparative advantage among the GEF implementing agencies in using scientific knowledge to inform and underpin policy and decision-making related to the global environment. 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. A further comparative advantage of UNEP lies in its broad range of project experiences as GEF Implementing Agency in the area mainstreaming biodiversity conservation and sustainable use in agriculture production sector. Over the past ten years, UNEP and GEF have worked together on eleven innovative agrobiodiversity projects. Together these projects have demonstrated agrobiodiversity's potential to contribute to overall biodiversity maintenance and ecosystem function, as well as to better nutrition, increased food security and improved well-being in rural communities. In implementing these projects, UNEP has provided support to 34 countries in Africa, Asia and Latin America and made a direct contribution to national planning strategies in these countries.

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 US\$ 8,934,750 from different national and international partners. The preliminary estimation of UNEP's direct in-kind contribution to this project is some US \$100,250 estimate on the basis of the technical input that will be provided to the project by UNEP staff to project design, implementation and M&E. During the project preparation phase UNEP will define further opportunities for additional contributions from relevant parallel initiatives implemented in India with a range of external partners. This will include, but is not limited to UNEP ongoing projects, i.e.: "New approaches and management tools for efficient use of natural resources in rural areas", implemented in India, Nepal and China with total budget US \$70,000 and the large scale regional programme involving 19 Asia countries "SWITCH-Asia" aiming to assist Asian countries including India to implement policies to SWITCH to sustainable patterns of consumption and production with a total budget of Euro 5,7 million.

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

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 agrobiodiversity for food security, the linkages to the climate change challenge and to the issues related to the ecological foundation of the world food system. 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) 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 current work in assisting national partners, including India, 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 addition, the project will find important knowledge and support from the Economics of Ecosystems and Biodiversity (TEEB) initiative in UNEP. UNEP TEEB team is promoting TEEB study outcomes and follow-up in the region and is planning to provide substantive support and follow up of national efforts of application of the TEEB approach in India. The project will also fully benefit from UNEP's ongoing work in Asia, including India within the framework of the SWITCH-Asia Programme on sustainable policies and innovation for resource efficiency. The overall objective of this Programme is to strengthen national and regional policy frameworks to promote the shift towards more sustainable consumption and production patterns and resource efficiency.

UNEP has participated in the development of the current UNDAF for India (2013-2017) which calls for UN System support in achieving inclusive growth, improving food and nutritional security, promoting gender equality, ensuring access to quality basic services, strengthening decentralisation and delivering sustainable development. The project would support UNEP's contribution to Outcome 6: *Sustainable Development*. Under this outcome UNEP will support the Indian Government by focusing on supporting a green economy through resource efficiency (sustainable production and consumption), environmentally sound management of hazardous substances, the implementation of the Cartagena Protocol on biosafety, and the application of eco-systems management in the agricultural sector as well as valuation of eco-systems goods and services. UNEP will also support in developing recognized information tools - standards, labels, reporting - to enable individual and institutional consumers to make informed choices. The proposed project is also aligned with Outcome 3: *Gender Equality* and Outcome 2: *Food and Nutrition Security*.

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. Within the framework of the Memorandum of Understanding for collaboration with CGIAR centres, 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 (Office for South Asia in India), 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.


UNEP supervision of the project is to be carried out by UNEP/DEPI-GEF Liaison Officer, Agrobiodiversity outpost in FAO, Rome, Italy. UNEP supervision will be further enhanced by technical staff located in UNEP's Regional Office for Asia and Pacific (ROAP) located in Bangkok and regional networks and platforms supported by the ROAP. Technical support will be also provided through UNEP's headquarter staff in the Division of Environmental Policy Implementation (DEPI) and Division for Environmental Law and Conventions (DELC).

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):

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mr. Hem Kumar PANDE	Joint Secretary	Ministry of Environment and Forests	09/04/2012

B. GEF AGENCY(IES) CERTIFICATION

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.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
GEF Agency Coordinator: Maryam Niamir-Fuller Director, GEF Coordination Office, UNEP		01/24/2013	Marieta Sakalian, PhD UNEP Senior Programme Management /Liaison Officer (CGIAR/FAO), Biodiversity	+39 06570 55969	Marieta.Sakalian@unep.org