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Программа Организации Объединенных Наций по окружающей среде      برنامج الأمم المتحدة للبيئة

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## PROJECT DOCUMENT

### SECTION 1: PROJECT IDENTIFICATION

- 1.1 Project title:** Mainstreaming Biodiversity Conservation and Sustainable Use for Improved Human Nutrition and Well-being
- 1.2 Project number:** GFL/492  
PMS: 3808
- 1.3 Project type:** FSP
- 1.4 Trust Fund:** GEF
- 1.5 Strategic objectives:**
- GEF strategic long-term objective: BD1 Biodiversity Strategic Objective 2 (SO2): To mainstream biodiversity in production landscapes/ seascapes and sectors
- Strategic programme for GEF IV: SP4: Strengthening the policy and regulatory framework for mainstreaming biodiversity  
SP5: Fostering markets for biodiversity goods and services respectively
- 1.6 UNEP priority:** Ecosystem management
- 1.7 Geographical scope:** Global multi-country: Brazil, Kenya, Sri Lanka, Turkey
- 1.8 Mode of execution:** External
- 1.9 Project executing organization:** Bioversity International (Italy), Ministerio do Meio Ambiente, Secretaria de Biodiversidade e Florestas (Brazil), Kenya Agricultural Research Institute, Ministry of Environment/Department of Agriculture (Sri Lanka), General Directorate of Agricultural Research (Turkey)
- 1.10 Duration of Project:** 60 months  
Commencing: November 2011  
Completion: October 2016

## 1.12 Project summary

The Development Goal of the Project is to contribute to the improvement of global knowledge of biodiversity for food and nutrition and thereby enhance the well-being, livelihoods and food security of target beneficiaries in Brazil, Kenya, Sri Lanka and Turkey through the conservation and sustainable use of this biodiversity and the identification of best practices for up-scaling. The Project Objective is to strengthen the conservation and sustainable management of agricultural biodiversity through mainstreaming into national and global nutrition, food and livelihood security strategies and programmes. The Project will seek to achieve these goals and objectives through implementation of three components which designed to improve: the knowledge base (Component 1); the policy and regulatory framework (Component 2); and awareness and outscaling (Component 3). Global knowledge will encompass globally relevant tools, lessons and best practices.

The countries involved in this Project (Brazil, Kenya, Sri Lanka and Turkey) represent some of the world's most mega-diverse countries thanks to the extraordinary diversity of ecosystems and species existing within their borders. They each contain unique biological diversity, and associated traditional ecological knowledge (TEK), that supports a large share of the world's food supply in a range of ecosystems that are global priorities for conservation. Due to the fact that the biodiversity in these four participating countries is so vast, the use of these indigenous, largely plant, genetic resources is still scarcely explored, appreciated or conserved.

The Project will work closely with a range of stakeholders and beneficiaries including farmers and communities, NGOs, universities and government agencies across relevant sectors including environment, health, agriculture and education. The Project also brings together a strong platform of international partners with extensive networks and outreach, which will contribute substantially to the cost-effectiveness of a global approach through extensive dissemination and up-scaling of Project results and outcomes and other benefits which emerge from a global context.

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## ACRONYMS AND ABBREVIATIONS

ABS	Access and Benefit Sharing
AGRA	Alliance for a Green Revolution in Africa
AHRP	Agriculture and Health Research Platform
ALVs	African Leafy Vegetables
ASDS	Agricultural Sector Development Strategy of Kenya
BCP	Biocultural Community Protocol
BIP	Biodiversity Indicators Partnership
BFN	Biodiversity for Food and Nutrition
CAADP	Comprehensive Africa Agricultural Development Program
CBD	Convention on Biological Diversity
CBM	Community-based biodiversity management
CBR	Community biodiversity registers
CDR	Complex, diverse and risk-prone
CGIAR	Consultative Group on International Agricultural Research
CIMMYT	International Maize and Wheat Improvement Centre
CINE	Centre for Indigenous Peoples' Nutrition and Environment
CIP	International Potato Centre
CONSEA	Brazilian National Council for Food Security and Nutrition
COP	Conference of the Parties
CRPs	CGIAR Research Programmes
EMBRAPA	Brazilian Agricultural Research Corporation
ERS	Economic Recovery Strategy
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FSNP	Food Security and Nutrition Policy of Kenya
GAIN	Global Alliance for Improved Nutrition
GEF	Global Environment Facility
GPA	Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture
GSPC	Global Strategy for Plant Conservation
HKI	Helen Keller International
HORDI	Horticultural Research and Development Institute of Sri Lanka
ICARDA	International Centre for Agricultural Research in the Dry Areas

ICRAF	World Agroforestry Centre
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
IK	Indigenous Knowledge
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for the Conservation of Nature
KARI	Kenya Agricultural Research Institute
KENRIK	Kenyan Resource Centre for Indigenous Knowledge
LEK	Local Ecological Knowledge
MARA	Ministry of Agriculture and Rural Affairs of Turkey
MDGs	Millennium Development Goals
MEA	Millennium Ecosystem Assessment
NARES	National agricultural research and extension systems
NARS	National Agricultural Research Centres
NGOS	Non-Governmental Organizations
NBSAP	National Biodiversity Strategy and Action Plans
NEPAD	New Partnership for African Development
NFR	Novel Foods Regulation of the European Union
NMK	National Museums of Kenya
PAA	Food Procurement Programme of Brazil
PNAE	School Meals National Programme of Brazil
PPG	Project Preparation Grant
PRSP	Poverty Reduction Strategy Paper of Kenya
SBSTA	Subsidiary Body for Scientific and Technological Advice
SRA	Strategy for Revitalizing Agriculture
TAGEM	General Directorate of Agricultural Research of Turkey
TEK	Traditional Ecological Knowledge
UNEP	United Nations Environment Programme
UNICEF	United Nation Children's Fund
UNSCN	United Nations Standing Committee on Nutrition
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WFS	World Food Summit
WHO	World Health Organization

## SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

### 2.1. Background and context

1. Productive terrestrial and marine ecosystems, both wild and managed, are the source of our food – a prerequisite for health and life (MEA 2005)<sup>1</sup>. It is well understood that the sustainability of the global ecosystem in general, and of agriculture in particular, is dependent on the conservation, enhancement and utilisation of biological diversity (Frison *et al*, 2011; Lockie and Carpenter, 2010)<sup>2</sup>. Biodiversity is the lifeblood of what we eat. Biodiversity – both wild and cultivated – underpins the sustainability of agricultural production by providing the genetic diversity and material needed to drive innovation and adaptation, as well as essential ecosystem services and processes. Far too often the human nutritional and health ecosystem services that biodiversity provides have been ignored (De Clerck *et al*, 2011)<sup>3</sup>. When linked, biodiversity and nutrition form a common path leading to food and nutrition security, and achievement of the Millennium Development Goals (Toledo and Burlingame, 2006)<sup>4</sup>. Agricultural biodiversity, or agrobiodiversity<sup>5</sup>, plays an important role in productivity and the livelihoods of all farmers, regardless of resource endowment or geographical location. It provides the basic resources farmers need to adapt to variable conditions in marginal environments and the resources required to increase productivity in more favourable settings. Clearly, there is a very close relationship between biodiversity and the livelihoods and well-being of agricultural communities. Further, with global change, especially climate change, there will be increasing interdependency between farmers and communities all over the world, who will be ever more reliant on the global benefits agricultural biodiversity can provide. Clearly, there is an urgent need to protect and enhance agricultural biodiversity (Lockie and Carpenter 2010).

2. Biodiversity with high nutritional significance (which will also be referred to as Biodiversity for Food and Nutrition (BFN)) comprises a vast array of cultivated and wild species that, if made available and utilized effectively, can contribute significantly to the dietary diversity, livelihoods and well-being of millions of individuals in communities in countries all over the world, both developed and developing. Many barriers hinder the sustainable utilization of biodiversity with high nutritional potential and have caused it to be relegated to a minor role in agriculture. Yet it could play a strategic role in development, including in food and nutrition strategies. This neglect has come at great cost to national healthcare budgets, the global environment and society in general. Globally there have been major shifts in diets, from those that were once diverse to a dietary situation which is now largely simplified and increasingly dependent on exotic and processed foods. The Food and Agriculture Organization of the United Nations (FAO) estimates, probably conservatively, that there are about 30,000 edible plants<sup>6</sup>, yet 80% of the world's total dietary intake is obtained from only 12 species. Globalization, industrial development, population increase and urbanization have changed patterns of food production and consumption in ways that profoundly affect ecosystems and human diets. High-input industrial agriculture and long-distance transport increase the availability and affordability of refined carbohydrates and fats, leading to an overall simplification of diets and reliance on a limited number of energy-rich foods. This has resulted in a considerable disconnect between diet and local food sources, a situation that threatens the continued existence of much of this biodiversity and the ecological knowledge associated with it. This has had catastrophic impacts in many countries, both developed and

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<sup>1</sup> Millennium Ecosystem Assessment (2005) Ecosystems and Human Well-being – Health Synthesis

<sup>2</sup> Frison, E. *et al* (2011) Agricultural biodiversity is essential for a sustainable improvement in food and nutrition security. *Sustainability* **3**: 238-253; Lockie, S. and Carpenter, D. (2010) Agriculture, Biodiversity and Markets. Earthscan.

<sup>3</sup> De Clerck *et al* (2011) Ecological approaches to human nutrition. *Food and Nutrition Bulletin* **32**: S41-S50

<sup>4</sup> Toledo, A. and Burlingame, B. (2006) Biodiversity and nutrition: a common path toward global food security and sustainable development. *Journal of Food Composition and Analysis* **19**: 477-483

<sup>5</sup> Agricultural biodiversity includes all components of biological diversity of relevance to food and agriculture, and all components of biological diversity that constitute the agro-ecosystem: the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agro-ecosystem, its structure and processes (CBD COP decision V/5).

<sup>6</sup> FAO, 1997

developing, when one considers the national and global budgets required to treat malnutrition, both under- and overnutrition. In this regard, local biodiversity with high nutrition potential is of immense global significance as an appropriate and sustainable solution to these problems.

3. A recent survey<sup>7</sup> summarizing information from 36 studies in 22 countries highlights that wild biodiversity still plays an important role in local contexts with around 90-100 wild species being used per place and community group, and in some instances individual country estimates of wild food utilization can reach 300 – 800 species. The linkages between agricultural biodiversity and nutrition are clearly important in relation to issues for indigenous peoples. In many different parts of the world, replacing traditional foods with convenience foods has resulted in a decrease in the quality of the diet and soaring prevalence of diet-related chronic diseases among indigenous communities<sup>8</sup>. These studies demonstrate the crucial role of a diversified diet based on local biodiversity and traditional food for food security, nutrition and health.

4. As well as by globalization and simplification of diets, the utilization of agricultural biodiversity is being further eroded by degradation of ecosystems and loss of species and the ecological knowledge associated with them. This demands our urgent attention and is the focus of this proposed UNEP/FAO GEF-supported project (hereafter referred to as ‘the Project’).

5. We face a major global problem associated with the replacement of foods derived from biodiversity with high nutritional significance by globally marketed foods that are higher in energy but less dense in nutrients and other functional factors that often confer some degree of protection against disease. The result is an emerging ‘double burden’<sup>9</sup> of malnutrition and ‘hidden hunger’<sup>10</sup> in developing countries. Up to half a million vitamin A deficient children go blind every year, half of them dying within a year of losing their sight; and iron deficiency is damaging the mental development of 40–60 % of children in developing countries. The estimated cost of undernutrition to potential economic development is between US\$20-30 billion annually<sup>11</sup>. The countries involved in this Project - Brazil, Kenya, Sri Lanka and Turkey - are by no means immune to this trend, as outlined in the country nutritional status reports in (see **Annex A**. General Nutritional Status Country Profiles). At the same time socio-economic factors contribute to the erosion of traditional food systems and food culture along with the ecosystems that provide these resources, and associated ecological knowledge. Among both urban and rural populations in the Americas, Asia, Africa and Oceania, dietary change, also known as ‘the nutrition transition’<sup>12</sup>, is a major cause of unprecedented levels of non-communicable chronic diseases such as obesity, diabetes and heart disease. An alarming corollary to this is the almost ubiquitous decline in intergenerational transmission of local cultural values, beliefs, institutions, knowledge, practices and language about local biodiversity and the foods and food systems it underpins. For example, fewer and fewer children know about how their food is produced or the types and varieties of species their parents and grandparents would have known<sup>13</sup>. This rise in diet-related diseases and loss of associated ecological knowledge have a staggering cost for developing countries, estimated at around US\$49 billion in health costs for Brazil alone. Despite the many threats, barriers and bottlenecks, this biodiversity with global significance needs to be more effectively conserved and mobilised to reverse this trend. This will require establishing a robust knowledge base and identifying incentives, strengthening intersectoral land use planning,

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<sup>7</sup> Bharucha and Pretty (2010). The roles and values of wild foods in agricultural systems. *Philosophical Transactions of the Royal Society* **365**: 2913-2926

<sup>8</sup> Indigenous Peoples’ food systems: the many dimension of culture, diversity and environment for nutrition and health, 2009, CINE, FAO.

<sup>9</sup> The Double Burden of under-nutrition and over-nutrition.

<sup>10</sup> Hidden Hunger - A lack of essential vitamins and minerals often results in “hidden hunger” where the signs of malnutrition and hunger are less visible in the immediate sense.

<sup>11</sup> Shetty, P. (2010) The challenge of improving nutrition: fact and figures. SciDevNet. <http://www.scidev.net/en/health/the-challenge-of-improving-nutrition/features/the-challenge-of-improving-nutrition-facts-and-figures-1.html>

<sup>12</sup> The Nutrition Transition refers to the increased consumption of unhealthy foods compounded with increased prevalence of overweight in middle-to-low-income countries.

<sup>13</sup> A recent survey carried out to coincide with the CBD COP10 revealed a staggering misunderstanding of biodiversity by children.

policies and markets that support the mainstreaming of biodiversity conservation and sustainable use for improved human nutrition and well-being.

6. There are a number of reasons for selection of the four countries participating in this Project, not least of which is the uniqueness and global significance of their biodiversity and ecosystems and potential for mobilising agricultural biodiversity as a resource for food security and livelihoods, which in itself is a strong incentive for conservation. All four countries recognise the importance of BFN and have been vocal in national, regional and global fora in drawing attention to this. They all have undertaken limited activities in areas closely related to this Project. For example, Brazil has established a globally recognized cross-sectoral institutional context for dealing with the complexity of food security with promising results. (See Section 2.4 Institutional, sectoral and policy context). Kenya has achieved much in the area of production, marketing and promotion of African leafy vegetables (see paragraphs 8 and 12 below). All four countries are active supporters of the CBD's *Cross Cutting Initiative on Biodiversity for Food and Nutrition*. They will all serve as regional hubs for exchange of information on BFN. Countries have indicated that Project outputs will be presented in scientific and political fora (e.g. symposiums, congress, etc.) in their respective regions. Other possibilities for up-scaling the Project's results are submitting scientific articles to relevant regional journals, developing educational and informative tools in relevant local languages and additional official languages such as French, Portuguese and Spanish. Further, they have all expressed a strong desire to collaborate with other countries working in this area to share and exchange knowledge, lessons and good practices and see this as an effective means of enhancing global support.

7. Brazil, Kenya, Sri Lanka and Turkey all have access to a rich local biodiversity with high nutritional potential, the global significance of which is described in Section 2.2. For the purpose of this Project, BFN is defined as including species with under-exploited potential for contributing to food security, health (nutritional/medicinal), income generation, and environmental services. Terms such as 'underutilized', 'neglected', 'orphan', 'minor', 'promising', 'niche', 'local' and 'traditional' are frequently used interchangeably to describe these species that are not widespread mainstream crops, but have significant local importance, as well as considerable global potential. These species represent a considerable wealth of biodiversity and have great potential for contributing to improved incomes, food and nutritional security, and for combating the 'hidden hunger' caused by micronutrient (vitamin and mineral) deficiencies. They also have considerable potential to enhance adaptation to global change. They are: highly nutritious with other multiple uses; strongly linked to the cultural heritage of their places of origin; are highly adapted to marginal, complex and difficult environments and have contributed significantly to diversification and resilience of agro-ecological niches; may be collected from the wild or produced in traditional production systems with little or no external inputs; and probably, most significantly, receive little attention from national and international research, policy and decision makers, international covenants, donors and consumers<sup>14 15</sup>.

8. To varying degrees, Brazil, Kenya, Sri Lanka and Turkey have Projects and activities underway that address biodiversity with high nutritional potential, yet this is carried out in a limited and often fragmentary fashion. This work, which is outlined in detail in the relevant country background reports (**Annex B**, Country Background Study Reports), will not be elaborated here, but a few points are worth noting. Brazil, for example, has set up a national *Plants for the Future* initiative specifically to focus on neglected local biodiversity. It has carried out some prioritization, research and documentation work. The tremendous work of this initiative is little known outside the country, yet it provides an excellent institutional template for dealing with the types of biodiversity under consideration. Organizations like the Brazilian Agricultural Research Corporation (EMBRAPA) are also involved in research and development. In Kenya, the Kenya Agricultural Research Institute (KARI), the Kenyan Resource Centre for Indigenous Knowledge (KENRIK) and the National

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<sup>14</sup> Padulosi et al (2011) Underutilized species and climate change - current status and outlook *In*, Crop Adaptation to Climate Change. Wiley-Blackwell, US (in press)

<sup>15</sup> Bharucha and Pretty (2010) The roles and values of wild foods in agricultural systems. *Philosophical Transactions of the Royal Society* **365**: 2913-2926



Museums of Kenya (NMK) have all undertaken work on local BFN in the past decade, carrying out some research and development work, as well as promotion and awareness especially on indigenous African leafy vegetables (ALVs). In Sri Lanka, the Department of Agriculture has spearheaded most research and development on biodiversity with high nutritional potential in the country. Despite these limited research and development activities, agriculture, food security and national nutrition strategies (and their relevant sectors) more or less remain completely dependent on the introduced exotic genetic resources and food staples within these countries. Which seems a great paradox given that countries such as Brazil and Turkey harbour so much of global plant diversity.

9. Brazil has in place important cross-sectoral policy collaborations that focus on food security and which provides an excellent framework and platform for this Project to build on. All other participating countries have rudimentary policy frameworks covering biodiversity, agriculture, nutrition and food security, and most have explored in a limited capacity value chains for agricultural biodiversity and nutrition products. However, most of these initiatives, which do offer something to build on, tend to operate in a sectoral vacuum, lacking the considerable multi-disciplinary and cross-sectoral efforts necessary to effectively mobilize BFN. Hence, the conservation and sustainable utilisation of BFN continues to meet many of the barriers outlined in detail in Section 2.3. The lack of appropriate cross-sectoral platforms to support the necessary institutional and policy framework to promote the mainstreaming of biodiversity with high nutritional value remains an issue in all participating countries.

10. Despite undertaking some key activities in the field of BFN the work in the four participating countries remains fragmented and uncoordinated, missing opportunities for linkages and synergies with relevant national, regional and global initiatives. The lack of sectoral integration in the key areas where such biodiversity can make a positive impact - agriculture, health and environment - continues to guarantee limited financial and political support within countries, leading to limited resources, capacity and skills. Consequently there are barriers to the sharing of information and problems with accessibility.

11. There is growing evidence that many of the species that make up the BFN basket are nutritionally superior compared to their mainstream agriculture counterparts or exotic 'imports' grown locally. Nutrient composition can differ dramatically between foods and among varieties/cultivars/breeds of the same food. For example, sweet potato cultivars can vary in their carotenoid content by a factor of 200 or more; protein content of rice varieties can range from 5 % to 14 % by weight; provitamin-A carotenoid content of bananas can be less than 1 µg/100 g for some cultivars and as high as 8,500 µg/100 g for other cultivars. Intake of one variety rather than another can make the difference between micronutrient deficiency and micronutrient adequacy<sup>16</sup>. Of particular interest in this regard is the exemplar work of the Centre for Indigenous Nutrition and Environment (CINE, see citation in Footnote 8 for further information) which has drawn attention to the importance of underutilized species and associated traditional knowledge to the health and well-being of indigenous and local communities.

12. There have been limited efforts at developing value chains specifically for agricultural biodiversity and nutrition in participating countries. Many of these agricultural biodiversity species fetch higher market prices than their exotic counterparts, providing a more equitable share of the profit to the smallholders<sup>17</sup>. This can be an important incentive for farmers and communities to grow and conserve a rich biodiversity of locally important species. Bioversity International, working with local partners in Kenya and in collaboration with Uchumi Supermarkets, has worked to strengthen market linkages for communities and farmers who produce biodiverse foods such as ALVs. Results have been quite astonishing with a growth in sales of more than 1100% in just two years and networks of over 300 growers linked to urban markets. BFN is highly adapted to

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<sup>16</sup> Burlingame, B., Charrondière, U.R., and Mouille, B.. Food composition is fundamental to the cross-cutting initiative on biodiversity for food and nutrition. *Journal of Food Composition and Analysis*. Volume 22, Issue 5, August 2009, Pages 361-365. .

<sup>17</sup> Weinberger and Pichop, (2009) Marketing of African Indigenous Vegetables along Urban and Peri-Urban Supply chains in Sub-Saharan Africa. In, *African Indigenous Vegetables in Urban Agriculture*. Earthscan.

local conditions, requiring minimal external inputs or capital investment and is often easier to grow with less water requirements than exotic food species. Diversity can maintain productivity and increase soil fertility (Frison *et al.* 2011). Such species are especially suitable for the resource-poor, who can integrate a number of these species into their farming system or agro-ecosystem, which are frequently complex, diverse and risk-prone (CDR). Furthermore, in a changing climate<sup>18</sup>, local biodiversity will be much more resilient to drought and other stresses compared to exotic counterparts and may well provide valuable genetic traits in this regard for the breeding of future climate-ready crops (see Section 2.2 for more information on these global environment benefits).

13. At present the global political environment for action on this issue is favourable. Recent global calls for greater attention to hunger and undernutrition present opportunities and highlight the importance of integrating technical interventions with broader approaches to address underlying causes of food and nutrition insecurity. Such an approach would inherently build on the knowledge and capacities of local communities to transform and improve the quality of diets for better health and nutrition. Yet, large-scale evidence of the impact of agricultural biodiversity on nutrition is needed in many diverse, developing world settings, along with verification of the feasibility of a long-term approach toward diversification of nutrient-dense, traditional crops and its impact on addressing the significant deficits in micronutrients amongst global communities. The evidence for effectively mobilizing and delivering biodiversity to address these types of problems will be one of the most important outcomes of this Project. In order to address this need, we need global action, but within that action we also require an integrated approach to the enormous problem facing professionals working in this area. This is too much to expect from one country acting alone, but it is something that the Project as a whole, with national and international partners, can spearhead by promoting outcomes and experiences through the CBD's *Cross-cutting initiative on biodiversity for food and nutrition* and other relevant fora (see Section 2.7 and paragraph 15 below). Operationalizing the CBD's *Cross-cutting initiative* using the Project as the spark must be seen as a high priority for this to become a reality.

14. It is here that the current Project can make the biggest impact. By bringing together the actors and agencies from relevant sectors cutting across agriculture, health and environment, nationally and internationally, and creating suitable spaces for collaboration and integration, the Project will bring to bear considerable expertise and knowledge to the complex challenge of promoting BFN through food system-based approaches. As a global multi-country Project it will be well placed to promote exchange, sharing and learning between countries and to bring these outcomes and experiences to a much wider international arena for greater impact. This will result in substantially enhancing the evidence base for biodiversity and food-based approaches in addressing malnutrition. This will include evidence that demonstrates the environment and ecosystem benefits of this biodiversity, as well as its potential to improve farmer livelihoods and well-being.

15. A global multi-country approach is the most cost-effective. Despite undertaking some key activities in the field of BFN, the work in the four participating countries remains fragmented and uncoordinated, missing opportunities for linkages and synergies with relevant national, regional and global initiatives. The lack of sectoral integration continues to guarantee limited financial and political support within countries, ensuring limited resources, capacity and skills. As a global Project it will be well placed to promote exchange, sharing and learning between countries and to bring these outcomes and experiences to a much wider international arena for greater impact. Impacts in this area could be considerable through the capability of a global Project and international partners being able to facilitate considerable South-to-South cooperation and sharing. The ability to replicate and up-scale Project results, as well as mainstream, is much more considerable in the context of a global Project. Through their global operations Bioversity International, FAO and UNEP all have access to networks and initiatives relevant to the Project. Both Implementing Agencies also have considerable scope to mainstream the results and outcomes of the Project through both their relevant

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<sup>18</sup> Lin, B. B. (2011) Resilience in agriculture through crop diversification: adaptive management for environmental change. *Bioscience* 61: 183-193

programmes of work and the United Nations Development Assistance Framework (UNDAF) as elaborated in Section 2.7. Further, the scope to link and build on the range of national and global initiatives now underway (see Section 2.7) presents considerable opportunities that benefit most effectively from a global approach, encouraging the sharing and exchange of information and resources between countries. Through a global approach the Project will be in a greater position to contribute significantly to the tracking of relevant global indicators in the area of biodiversity, health, agriculture and food security. As the global agencies responsible for implementation and execution, UNEP, FAO and Bioversity are in fact adequately embedded in the relevant global processes and mechanisms to ensure that Project results and outcomes feed into the achievement of the CBD Strategic Plan for Biodiversity 2011-2020 and monitoring of relevant global indicators, such as the new Aichi Biodiversity Targets, the recently revised Global Strategy for Plant Conservation (GSPC) indicators, the indicators on agricultural biodiversity embedded in the Global Plan of Action (GPA) of the ITPGRFA, as well as the relevant core indicators of the Millennium Development Goals and the Committee on World Food Security, of which both Bioversity and FAO are members. A global Project could also contribute to informing global discussions on the development of cross-cutting indicators on issues of conservation, health, nutrition and livelihoods. Equally it could contribute substantially to the greater involvement of the health and nutrition sectors as advocates in land use planning for the conservation and utilization of BFN. The proposed Clearing House Mechanism (CHM) under the ABS Protocol and the Global Information Systems on PGRFA of the international Treaty would both benefit from the establishment of the national and global portals and other knowledge products and tools to be developed by the Project and *vice versa*. Finally, the newly adopted Nagoya protocol on ABS offers a unique opportunity for a global Project of this nature to link issues of access to knowledge, practice of use of traditional food sources with markets and value-addition actions in a manner that communities could benefit from the ABS agreements both within the country and outside and which could be up-scaled.

## 2.2. Global significance

16. Brazil, Kenya, Sri Lanka and Turkey recognise the immense value and global significance of their local biodiversity for food and nutritional security (**Annex B**. Country Background Studies, contains a full description of the national status of relevant agricultural biodiversity for food and nutrition in all four countries). They appreciate the benefit BFN can potentially contribute to improving national health status and at the same time the significant economic value it has in providing ready sources of income to cash-poor households. They also recognise the importance of these species for the ecological and environmental functions they provide or contribute and their non-use values such as cultural, religious and existence values. However, more than this, they identify the threats that exist to this biodiversity and the urgent need to bring together the relevant sectors holding a vested interest in this development resource in order to secure its conservation and sustainable use. The countries of Brazil, Kenya, Sri Lanka and Turkey each contain unique biological diversity that supports a large share of the world's food supply in a range of ecosystems that are global priorities for conservation. Due to the fact that the biodiversity in the four participating countries is so vast, the use of these indigenous, largely plant, genetic resources is still scarcely explored, appreciated and conserved.

17. **Brazil** is one of the countries with the greatest biodiversity on Earth, but from the point of view of BFN it has hardly been explored at all. The diversity of species in the Brazilian flora is due to the edapho-climatic peculiarities that influence the vegetation types in the six different biomes: Amazon, Cerrado, Caatinga, Atlantic Forest, Pampa (Southern fields) and Pantanal. As an example, the northeast region of Brazil comprises the Caatinga biome with semi-arid, thorn and deciduous forests, the entire São Francisco River Basin and portions of the Cerrado biome, the world's most biologically-rich tropical grassland savannah with over 10,000 plants species. The region also includes portions of the Atlantic Forest biome, which still stands as one of the richest and most important tropical rain forests in the world. In spite of the fact that Brazil has about 44,000-50,000 species of vascular plants, representing approximately 18% of the global plant diversity, its agriculture and food security are, to a great extent, completely dependent on the introduction of genetic

resources from other countries. Several Brazilian native species have been used as human food, though they are used to a much lesser extent than exotic species, and are regionally and locally very important. The better-known among them are: cassava, pineapple, peanuts, cocoa, cashew, cupuaçu, passion fruit, Brazil nuts, guaraná and jaboticaba (*Myrciaria jaboticaba*). This is also the case of some palm tree species such as *Euterpe oleracea* (açai), up until recently only consumed in Northern Brazil and today consumed in the form of frozen pulp across the country and even exported. Besides, native forage species provide support to a good part of the national livestock sector. More recently, native medicinal and ornamental plants are increasingly valued in the Brazilian agribusiness context.

18. **Kenya** too has a range of biomes including grasslands or savannas, forests wetland and temperate desert, with an estimated 35,000 known species of animals, plants and microbes. Kenya has a rich plant diversity growing in a range of habitats. According to the International Union for the Conservation of Nature (IUCN), there is an estimated total of 7,500 plant species growing naturally in the country. Of these, about 475 are national endemics, while 258 are threatened. More than 2.9 million people still live adjacent to forests in Kenya from which they obtain edible seeds, nuts, fruits, vegetables, beverages, honey, mushrooms and bush meat. One out of every ten plant species is used by the local communities to supplement their diets, while about twice that number is used for medicinal purposes.

19. Kenya is endowed with many indigenous edible vegetables, fruits and other underutilized species which are highly nutritious, cheap to produce and well adapted to the environment in which they grow. They are increasingly popular, both in rural and urban areas, and have helped, as outlined earlier, in diversifying agriculture and achieving food security in the country. In recent years, Kenya has lead the way in demonstrating what can be achieved in terms of utilizing and promoting the nutritional benefits of African Leafy Vegetables (ALVs) as well as the contribution they can make to improving livelihoods. A total of about 210 ALV species have been recorded in Kenya but only a small proportion have been researched or exploited. The top ALVs in the country include *Cleome gynandra*, *Solanum villosum*, *Cucurbita moschata*, *Vigna unguiculata*, *Amaranthus blitum*, *Corchorus olitorius*, *Solanum scabrum*, *Crotalaria ochroleuca*, *Crotalaria brevidens* and *Brassica carinata*. In a recent study conducted in Kenya to gather information on the current status of the neglected and underutilized crop species, four main crops were considered neglected and/or underutilized. These are *Sesamum indicum*, *Voandzeia subterranea*, *Dioscorea* spp. and taro (*Colocasia esculenta*).

20. **Sri Lanka** has been identified as one of the countries in Asia with a very high degree of biodiversity. The wide variation in temperature, rainfall, topography and soils that characterize the country have provided a wide diversity of ecosystems resulting in a rich diversity of plant species which Sri Lankan farmers have been able to maintain over thousands of years. Thus, there are nearly 4,100 species of flowering plants (26% endemic). A considerable diversity also exists among the major crops cultivated in Sri Lanka, including wild relatives, landraces and traditional varieties. Sri Lanka's wet evergreen forests of the Kanneliya, Dediyaigala and Nakiyadeniya forest reserve complex (Man and Biosphere site), the peri-urban areas of the Western Province (Colombo, Gampaha and Kalutara Districts), and the Knuckles forest reserve (proposed World Heritage Site) are ecosystems that are also essential for foods, especially the rice, vegetable, fruit tree and palm ecologies that provide the basis of national diets. Tropical root and tuber species, especially *Dioscorea* spp., are important for household food security and nutrition in Sri Lanka. In addition, biodiverse agri-landscapes such as the Kandyan homegardens located in the mid-country region of Sri Lanka, represent a centuries-old sustainable production system based on a highly diversified portfolio of perennial mixed cropping, comprising a variety of tree crops with multiple uses and to a lesser extent livestock<sup>19</sup>. This traditional, complex and risk-averse multi-storey production system, comprising several perennial food crops, fruits, vegetables, roots, tubers, medicinal plants, sugar crops, spice crops and timber crops, has continuously

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<sup>19</sup> Pushpakumara et al (2010) Kandyan homegardens: a promising land management system in Sri Lanka. *In*, Sustainable Use of Biological Diversity in Socio-Ecological Landscapes. CBD Technical Series No. 52

provided high levels of nutritional and diet diversity to households. While similar to other homegarden systems in other parts of the world, Kandyan homegardens are unique in the high levels of functional plant and nutrient diversity they contain. Other equally diverse, socio-ecological production landscapes with potential to support diverse diets include the Owita agroecosystem<sup>20</sup> and the Village Small Tank Systems<sup>21</sup>.

21. **Turkey** consists of three different biogeographic regions, each with its own endemic species and natural ecosystems. These are the: Euro-Siberian, including the Caucasian mountain forests with the temperate deciduous forest and alpine meadows; Irano-Turanian, including Central and Eastern Anatolian steppe grasslands; and the Mediterranean region (including Aegean Coastal region), which includes the world's largest remaining Cypress forests. The Aegean Coastal region of Turkey and the drylands of central and northern Anatolia are particularly rich in landraces of wheat and emmer (*Triticum dicoccon*), barley varieties, varieties of *Brassica oleracea*, chestnuts, sesame, thyme, grapes and pomegranate. These crops are of major global importance and essential for national food security and dietary health. The steppe ecosystem is perhaps the most important of all from the point of view of economics, as a large number of food crops have been derived from their wild relatives native to Turkey. The flora of Turkey consists of high endemism, and about 3,905 out of the 12,054 plant species recorded (about 75% of the plant species that occur in Europe naturally occur in Turkey) are endemic.

22. Turkey encompasses major centres of crop diversity and origin for globally- significant crops, fodder plants and forages. The Mediterranean and Near Eastern Centres of diversity and origin overlap in Turkey and there exist five micro-gene centres where more than 100 species display a broad variation. Landraces of many of these crops are still used within traditional farming systems and pasture, while crop wild relatives and endemic species are found in their natural habitats in the rangelands and forest areas which occupy different ecosystems. In particular, Turkey is described as a microcenter for *Amygdalus* spp., *Linum* spp., *Allium* spp., *Hordeum* spp., *Triticum* spp., *Avena* spp., *Cicer* spp., *Pisum* spp., *Vitis* spp., *Beta* spp., *Cucumis melo*, *C. sativus*, *Cucurbita moschata*, *C. pepo*, *Lens* spp. including *Lens culinaris*, *Lupinus* spp., *Malus* spp., *Medicago sativa*, other annual *Medicago* spp., *Onobrychis viciifolia*, *Phaseolus vulgaris*, *Pistachia* spp., *Prunus* spp., *Pyrus* spp., *Trifolium* spp., *Vicia faba* and *Vitis vinifera*.

23. But it is not only the physical biodiversity in these four countries which is of global significance. A corresponding body of significant traditional ecological knowledge (TEK) associated with this biodiversity exists in all four countries, which contributes to community capacity to manage, conserve and utilize it. However, such knowledge, like the biodiversity it is associated with, is increasingly prone to erosion. Accumulated traditional ecological knowledge about nature, often termed local ecological knowledge (LEK), indigenous knowledge (IK), eco-literacy, or more generally ecological knowledge, is an important part of people's capacity to manage and conserve both wild and agricultural systems over extended periods<sup>22</sup>. It is acquired through frequent interaction with the local environment driven by a need to pursue daily subsistence strategies for food and economic provision. This knowledge is transferred between generations through observations and narratives as a key survival tool. It tends to be socially embedded, often contributing to cultural traditions, identities, beliefs, and worldviews. It differs from modern knowledge by being dynamic, adaptive, and locally derived, thus coevolving with the ecosystem upon which it is based. For the purpose of the remainder of this Project document, this knowledge will be referred to as traditional knowledge.

24. Traditional knowledge of this nature has substantial environmental, human, and economic value, as it codes for and contributes to a wide range of ecosystem goods and services, including current and future

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<sup>20</sup> Wijesekara and Hunter (2010) The owita agroecosystem, *In*, Sustainable Use of Biological Diversity in Socio-Ecological Landscapes. CBD Technical Series No. 52

<sup>21</sup> Senanayake et al (2010) Village small tank systems: an integrated landscape for adaptation to changing climate. *In*, Sustainable Use of Biological Diversity in Socio-Ecological Landscapes. CBD Technical Series No. 52

<sup>22</sup> Pilgrim et al (2008) Ecological knowledge is lost in wealthier communities and countries. *Environmental Science and Technology* 42, 1004-1008.

pharmaceutical uses, agricultural diversity in terms of both crops and livestock, and wild harvest opportunities for food, medicine, and fuel. Crucial to all of these is the conservation of the ecosystems upon which local knowledge systems, and the management practices derived from them, are based.

25. Furthermore, this portfolio of biodiversity, including associated traditional knowledge has an important role in ensuring that agricultural landscapes are sustainable and provide options for future adaptation to a changing climate. Regarding the latter, this body of biodiversity has the potential to provide many of the genetic traits necessary for our future crops to adapt to changed environments, such as increased drought and salinity, or to resist the greater impacts of pests and diseases. Secondly, enhancing the diversification and resilience of our agro-ecosystems improves their capacity to withstand the impacts of climate change scenarios, such as extended periods of drought and increased frequency and intensity of extreme weather events. For example, minor millets, a category of several ‘coarse’ cereals used particularly in south Asia, have excellent drought-resistant traits coupled with an excellent nutritious profile and offer tremendous opportunities for the development of areas increasingly affected by water shortages. Sea buckthorn (*Hippophae rhamnoides*), a species naturally distributed between eastern Europe, Central Asia to China, has been found to be more tolerant to abiotic stresses than apple and pear – tolerance which seems associated to its high levels of ascorbic acid and *myo*-inositol. Another excellent hardy crop is the moringa tree (*Moringa oleifera*), the ‘wonder tree’, which coupled with its drought resistance traits, also has leaves of high nutritional content.

26. These four countries provide useful lessons on the use, conservation and adaptive management of agricultural biodiversity to cope with climate change and the shocks of rising food prices. Yet in all four countries, and in much of the world, this biodiversity is undervalued, especially in terms of its contribution to food security, nutrition, and for the reduction of malnutrition in vulnerable groups. This underestimation of biodiversity contributes to two major problems: a missed opportunity to use biodiversity sustainably to address malnutrition, and a lack of incentives for its conservation for the future. The agricultural biodiversity within agroecosystems and surrounding landscapes of these four countries - including crop diversity in species and crop varieties, neglected or orphan crops, home gardens and niches, including aquatic animal resources and forest margins or patches - is vitally important as a global source of micronutrients and dietary diversity. Loss of this biodiversity could threaten the future basis of human well-being based on dietary diversity and good nutrition, both nationally and at a global level. The convergence of growing concerns with human health, dietary diversity, food security and high food prices provides a unique opportunity to provide the immediate global benefits of conserved diversity for nutrition and health through mainstreaming its use in the health and nutrition sectors. By using nutrition as an entry point for mainstreaming biodiversity into other sectors and agendas (e.g. food security, nutrition, and health), and promoting a favourable policy environment among the agriculture, health and environment sectors, increased support for biodiversity conservation and its sustainable use can be achieved.

27. In each of the four Project countries important global benefits will be derived from the Project. Primary among these is the conservation of globally unique diversity through the identification of plant species of nutritional value, and the mainstreaming of this agricultural biodiversity into nutrition instruments and strategies and into policies resulting from collaboration among agriculture, health and environment sectors. In all of the Project countries, immediate barriers to mainstreaming will be addressed and the Project activities in each country will ensure that identified nutritionally-unique diversity is mainstreamed into local and national consumption patterns through markets. Each of the four countries presents a unique and rich portfolio of BFN and there will also be a focus on different ecosystems within each country. The global multi-country Project will make possible the exchange of these experiences, tools and mechanisms and stimulate the identification of lessons learned and best practices that can be built upon as a global Project. For example, in Brazil significant linkages have already been established between the Agriculture, Health and Education sectors, which provide models and examples for the other countries participating in this Project. Likewise, in Kenya efforts to enhance linkages between farmers and markets based on the nutritionally-rich ALVs provide

excellent lessons and good practices for other participating countries. By bringing these experiences and practices together in a global context the Project will be able to facilitate considerable South-to-South cooperation and sharing, as well as potential for replication and scaling-up of these outputs and results beyond the Project countries. This will facilitate significant cross-cultural learning and sharing between countries, which will benefit from a global approach and set of international partners who will be able to enrich the work they have undertaken to date.

28. Likewise, the Project will be able to explore ways of scaling-up and promoting the mainstreaming of BFN to other contexts. Being a global Project outreach and impact will be greater. Partner countries will be in a position to act as regional nodes for the dissemination and up-scaling of Project outcomes and results. Bioversity International, FAO and UNEP have access to a number of networks and initiatives relevant to participating countries through its regional and sub-regional presence in the Asia-Pacific, Americas, Sub-Saharan Africa and Europe offices. Dissemination and scaling up of results and outcomes would also be facilitated through Bioversity's involvement in the new CGIAR CRPs (see Annex D) particularly those dealing with Policies, Institutions and Markets (CRP2); Agriculture, Nutrition and Health (CRP4) and Water, Land and Ecosystems (CRP5) as well as the organizations's linkages to the initiatives outlined in Section 2.7. The work of UNEP in facilitating the development of Biocultural Community Protocols could be an important mechanism for mainstreaming BFN traditional knowledge into relevant strategies. Both FAO and Bioversity's prominent role in leading the CBD's Cross Cutting Initiative on Biodiversity for Food and Nutrition. This would equally apply to Bioversity's, FAO's and UNEP's active involvement in other global agreements and conventions such as the ITPGRFA and CBD. FAO through its involvement in INFOODS will ensure dissemination of Project results through LATINFOODS (for Brazil), SAARCFOODS (for Sri Lanka); EUROFOODS (for Turkey) and AFROFOODS (for Kenya)<sup>23</sup>. The CBD COP 10 decision on the need to revise NBSAPs before COP 12 (2014) provides a good opportunity for the select countries to mainstream issues of BFN within the revised NBSAPs. See paragraph 15 for additional information on the global benefits of a multi-country approach.

29. Similarly, the new CBD Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets will also provide a good platform to link issues of BFN and broader biodiversity conservation, use and sharing of resources. The results and outcomes of the Project would particularly support achievement of the following Strategic Goals and Targets:

- **Strategic Goal C:** *Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity*
- **Target 13:** By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimal genetic erosion and safeguarding their genetic diversity.
- **Strategic Goal D:** *Enhance the benefits to all from biodiversity and ecosystem services*
- **Target 14:** By 2020, ecosystems that provide essential services including services related to water, and contribute to health, livelihoods and well-being are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and the vulnerable
- **Strategic Goal E:** *Enhance implementation through participatory planning, knowledge management and capacity building*
- **Target 18:** By 2020, traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

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<sup>23</sup> INFOODS Regional data centres [http://www.fao.org/infoods/data\\_en.stm](http://www.fao.org/infoods/data_en.stm)

30. The newly adopted Nagoya protocol on ABS offers a unique opportunity for the countries to link issues of access to knowledge, practice of use of traditional food sources with markets and value-addition actions in a manner the communities could benefit from the ABS agreements both within the country and outside. Examples of such work could include sharing knowledge, resources and benefits within the Project countries. UNEP's support to countries in developing national ABS frameworks and ongoing work related to sectoral integration of ABS issues offer unique opportunities for linking BFN related actions to overall national policy making and implementation on issues related to local development, community resource rights and access, benefit sharing regimes.

### **2.3. Threats, root causes and barrier analysis**

31. Despite growing awareness of the nature of diet-related health problems and the benefits of biodiversity underpinning diverse diets, there still remain important threats and barriers to mainstreaming biodiversity conservation and sustainable use for improved human nutrition and well-being. For much of this cultivated biodiversity, such as traditional landraces, these threats include the ongoing and increased commercialization of production systems leading to specialization of particular species or a few varieties. In many cases BFN cannot compete with these more popular species due to many barriers of a socio-economic or technical nature. Lack of incentives to conserve and grow more biodiversity with nutritional value, combined with unsuitable land use practices, has led to the loss or erosion of much of this diversity. Wild edible species in turn are threatened by changes in land use patterns, habitat destruction and over-harvesting. A number of barriers (some of which relate to threats already identified in Sections 2.1 and 2.2) contribute to the threatened status of biodiversity. These barriers, while having national specifics and nuances cut across all four countries and beyond, show more similarities than differences and mainly centre on the topics described below. They will require serious examination and consideration in order for the outcomes and objectives of the Project to be achieved.

32. Further, this natural wealth of BFN, and its associated traditional knowledge, is being undermined and eroded in all four participating countries. Globalization of trade, urbanization and the impact of changing food and dietary habits have had a major impact on the awareness and utilization of BFN and the intergenerational transmission of biodiverse-food knowledge. As communities become less reliant on local resources and begin to adopt more modern lifestyles, so traditional knowledge is being lost, either supplanted by modern knowledge or is no longer transmitted. Therefore, with a departure from traditional food cultures and movement toward market-based lifestyles, combined with a growing disconnection from the land, local intrinsic concern and knowledge of these valuable resources is becoming diluted and devoid of purpose, causing local management systems to come under threat. This may in turn lead to overexploitation and ecosystem collapse as financial incentives prevail. Therefore the loss of traditional knowledge today can be considered an additional constraint on the conservation of biodiversity.

33. The barriers to the promotion and mainstreaming of BFN are considerable. Not all can be addressed by a Project of this nature; many are of an international nature and have much to do with the governance of the global food system. However it is important to have an appreciation of these barriers, even those external to the Project (see Figure 1).

#### ***Barriers which are intrinsic to the Project and which it will seek to address include:***

34. *Disconnect between the biodiversity, agriculture and health sectors and other sectors (including education):* in all four Project partner countries there has been a poor level of collaboration between the relevant sectors that must work together if we are to ever solve the complex issue of dietary diversity,



malnutrition using biodiversity-based approaches as part of the solution. The relationship between biodiversity, agriculture and health may seem intuitive and simple — grow more crops of a diverse nature which are nutritionally rich, promote these to your population and people will have more diverse diets and live healthier and happier lives. However biodiversity, agriculture and health policies and programmes are rarely coordinated, so the reality is far more complex. This ensures a lack of joined up thinking when it comes to policy or integration, and a rather poor enabling environment in which countries must manoeuvre. The truth is that despite a huge increase in agricultural productivity and food availability over the past 50 years, and falling food prices (although this is changing), a billion people remain chronically undernourished and do not receive the nutrients their bodies need to fully develop.

35. The Project will seek to address this barrier at the outset by ensuring the lead national executing agency in each country ensures an inclusive and open environment for all sectors and actors to participate and that information and awareness of the Project is forthcoming. Further, Brazil has already made significant efforts nationally to promote better dialogue between relevant sectors, and this experience will be shared and used by other countries in the Project to address this particular barrier. It is envisaged that the Project will enhance the role of the health and nutrition sectors as advocates of appropriate and supportive land use planning and policies. Mechanisms ensuring participation in national steering committees through cross-sectoral national platforms will be put in place. Countries made significant progress towards establishing such mechanisms during the PPG phase of the Project.

36. One of the key challenges faced by countries is the lack of facilitating policy environments to link these sectors. Providing guidance on how linkages can best be achieved at policy and regulatory levels could go a long way in addressing the challenge of the disconnect.

37. *Lack of necessary skills and institutional capacity:* It follows from the above that there is a lack of appropriate, effective capacity to fully promote and exploit biodiversity, agriculture and health linkages and integrated approaches. The Project will seek to address this barrier by identifying capacity needs and developing a sustainable capacity building plan (see **Annex K**, Developing a Project Capacity Building Plan).

38. *Lack of data linking biodiversity to dietary diversity and improved nutrition outcomes:* Despite a considerable global focus on the sustainable utilization of agricultural biodiversity to address nutritional and health problems, there still remains a significant dearth of evidence demonstrating its link to improved nutrition through dietary diversity. Too many studies have failed to plan and undertake the rigorous methodological approaches necessary or relied on the assumption that simply promoting biodiversity will contribute to better outcomes. There have been too many anecdotal narratives in this regard.

39. The partners involved in the Project will seek to ensure the Project uses standardised, harmonised and rigorous methodologies and approaches across all countries, which can reliably link agricultural biodiversity to diversified diets.

40. Apart from the issue of purchasing power and access to food, the challenge will be to address issues of dietary preferences versus dietary needs for local communities. In addition to lack of dietary diversity, the dietary preferences of communities have changed considerably in the last few years.

41. *Poor information management and accessibility:* Relevant information is highly fragmented, scattered in various publications and reports or not easily accessible databases. There is nothing approaching a comprehensive global or national portal or repository of information on the nutritional quality of BFN that might better facilitate its use and which would be a vital tool for policy and decision makers. While the amount of information on the nutritional quality/composition analysis of BFN is growing it is still small compared to the analysis that takes place for mainstream agricultural foods and their products. Furthermore there may be issues related to standardisation, methodology and quality of data.

42. The Project aims to assist countries to develop useful and accessible national information systems documenting the nutritional properties of agricultural biodiversity, associated traditional knowledge and other food/food systems knowledge.

43. *Lack of evidence demonstrating or comparing the most (cost-) effective methods and approaches for delivering or mobilizing biodiversity:* This is linked to the constraint described above and should be part and parcel of any research and analysis. If biodiversity is to compete as a viable intervention option to address dietary diversity, we must have a clear idea of what works. Especially if we want such approaches to enter the mainstream. Are homegardens more cost-effective than mobilising biodiversity through school meals? Is a combination of approaches required? How important are education and awareness as part of an intervention? We still have too little evidence in this area.

44. The Project plans to explore a variety of approaches to mobilise BFN and will undertake impact analysis to determine benefits and successes.

45. Studies have also shown that apart from the unit cost differentials in accessing diverse food sources, communities face constraints in terms of processing and preparing food that meets the household dietary requirements. One of the reasons for this is the changing role of men and women in the households and changing patterns of employment and access to money.

46. *Poorly developed infrastructure and markets:* Traditionally, the consumption of BFN has taken place through non-market channels and subsistence use and in many areas marketing pathways remain poorly organized, especially for wild foods and their products, although this is gradually improving. Still market entry remains difficult for farmers and other user groups hoping to trade in nutritionally rich biodiversity. Increased commercialization will demand increased uniformity of the product, larger quantities supplied on a regular and reliable basis, as well as attention to issues of food safety and so forth. The organization of market supply chains will not be an easy task, particularly under the conditions common in developing countries. High transaction costs, poor infrastructure and a lack of regulations cause producers to capture a small fraction of the profits generated by the final sale of the product, thus discouraging investments in their production systems. This situation is complicated by the absence of biodiversity certification schemes that could bolster the market value of BFN. These issues all influence access to national and international markets of the biodiversity of concern in this Project. There are many important barriers and constraints related to marketing of BFN that can be collectively classified as missing output markets, market imperfections and failures. There are important barriers related to low production, irregular production, or production which is highly scattered. There are few alliances among farmers and user groups to reduce transaction costs in such contexts. Market channels for such biodiversity in most countries are either non-existent or poorly organized. Scattered and limited production, lack of transport and processing, inadequate marketing infrastructure, and a genuine lack of coordination along the supply chain all add to transaction costs and a lack of market transparency and trust among market chain actors. The relevant actors and expertise within these marketing systems are not organized and are poorly articulated. There is a general lack of market information when it comes to promotion of biodiversity. All of which contributes to lack of competitiveness of biodiversity in terms of price, quality and presentation. Further, on the consumer side, there is a weak understanding of consumer preferences and dynamics, low or latent demand and hidden markets. Collectively, at the national level, this contributes to numerous legal, financial and social barriers to market expansion.

47. While there is growing interest in value chains for agricultural biodiversity and nutrition<sup>24</sup>, they all too often look at chain development in isolation. There is a need to look at how to develop value chains which integrate both agricultural biodiversity and nutrition objectives. This will be an important area for the Project

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<sup>24</sup> Encouraging Nutrition along Value Chains. Leveraging Agriculture for Improved Nutrition and Health. International Conference 10 – 12 February 2011, New Delhi, see <http://www.ifpri.org/sites/default/files/publications/2020anhconfpaper04.pdf>

to address, building on work already undertaken in these areas in-country. Previous studies have also shown that the role of food diversity is not just linked to markets demands but also to consistency of supply and quality management. Fortification Projects in many of the countries face serious challenges due to disconnects between markets and availability of consistent supplies.

48. *Trade policies which impede or undermine promotion and consumption of BFN:* In many countries negative trade policies can seriously undermine efforts to promote the use of more biodiverse foods and healthy diets. For example, the importation of cheap and unhealthy foodstuffs contributes significantly to nutrition-related health problems<sup>25</sup>. Similarly, the now widespread promotion and consumption of soft drinks, especially in schools, makes the task of promoting biodiverse-diets difficult. As a result, international institutions, non-government agencies and academics are increasingly recommending the use of trade policy tools in food policies, such as maintaining high tariffs on unhealthy imports. These measures are designed to improve the healthfulness of the food supply especially in developing countries.

49. The Project will target the existence of such barriers in participating countries by creating awareness of their impact when working with policy makers and cross-sectoral national policy platforms, and when drafting international and national policy guidance supporting the mainstreaming of agricultural biodiversity conservation into health and nutrition strategies.

50. *Inadequate agricultural and food security policies and strategies:* Policies that promote major cereal staples have often diminished the dietary role of more nutritious species such as millets, indigenous fruits and vegetables and root and tubers in regions where they were traditionally grown, such as the promotion of rice and maize in Sri Lanka and Kenya. Further, public health policy across many countries tends to operate within a model of food security that discounts the traditional food systems and practices of many local and indigenous communities.

51. The Project will bring to bear on the policy and regulatory framework in countries the enormous wealth of information and data this Project will generate on the value and benefits of local BFN and the many ways it can complement staple foods as part of nutrition and food security strategies.

52. *Few examples on how to mainstream biodiversity for nutrition objectives:* While limited information or information gaps are often put forward as the key intervention to facilitate mainstreaming, there is a lack of real cases demonstrating that ‘information filling’ necessarily leads to better mainstreaming. There are only weak biodiversity mainstreaming initiatives to date to serve as precedents and since mainstreaming is the main objective of this Project this issue requires serious attention.<sup>26</sup>

53. The Project will seek to document and disseminate effective and innovative tools and methods for mainstreaming BFN activities.

54. *Negative perceptions and attitudes to local, traditional foods:* Unfortunately, there is sometimes negativity or prejudice surrounding certain traditional food species and considerable effort is required to overcome this. This is further compounded by situations that see the Western diet as ‘modern’ and traditional foods and diets as backward. Even in rural areas, where the use of a wide range of foods remains an option, effective promotion may be necessary in order to preserve not only agricultural biodiversity but also the skills and knowledge to make use of it. Occasionally these crops are traded locally but they are neglected in urban areas, where they have a reputation as poor people’s food. Further, traditional foods can often be seen as inconvenient because they may take a long time to gather, prepare and cook, have a short shelf life and may have difficulty competing with products such as rice, instant noodles and wheat flour, which in many cases

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<sup>25</sup> Thow et al. (2009) Trade and food policy: case studies from three Pacific Island countries. *Food Policy* 35; 556-564

<sup>26</sup> Dalal-Clayton & Bass (2009) The Challenges of Environmental Mainstreaming. IIED.

may often be cheaper. Traditional foods consumption may also be discouraged because the product is perceived as low quality. In this regard access to appropriate technology or infrastructure may be an important barrier.

55. The Project will actively seek to address this barrier on many fronts. Awareness campaigns will use evidence and innovative approaches to overcome negative local perceptions. Further, the Project will seek to explore and develop recipes which are adapted and convenient to modern lifestyles and above all else are perceived as high quality and safe.

***Barriers which are extrinsic to the Project, which it cannot necessarily alter or target directly, but which it should be aware of:***

56. *Strict food safety assessment regulations:* Demanding standards for novel foods are now required by certain states or political blocs such as the European Union's Novel Foods Regulation (NFR) which place a considerable burden of proof on those bringing traditional biodiverse foods and their products to the EU market. This regulation has emerged as a non-tariff trade barrier for heritage foods from developing countries and has discouraged investment in supply chains and market development<sup>27</sup>. The Novel Foods Regulation (EU 258/97) states that foods not present in the EU before 1997 must be documented free of allergenic, toxic, and other hazards before they can be offered for sale. The fact that people outside the EU have a long untroubled history of eating their indigenous foods holds little sway. Regulators do not accept indigenous knowledge as evidence when they evaluate novel foods. Since 1997 this regulation has been enforced to deny approval for several exotic traditional foods including the natural sweetener *Stevia rebaudiana*, nangai nuts from Pacific trees of the genus *Canarium* and the Andean root maca (*Lepidium meyenii*). All three had a history of safe use in their country of origin. Not surprisingly, the cost of conducting a scientific evaluation for such foods by developing countries is considerable. Future development activities promoting export food chains involving neglected food species will have to increasingly accommodate food safety concerns in project design.

57. *Neglect by the international research community:* The vast majority of BFN, both wild and cultivated, are not part of mainstream agriculture and continue to be seriously neglected by research (national and international agricultural research organizations), extension services, producers, policy and decision makers, donors, technology providers and consumers. Furthermore, there is a real possibility that such biodiversity will continue to fall between the cracks in the new restructuring of the Consultative Group on International Agricultural Research (CGIAR) programme, although new initiatives such as Crops for the Future should ensure some support and focus. By capturing Project country experiences and outputs, the global Project will be in a position to demonstrate the benefits of BFN to a wider international audience.

58. *Lack of attention from international agreements to Biodiversity for Food and Nutrition (BFN).* BFN is not a major focus of current international agreements or covenants, nor is it prominent on relevant agendas. While the CBD established the International *Cross-cutting initiative on biodiversity for food and nutrition* in 2006 under its Programme of Work on Agricultural Biodiversity, activities and impacts to date have been minimal and certainly not innovative, or in any way demonstrating systems-thinking to the complex challenge. The cross-cutting initiative needs to be improved if it is to be effective. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), which regulates the exchange of plant materials between countries, sets a different kind of obstacle. It has established a multilateral system of access and benefit sharing to facilitate access to key genetic resources with minimal procedural and administrative costs. The Treaty clearly envisages that benefits will flow primarily to farmers in developing countries, who conserve and use agricultural biodiversity. This of course is very welcome and an improvement on existing bilateral agreements. However, the difficulties arise with the species covered by the Treaty, which at present

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<sup>27</sup> M. Hermann (2009) The impact of the European Novel Food Regulation on trade and food innovation based on traditional plant foods from developing countries. *Food Policy* 34: 499-507

applies to major crops only, including all the crops on which humanity currently depends for its basic food supply. At this stage the Treaty's multilateral system does not cover the vast majority of species considered as neglected and underutilized biodiversity, and if they are to be improved by breeding and the exchange of genetic materials then some system to enable the free flow of these genetic resources will need to be put in place. Measures will be needed to make arrangements for regional exchanges of locally relevant materials that are not on the Treaty's list or, eventually, the expansion of the Treaty list itself. Through the involvement of FAO, and its regular participation in global meetings, the Project will be in a position to lobby for some change in this regard.

59. *Reach and influence of the modern globalized food system:* Clearly, beyond the immediate influence of the Project this constraint should not be underestimated in its power to influence the availability and demand for healthy, local food. Reversing such forces will be a major challenge but one it is hoped the Project can contribute to through scaling-up of outcomes and experiences. The nutrition transition, associated with industrialization, globalization and the modernization of diets, as we know poses a serious challenge to public health worldwide. Huge marketing expenditure influences this transformation, with marketing of public health in the US in 2004 amounting to less than 0.0001% of the marketing investments for US food, beverage and restaurant industries alone. Further, the annual marketing budgets of two giant food corporations dwarf the biannual budget of the World Health Organization (WHO)<sup>28</sup>. The replacement of biodiverse foods by store-bought products is linked to reduced dietary diversity, rising rates of chronic lifestyle-related conditions, such as obesity and diabetes, poor intake of micronutrients and undernutrition. As a consequence, BFN becomes undervalued and underutilized as exotic foods become increasingly available<sup>29</sup>.

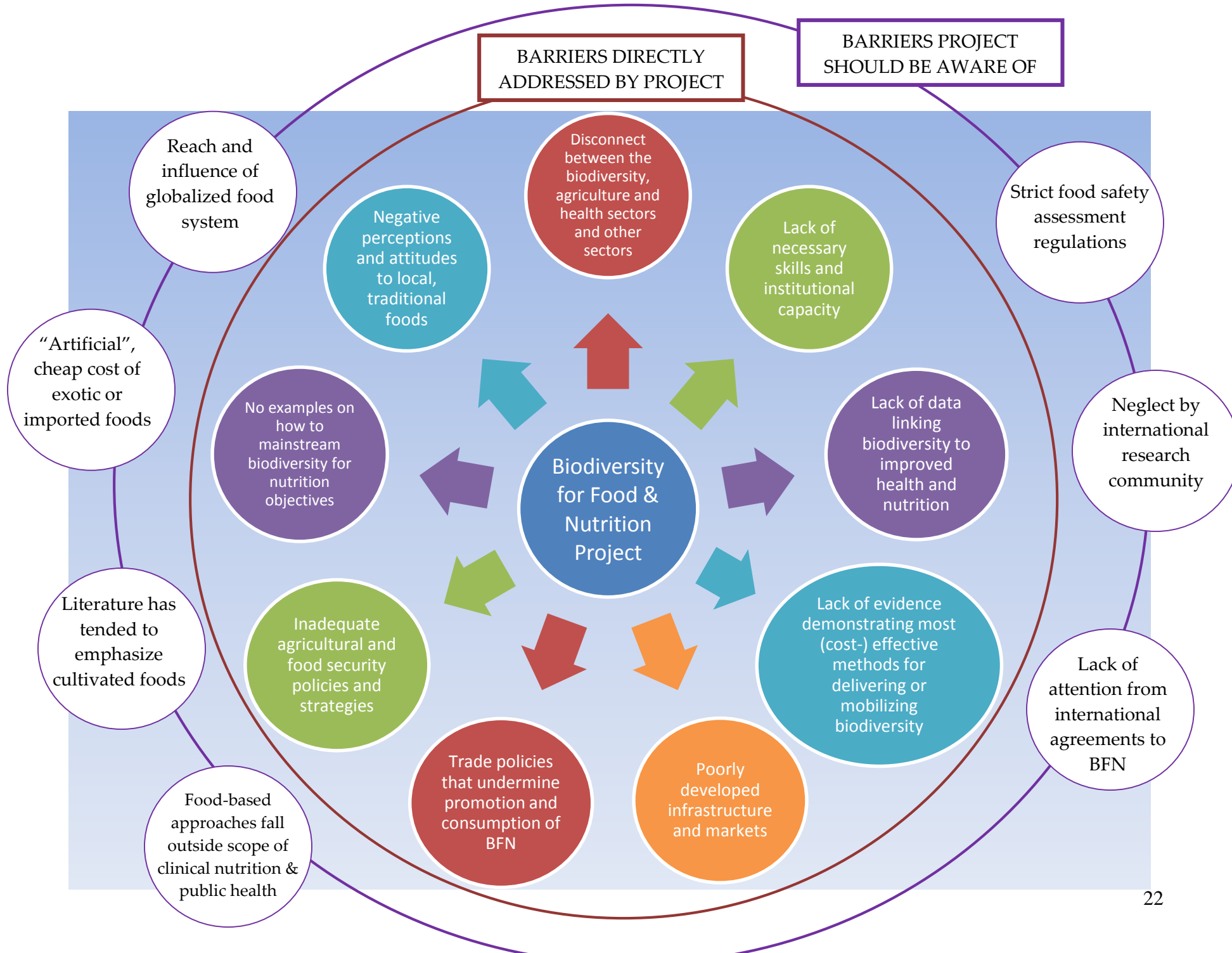
60. *The 'artificial' cheap cost of exotic or imported foods:* Competing with the 'artificial' cheap cost of conventional foods which do not take account of the actual full costs of their production, transportation and marketing, e.g. their impacts on the environment and other externalities, is a major challenge to the greater promotion and availability of BFN.

61. *Literature on vulnerability, food security and ecosystem services has tended to emphasize cultivated foods.* However, there is a growing body of work that clearly demonstrates that BFN, especially wild foods, are an important part of the global food basket. At regional and national level, food balances guide policies on trade, aid and the declaration of food crises. Notably absent from these is the contribution made by wild edible species. With this routine underestimation of wild foods comes the danger of neglecting the provisioning ecosystems and supportive local knowledge that sustain these food chains (both of which have already been alluded to in Section 2.2).

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<sup>28</sup> Lang (2009) Reshaping the food system for ecological public health. *Journal of Hunger and Environmental Nutrition* 4; 315-335

<sup>29</sup> Bharucha and Pretty (2010) *op. cit.*



62. *Biodiverse food-based approaches all too often fall outside the traditional scope of clinical nutrition and public health.* Because of this, food system-based approaches that enhance food availability and diet quality through local production and BFN have been under-researched, under-developed and under-utilized. There tends to be a preference for the international nutrition and health community to focus on technological or quick-fix solutions such as supplements, fortification and biofortification as a solution to nutritional problems, where biodiverse food-based approaches could be the solution or at least part of it. Advocating to the clinical nutrition community that food-based approaches can be complementary will be a challenge and hence the importance of involving strategic national and international partners in this regard. Malnutrition is too complex and too overwhelming an issue not to use all possible resources and avenues in ensuring it is eliminated as quickly as possible.

#### **2.4. Institutional, sectoral and policy context**

63. All four participating countries are committed to improving opportunities for promoting the multiple benefits of BFN and through this to increase prospects for its mainstreaming through biodiversity conservation and sustainable use. All four countries have National Biodiversity Strategy and Action Plans (NBSAP) in place. Brazil ratified the CBD in 1994 and already had in place a series of thematic laws which became part of the national NBSAP. As part of the NBSAP implementation, Brazil published in 2004 its first list and map of Priority Areas for the Conservation, Sustainable Use and Benefit Sharing of biodiversity which has identified the 900 most relevant areas for biodiversity throughout the country. In Kenya, the NBSAP was developed in 2000. It has a key objective to conserve agricultural biodiversity through support to local communities in the production and sustainable utilization of indigenous and/or traditional species for food and other uses. Section 4.5 of the Kenyan NBSAP deals specifically with agricultural biodiversity. Sri Lanka's NBSAP was adopted in 2007 with a validity of 9 years. A recently published addendum to the NBSAP, A Biodiversity Conservation Action Plan, contains a stand-alone chapter on the importance of conservation and sustainable use of agricultural biodiversity. In Turkey, NBSAP was prepared in 2001 and updated, with the participation of stakeholders, in 2008. The NBSAP includes 10 objectives and have targets specific to ecosystems. The Goal 4 of the NBSAP specifically addresses the importance of agricultural biodiversity especially objectives 4.1 and 4.2. The Project will take advantage of the opportunity to work with partner countries to review and revise current NBSAPs and to build on these as part of the process of updating NBSAPs and to elaborate the linkages to new the CBD Strategic Plan and Aichi Biodiversity Targets outlined in paragraph 29 (Section 2.2).

64. Countries are committed to establishing cross-sectoral national policy platforms with incentives (market and non-market) for mainstreaming<sup>30</sup>.

#### **Brazil**

65. In Brazil national policies which support the Project, in addition to the NBSAP, include The Zero Hunger Program, which was developed by the current federal administration as a public policy aimed at eradicating hunger and social exclusion. Briefly, The Zero Hunger Program is made up of a set of actions that are being gradually implemented by the federal administration involving various ministries, other spheres of government (state and municipal administrations), and civil society in the following main areas: (1) implementation of public policies; (2) participatory

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<sup>30</sup> For further detail on the national policy and institutional frameworks, please refer to section 3.6 of this Project document. Additional details on institutions, partners and relevant policies can be found in **Annex B**, Country Background Studies (SWOT analysis of national policy frameworks) and **Annex C**, Project Management and Public Involvement Plan.

development of a food and nutrition security policy and (3) self-help action against hunger. The Food and Nutrition Security Policy, which is a multi-sectoral policy, since it involves actions of different governmental sectors such as the health, education, labour, agriculture, and environment sectors among others, involves actions designed to foster the production, trade, quality control, access and use of food products. The National Food Security Council (CONSEA) plays a leading role in implementing this policy. Both PNAE (School Meals National Programme) and PAA (Food Procurement Programme), partners of the Project in Brazil are members of this council. The Project in Brazil will integrate its activities with on-going initiatives from the federal government (at national level), which were implemented to fulfil the objectives of the three Program/Policy/Plan presented above. These initiatives integrate biodiversity, sustainable production and nutrition and correspond to the frameworks regulating mainstreaming of the conservation of agricultural biodiversity into health and nutrition policies and strategies, as well as the integration of nutrition and health incentives into sustainable conservation policies.

66. The *Conservation, Management and Sustainable Use Programme of work* coordinated by the Ministry of the Environment aims to accelerate the implementation of the Agricultural Biodiversity Work Programme in Brazil, as established in 1996 by Decision III/11 of the Conference of the Parties to the CBD, and, also to implement the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), as well as the priorities established in the Global Plan of Action. The Project activities will be very much aligned with this Programme and reported as contributing to Brazil's achievements and requirements under the international agreements highlighted.

67. The *Food Procurement Programme (PAA) of work*, is coordinated by the Ministry of Social Development and the Fight against Hunger, Ministry for Agrarian Development, National Supply Company of the Ministry of Agriculture, Livestock and Food Supply. The PAA is linked to the Zero Hunger Policy and its objective is to ensure people facing food insecurity have access to food, and to promote social and economic inclusion in the rural areas, by strengthening family farming. Outputs of the Project will inform this programme and will be closely linked.

68. The *Price Assurance for the Sociobiodiversity Products Programme of work*, coordinated by the National Supply Company of the Ministry of Agriculture, Livestock and Food Supply is complementary to the PAA, and its main objective is to assure that extractive products are commercialized at a fair price. The Programme compensates producers if their products do not reach the market value established by the National Supply Company. This programme will be involved in the Project by helping develop market incentives for local biodiversity products.

69. The *Schools Meals National Programme of work*, coordinated by the Ministry of Education aims to improve the nutrition of students (kindergarten, primary, high school and youth and adult education) enrolled in public and philanthropic school. The Project will link closely to this programme and look at ways to build on activities through enhancing the nutritional quality of meals and possible local procurement from small-holders.

70. The *Promotion of Socio-biodiversity Product Chains National Plan*, coordinated by the Ministry of the Environment, Ministry of the Agrarian Development, Social Development and Fight Against Hunger, National Supply Company of the Ministry of Agriculture, Livestock and Food Supply) aims to guarantee the productive inclusion of local populations involved in utilising local biodiversity by promoting socio-biodiversity product chains. The Project will build on these activities and principles by maintaining a focus on value chains for nutrition and agricultural biodiversity.



71. *Organic Agriculture Development - Pro-Organic Action (Pro-Orgânico)*, coordinated by the Ministry of Agriculture, Livestock and Food Supply -MAPA) aims to support and strengthen the sectors of production, processing and marketing of organic products and stimulate the growth of this segment of Brazilian agribusiness.

72. Other important initiatives relevant to the Project include the *Inter-Sectoral Initiative for the Consumption of Fruits and Vegetables, the Science, Technology and Innovation for Inclusion and Social Development Programme* and the *National Programme for the Empowerment of Family Agriculture (PRONAF)*.

## **Kenya**

73. In Kenya, the most notable developments and reforms have been the formulation and implementation of the Economic Recovery Strategy for Wealth and Employment Creation 2003-2007 (ERS), which constituted the Government's policy response to the Globalization, Structural Adjustment Programs and economic liberalization. The strategy has identified agriculture as the leading productive sector for economic recovery. To actualize the ERS, the Government formulated the Strategy for Revitalizing Agriculture (SRA). The implementation of the SRA underscored the need for changes and reforms that were necessary and aimed at transforming Kenya's agriculture into a profitable, commercially-oriented and internationally and regionally competitive economic activity that provides high quality, gainful employment to Kenyans. One of six "fast-track" actions identified by the SRA is to formulate a food security policy and associated strategies. In order to consolidate the gains of the ERS, the Government has successfully launched the Kenya Vision 2030 as the new long-term development blueprint for the country whose focus is to create a "Globally competitive and prosperous country with a high quality of life by 2030". The Vision further aims at transforming Kenya into "a newly industrializing, middle income country, providing a high quality of life to all its citizens in a clean and secure environment". Notably, Kenya's Poverty Reduction Strategy Paper (PRSP) of 2001, the ERS and the Vision 2030 ranked agriculture and rural development as the topmost government priority, with food security listed as one of five key sub-sectors.

74. In view of these new developments at the national, regional and international levels, and given the importance accorded to the agricultural sector, in 2009-2010 the Government developed and launched the Agricultural Sector Development Strategy (ASDS). The overall goal for the ASDS is to position the agricultural sector strategically as a key driver for delivering the 10% annual economic growth rate envisaged under the economic pillar of the Vision 2030. The initiatives to revive the economy and revitalize agriculture are in line with the declaration of the World Food Summit (WFS) of 1996, the United Nations (UN) Millennium Development Goals (MDGs), and the Comprehensive Africa Agricultural Development Program (CAADP) of the New Partnership for African Development (NEPAD) of 2002. Food and Nutrition Security is among the MDGs' requirements that are addressed in global, continental and national development strategies, including CAADP and Vision 2030.

75. While past food and nutrition policy initiatives have met only limited progress and success, a number of important and essential lessons have been learned over the years, which helped guide the formulation of Kenya's new Food Security and Nutrition Policy (FSNP). Kenya's first National Food Policy (Sessional Paper No. 4 of 1981), later consolidated in Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth, aimed to maintain broad self-sufficiency in major foodstuffs and ensure equitable distribution of food of nutritional value to all citizens. This was to be achieved mainly through government interventions, such as setting grain prices, state monopoly of input distribution, and across-the-board fertilizer subsidies. Following the 1991-94 drought,

Kenya's second National Food Policy (Sessional Paper No. 2 of 1994) promoted a market-driven approach, but on a limited scope. The new national FSNP attempts to provide an overarching policy framework covering all key dimensions of food security and good nutrition, and addresses the synergy that links food security and nutrition with poverty reduction. The broad objectives of the national FSNP are: to achieve good nutrition for optimum health of all Kenyans; to increase the quantity and quality of food available, making it accessible and affordable to all Kenyans at all times; to protect vulnerable populations using innovative and cost-effective safety nets linked to long-term development.

## **Sri Lanka**

76. In Sri Lanka the National Agriculture Policy has been formulated by the Ministry of Agriculture and is pending approval by the Cabinet of Ministers. The goals and objectives of this policy has, amongst others, the increase of domestic agricultural production to ensure food and nutrition security of the nation, enhancement of agricultural productivity, adoption of farming technologies that are environmentally-friendly and harmless to health, and enhancing the income and living standards of farming communities. Policy statement 1 of this document (*Promoting agricultural production*), supports the implementation of technically-sound, economically-viable, environmentally-friendly and socially-acceptable programmes to promote sustainable agricultural development with efficient and effective utilization of resources. Policy Principle 16 (*Traditional Agricultural Crops and Methodologies*) supports the fostering, preserving and the dissemination of traditional knowledge in agriculture relating to organic farming, pest control, and preservation and processing of food for nutritional and medicinal purposes, and the facilitation of the exchange of such knowledge among farming communities. Finally, Policy Principle 17 (*Home Gardens*), mentions the promotion of home gardens and urban agriculture to enhance household nutrition and income.

77. Further, a National Nutrition Policy has been formulated by the Ministry of Healthcare and Nutrition and is applicable for a period of ten years. The goal of the policy is to “achieve and maintain the nutritional well-being of all Sri Lankans enabling them to contribute effectively towards national socio-economic growth and development”. The objectives include, amongst others, to ensure food and nutrition security for all citizens and to ensure optimal nutrition throughout the life cycle. In particular, policy statement 5.4.1 supports dietary diversification by promoting the consumption of a wide variety of foods, ensuring the intake of all macro- and micro-nutrients to prevent deficiency disorders and diet-related chronic diseases. This policy context is aligned with the national policy document “Mahinda Chinthana” to provide midday meals to school children, and also with the national Nutrition Committee and the presidential Task Force established.

78. The Project is also consistent with the objectives of the ambitious programme “*Let us cultivate and prosper*” that was launched by the Sri Lankan Government to achieve food security by intensifying indigenous food production. A presidential task force has been appointed to supervise this national priority programme. The Project would enable Sri Lanka to accelerate the implementation of the national priorities and policies at a time when the country is facing a nutritional food crisis due to price rises in imported foods and a decline in the quality of diets throughout the country. This Programme will be facilitated by the proposed Project.

## **Turkey**

79. In Turkey, the Ninth development plan includes targets to ensure food safety and security as well as sustainable use of natural resources in the agricultural sector. The National Rural

Development Plan also highlights the importance of conservation objectives targeting biological diversity. The Ministry of Agriculture and Rural Affairs has adopted the Strategy on Agriculture for the period of 2010-2014, which sets out the agricultural policies and priorities for the country. The enhancement of productivity, diversity and quality of agricultural production and assurance of sufficient and safe food are the first two priority issues set out in the strategy document. The Agriculture Strategy contains five main objectives which are: sustainable agricultural production including protection; sustainability and rehabilitation of natural resources; food security and safety, plant and animal health; rural development; and institutional capacity. Furthermore, one of the main research areas established by Turkey's Agricultural Research Master Plan is biological diversity and genetic resources; the Plan encourages research activities targeting the identification of biological diversity and resources and associated traditional knowledge having a value for nutrition, food security and safety, as well as agricultural production. The Ministry of Health (General Directorate of Primary Health Care, Nutrition and Physical Activity Department) is executing programs relevant to health and nutrition, namely the "Health, Nutrition and Physical Activity Program (2010-2014)" and the "Obesity Prevention and Control Program of Turkey (2010-2014)".

80. The *Health, Nutrition and Physical Activity Programme* and the *Obesity Prevention and Control Programme of Turkey (2010-2014)* are implemented by Ministry of Health with the aim of forming a scientific basis and strong political will to strengthen intersectoral actions for the prevention of obesity, which is increasingly prevalent in Turkey. Specific outputs and activities of these programmes will be linked to relevant components of the Project.

81. Turkey also has in place the United Nations Development Cooperation Strategy (2011-2015) signed by both UNEP and FAO which aligns and adheres to the Principles of the Paris Declaration on Aid Effectiveness. It serves as a strategic document that seeks to bring in innovative and simplified processes for the UN system in Turkey to provide a collective, coherent and integrated response to national priorities and needs including support to national efforts toward the achievement of the MDGs. The strategy also addresses issues of development cooperation and ways in which a middle-income country such as Turkey can articulate a new model of cooperation and partnership with other developing countries through, inter alia, south-south cooperation and triangular cooperation. The strategy also addresses issues of biodiversity and cultural diversity conservation.

82. Detailed information on current national policy and legislative frameworks regulating mainstreaming biodiversity conservation and utilization into health and nutrition programmes are provided in country background studies (**Annex B**, Country Background Study Reports).

### **Global and regional policy context**

83. In addition to the consistency with national priorities and plans outlined above the planned intervention is aligned with the CBD's *Cross-cutting initiative on biodiversity for food and nutrition* and will do much to inform this international forum during Project implementation.

84. The Project supports the objectives and is fully in line with the *International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)*<sup>31</sup>, which is a legally binding instrument that has as its objective the conservation and sustainable use of Plant Genetic Resources for Food and Agriculture (PGRFA) and the fair and equitable sharing of benefits derived from their use, in harmony with the CBD, for sustainable agriculture and food security. PGRFA consist of diversity of seeds and planting material of traditional and modern cultivars, crop wild relatives and

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<sup>31</sup> ITPGRFA <http://www.planttreaty.org/>

other wild plant species, and are the biological basis of food security. The aim of the Treaty is to integrate the concepts of conservation and sustainable use into national policies and strategies that ensure a comprehensive response to the needs of farmers to underpin sustainable intensification of crop production.

85. The Project supports the objectives and is fully in line with the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (GPA)<sup>32</sup>, which is a set of recommendations and activities which grows logically out of the Reports on the State of the World's Plant Genetic Resources for Food and Agriculture.

86. The Project supports the objectives of the relevant Millennium Development Goals 1, 4, 5 and 7 (MDGs). Adopted by world leaders in the year 2000 and set to be achieved by 2015, the MDGs provide concrete, numerical benchmarks for tackling extreme poverty in its many dimensions. The MDGs also provide a framework for the entire international community to work together towards a common end – making sure that human development reaches everyone, everywhere. If these goals are achieved, world poverty will be cut by half, tens of millions of lives will be saved, and billions more people will have the opportunity to benefit from the global economy.

87. The Project supports the objectives of the global Agriculture and Health Research Platform (AHRP). In 2004, the Consultative Group on International Agricultural Research (CGIAR) recognized the potential benefits of cooperation in research, policy-making, and practice between the two sectors and created the AHRP as an umbrella organization to facilitate this cooperation. A CGIAR-wide roundtable in June 2005 led to the development of a comprehensive conceptual framework of agriculture-health linkages, subsequently presented at the CGIAR Annual General Meeting in Marrakech in December 2005. In April 2006, the CGIAR Alliance Executive endorsed the Platform as a basis for further research, capacity strengthening, and communication within and beyond the CGIAR. The Platform has since established a long-term collaboration with the health sector following an October 2006 meeting in Geneva with representatives of the World Health Organization (WHO). A health advisory group of global public health experts advises the Platform, along with a core research group comprising representatives of the CGIAR centres, along with WHO, FAO and several NGOs and academic institutions. The International Food Policy Research Institute (IFPRI) coordinates the work of the Platform on behalf of the CGIAR. The UNEP/FAO Project will seek to exploit linkages to the AHRP to raise awareness about the Project and its outcomes and areas of collaboration and sharing.

88. The Project supports the mandate of the United Nations Standing Committee on Nutrition (UNSCN) which is to promote cooperation among UN agencies and partner organizations in support of community, national, regional, and international efforts to end malnutrition in all of its forms in this generation. It will do this by refining the direction, increasing the scale and strengthening the coherence and impact of actions against malnutrition worldwide, and raise awareness of nutrition problems and mobilize commitment to solve them at global, regional and national levels. The Project partners will use all opportunities to raise awareness about the outcomes and impacts of the Project's work on biodiversity and nutrition to lobby and create awareness within the UNSCN.

## **2.5. Stakeholder mapping and analysis**

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<sup>32</sup> Global Plan of Action

<http://www.globalplanofaction.org/servlet/CDSServlet?status=ND1ncGEmNj11biYzMz0qJjM3PWtvew~~>

89. During the Project’s PPG phase, guidelines were developed describing the types of stakeholders and actors the Project should ideally engage. Based on this guidance the national executing agencies, together with Bioversity International, undertook extensive stakeholder consultations with potential partners and actors, at both the national and international levels, to explore roles and inputs and ways of creating added value and synergies. A detailed description of the major stakeholder and partner groups identified for the Project can be found in Section 5 of this Project document. Section 4 of this Project document elaborates the institutional framework. In addition, **Annex C. Project Management and Public Involvement Plan**, includes detailed descriptions of stakeholders, their potential roles and contributions including their participation in management and coordination at the national and global level.

### Major stakeholders and their participation

<i>Stakeholders</i>	<i>Type of involvement</i>
<p><b>Decision-makers:</b></p> <ul style="list-style-type: none"> <li>• Project International Steering Committee</li> <li>• Project National Steering Committees</li> </ul>	<p>Making appropriate policy decisions and providing necessary guidance and advice to the Project</p>
<p><b>Ministries:</b></p> <ul style="list-style-type: none"> <li>• Ministries of Environment and Forests</li> <li>• Ministries of Agriculture</li> <li>• Ministries of Health</li> <li>• Ministries of Education</li> <li>• Ministries of Rural Development</li> <li>• Ministries of rural Industries</li> </ul>	<p>Representatives will participate in Project management and execution and will be invited to take part in Project consultations, seminars, meetings and workshop for relevant training and ongoing awareness raising and policy dialogues.</p>
<p><b>Scientific community (including academic and national institutions):</b></p> <ul style="list-style-type: none"> <li>• Relevant national R&amp;D Agencies/Institutions e.g. EMBRAPA in Brazil</li> <li>• Botanic Garden e.g. RBG Sri Lanka</li> <li>• Universities in all partner countries</li> <li>• Relevant international universities such as Columbia University, USA</li> <li>• Centers of Excellence in biodiversity</li> <li>• National Museums e.g. National Museum of Kenya (NMK)</li> <li>• National Genebanks</li> <li>• Scientific and Technology Research councils</li> <li>• National Federations of Nutritionists</li> <li>• Relevant global scientific networks e.g. Crops for the Future</li> </ul>	<p>Will support the Project in providing scientific and technical inputs and collaborations in research and development of methods and approaches. Will be invited to participate in Project consultations, seminars, conferences and workshops and to assist with development and delivery of training. Collaborate in the development of outreach materials and the dissemination and up-scaling of Project outputs through peer-reviewed scientific publications.</p>

<i>Stakeholders</i>	<i>Type of involvement</i>
<p><b>Non-governmental organizations and civil society:</b></p> <ul style="list-style-type: none"> <li>• NGOs such as the Rural Outreach Programme in Kenya, The Green Movement and the Community Development Centre in Sri Lanka</li> </ul>	<p>Will help facilitate consultations and collaborations with communities at pilot sites and assist in mobilizing for participatory action research. Will be invited to take part in Project consultations and meetings and will be used extensively in the dissemination of outreach materials at the grassroots level.</p>
<p><b>Multi-lateral agencies:</b></p> <ul style="list-style-type: none"> <li>• The World Agroforestry Centre (ICRAF)</li> <li>• The World Vegetable Centre (AVRDC)</li> <li>• The World Food Programme (WFP)</li> </ul>	<p>Relevant scientific inputs and assistance with research and application of tools, methodologies and approaches. Assistance in development and delivery of training. Sharing of their substantial tools and resources in relevant components.</p>
<p><b>Local communities:</b></p> <ul style="list-style-type: none"> <li>• Community-based organizations</li> <li>• Women's' groups</li> <li>• Youth Groups</li> <li>• Farmer Organizations and Groups</li> </ul>	<p>Will be involved in participatory appraisals and community based activities to map BFN and to mobilize relevant biodiversity-based interventions. Will have access to training and capacity building and other benefits arising through the Project. Will assist in the documentation of information. Involvement in activities pertaining to conservation and sustainable management of BFN.</p>

## 2.6. Baseline analysis and gaps

90. The background studies completed as part of the PPG phase of this Project clearly indicate that some work has already been undertaken in the participating countries, which demonstrates the potential of local BFN (see also Section 2.1). However, this is clearly on a limited scale and for an even more limited number of potential species. Similarly, a limited amount of work in this area has been undertaken by some relevant international organisations, including Bioversity International and some of the international partners identified and highlighted above (AVRDC, Crops for the Future). Despite this, these initiatives are largely piecemeal and fragmented and have had minimal impact when it comes to being taken seriously by a development community looking for viable approaches to dealing with malnutrition and hidden hunger. What these limited studies and initiatives do tend to suggest is that there is considerable potential for both the promotion of local BFN as a significant component for diversifying diets as well as considerable potential for improved marketing of such biodiversity, with a focus on improving nutrition. This is certainly an excellent prospect for this Project but with this comes a considerable responsibility to address these issues and challenges.

91. The generally limited understanding of the potential benefits of utilizing BFN clearly points at several gaps and barriers that impede wider consideration and appreciation of such biodiversity in health, nutrition, agriculture and food security programmes and strategies. Clearly, this Project will need to seek to overcome these gaps. Generally these gaps can be grouped into the following broad categories:

- *Weak evidence base for the benefits of BFN and an absence of an integrated and accessible information management system.* While a number of studies and initiatives have been undertaken to promote the utilization of BFN all too often these studies have failed to fully measure the impacts and outcomes of such biodiversity in terms of its contribution to dietary diversity, nutritional status, and whether the impact is sustainable. Further, the information generated from many of the studies on compositional analysis of such biodiversity, together with other relevant information, is largely fragmented and inaccessible to particular target groups, such as policy makers and decision-makers.
- *Poor partnerships and limited examples of effective cross-sectoral and multi-disciplinary platforms to make the case for BFN.* As noted earlier, a critical gap in trying to promote the better mainstreaming of biodiversity conservation and sustainable utilization for improved dietary diversity and nutrition is the poor collaboration and coordination between relevant sectors to date. There are few or no examples of such platforms in any of the participating countries. The same applies globally. There is an urgent need to bring together the health and nutrition sectors to work together with agriculture and the environment sectors to advocate for better land use planning and policies that are supportive of the conservation and sustainable utilization of BFN.
- *General lack of an enabling policy and regulatory frameworks for the promotion and sustainable utilization of BFN.* It follows from the above two bullet points that both scenarios contribute in a substantial way to the poor policy environment for facilitating the use of BFN as an effective intervention in dietary diversity, food and nutritional security strategies in all four countries. And where does the responsibility fall -- ministries of agriculture or ministries of health?
- *Insufficient market infrastructure and development and poor market information.* Although there are some good examples in participating countries, e.g. African leafy vegetables marketing in Kenya, there are many gaps and barriers that need to be overcome in all four countries to achieve broader marketing success of BFN.
- *Limited understanding of the most effective approaches to promotion, awareness and education on BFN.* There has been considerable effort focused on the promotion of BFN, but these have rarely been evaluated for impact and effectiveness in terms of attitude and behavioural change. This is essential if we are to understand what works and what doesn't work in particular situations and contexts. But facilitating behavioural change is a great challenge even among the most educated.
- *Lack of data on the effectiveness of possible delivery mechanisms for mobilising BFN.* While many initiatives refer to the use of home gardens and demonstration plots, often in combination with other approaches such as marketing and education for mobilizing biodiversity, there has been little effort at comparative analysis of the effectiveness of such approaches, in which situations they might work best, their limitations, how they might integrate with innovative technology platforms, e.g. mobile phones and so forth. How viable are school feeding programmes and other school-based activities such as gardens for integrating agricultural biodiversity? This is important especially in relation to the last bullet point below.
- *Little understanding or knowledge of how to scale-up delivery mechanisms or to mobilize biodiversity on a much wider scale.* Addressing many of the elements in the bullet points above, efforts which this Project will contribute to, will be critical in order for BFN to make a significant impact. Intuitively, most people see the logic in utilizing such biodiversity and how it can contribute in a more sustainable manner to dietary diversity and therefore

improved nutritional status. But trying to promote such an approach as a viable alternative to other ‘magic-bullet’ options such as biofortification or vitamin supplements, is one of the greatest challenges those advocating biodiversity for food and nutrition face. This includes bringing together all such interventions so that they can be used in a complementary and contextually-appropriate manner. Part of the rationale for the inclusion of the international partners in the Project (see Section 4) is to address this issue and demonstrate that such challenges can be overcome, and that biodiversity is indeed a sustainable and viable option for addressing malnutrition and food security.

92. To address these gaps the Project will support implementation of a number of key activities, which are articulated in Section 3.3 of this document

## **2.7. Linkages with other GEF and non-GEF interventions**

93. There currently exists considerable global political will to address malnutrition with significant calls for agriculture to focus more on nutrition objectives and outcomes. This should translate into greater opportunities for agricultural biodiversity. The Project, through its assessment of nutritional and livelihood benefits from local food products derived from the rich agricultural biodiversity in the four participating countries, will certainly avail itself of these opportunities and contribute to international efforts to address global food concerns such as the response to soaring food prices across the globe, the effect of globalization of diets on health and the need to promote the effective conservation and utilization of this globally significant resource. Through the establishment of cross-sectoral policy platforms to promote the mainstreaming of biodiversity, the Project will create synergies with relevant global initiatives and will provide linkages with national programmes.

94. Further, each of the four participating countries have an active United Nations Development Assistance Framework (UNDAF) in place. A UNDAF elaborates an agreed programme between the country and a United Nations country team and describes the collective actions and strategies of the United Nations towards the achievement of national development priorities. The UNDAF, which aims to maximize the UN’s comparative advantage, includes outcomes, activities and UN agency responsibilities, including those of FAO and UNEP (and also WFP), that are agreed by government. Many of these are highly relevant to the Project. By mainstreaming the Project into national UNDAF mechanisms, the opportunity to increase impacts and promote out scaling are enhanced. Further, the UNDAF mechanism provides greater opportunities for improved cross-sector uptake of Project outcomes and results, as well as contributing to enhanced Project sustainability. Both UNEP and FAO will endeavor to ensure that there is effective sharing of information and coordination between the Project and relevant country UNDAF programmes and will ensure efforts are undertaken to mainstream the Project into the UNDAF coordination and implementation process. The relevant country partner UNDAF programmes are elaborated below.

95. In **Brazil** these efforts include the identification of species of the Brazilian flora of current and potential economic value utilized at local and regional levels through *The Plants for the Future* Project (coordinated by the Ministry of Environment). Developed in 2005-2007, *The Plants for the Future* project aims to survey, document and promote the conservation and sustainable utilization of plant species with economic value or economic potential in Brazil. It has already prioritized (over 700 spp.) a range of local but globally significant biodiversity, some of which will be a focus of work in the proposed Project. Many of the initiative’s themes of *The Plants for the Future* project cut across the three components of the proposed Project. Further, Plants for the Future could



provide a useful institutional model for other countries to address neglected but economically important biodiversity.

96. *National Biodiversity Mainstreaming Project – PROBIO*. The World Bank/GEF supported PROBIO projects (I and II) were designed to specifically address CBD implementation. The first PROBIO project (*Project on the Conservation and Sustainable Use of Brazilian Biodiversity*) aimed at identifying priority actions to promote public-private partnerships and generate and disseminate biodiversity knowledge and information. PROBIO II (*National Biodiversity Mainstreaming Project*) intends to enhance the transformation of the production, consumption and land occupation models, starting with the agricultural, science, fisheries, forest, and health sectors. Its overarching objective is to promote public-private partnerships to overcome the borders between territories under different ecological management and the landscapes dominated by economic sectors responsible for large-scale negative environmental impacts, to convert such landscapes into sustainable territories. The proposed Project will build on some of the relevant outcomes of this initiative and look to the PROBIO initiative for guidance on mainstreaming and disseminating biodiversity knowledge and information.

97. The proposed Project will also build on the outputs and outcomes of several GEF supported projects in Brazil:

98. *The World Bank/GEF “Brazilian Biodiversity Fund”* project. This project helped establish the Brazilian Biodiversity Fund (FUNBIO) which provides modest long-term financing for projects consistent with priorities identified in the MMA managed workshops in the National Biodiversity Project.

99. The UNEP/GEF project “*Improving Brazilian Capacity to Conserve and Use Biodiversity through Information Management and Use*” project aims to ensure data-driven policy design and implementation by facilitating and mainstreaming biodiversity information and decision making and policy development processes.

100. The World Bank/GEF project “*National Biodiversity Mainstreaming and Institutional Consolidation*” which aims to promote the mainstreaming of biodiversity and institutional consolidation at the national level.

101. The World Bank/GEF “*Sustainable Cerrado Initiative*” designed to promote cooperation among states and/or institutions and ensure a coordinated approach to address biome-wide Cerrado conservation activities.

102. The World Bank/GEF “*Rio Grande Do Sul Biodiversity Conservation*” Project aims to promote the conservation and restoration of biodiversity in the states grassland ecosystem by strengthening the implementation of public policies that enhance the development of improved management and production systems and raise awareness and institutional capacity.

103. The UNDP/GEF Project “*Promoting Biodiversity Conservation and Sustainable Use in the Frontier Forests of North-western Mato Grosso*” which developed integrated approaches to the protection and sustainable use of biodiversity on private lands and the strengthening of municipal planning, policies and monitoring.

104. The World Bank/GEF “*Parana Biodiversity*” Project which established frameworks to encourage community and private sector participation in conservation by employing sustainable development production systems.

105. Brazil's UNDAF (2007-2011, currently being revised and updated) identifies 5 major cross-cutting priority areas or outcomes. Outcome area 1.2, *Improved access, quality, participation and social control in ensuring the right to food security*, is particularly relevant to the Project. The Project in Brazil will make an important contribution to supporting all 4 identified outputs for this specific outcome, which includes: Output 1.2.1. *Institutional capacities strengthened in the formulation of legislation on food and nutritional security and in the design, implementation and effective management of food programmes particularly in municipal systems*; Output 1.2.2. *Social managers trained in the promotion of adequate nutrition*; Output 1.2.3. *Managers trained and population informed on ways to reduce maternal and child malnutrition*; and Output 1.2.4. *Government and non-government agents trained in the use of a monitoring system of the right to food security*. In addition, Output 1.1.7. *Capacities of the education system strengthened and youth networks supported in the promotion and dissemination of environmental and scientific education* (Outcome area 1.1 on right to education) is particularly relevant to the Project in Brazil.

106. In **Kenya** linkages will be created with a number of national programmes, which are outlined in Section 2.4 and several Projects listed below:

107. The Project, *"The effects of market integration on the nutritional contributions of traditional foods to the well-being of the rural poor in Africa"*, funded by the Gates Foundation aims to collect and analyze production, expenditure, socio-economic, market, consumption, nutrition and health data in communities in Kenya and Benin, to subsequently improve market chains for local agricultural biodiversity and improve the livelihoods and well-being of rural and urban populations. The proposed Project will use the lessons learned from this Project to guide the development of value chains and marketing of Project prioritized agricultural biodiversity.

108. A regional project *"Making Agri-Food Systems Work for the Rural Poor in Eastern and Southern Africa"*, Kenya, Uganda and Malawi, funded by the International Development Research Centre (IDRC) rural poverty and environment programme initiative. The objectives of the project are: (i) to identify and promote local innovations and adaptation strategies that work for the rural poor to cope with food security vulnerabilities; (ii) to test, adapt and scale-up technology and market innovations for promoting orphan crops that enhance food security, increase incomes and ecosystem integrity in selected areas of Malawi, Kenya and Uganda; (iii) to analyze and promote specific policies and governance mechanisms for sustainable agri-food systems; and (iv) to determine mechanisms for scaling-up agri-food systems and sustainable agriculture. The proposed Project will make use of the lessons emerging from this project in relation to promoting local innovation, market innovations, promoting relevant policies and scaling-up nutritionally rich agri-food systems.

109. *"Development of Pro-poor Agro-enterprise Value Chains for Sustainable Rural Livelihoods, Ford Foundation"* project. This project focuses on five agro-enterprises -- banana, ALVs, passion fruit, beekeeping and rearing of indigenous chickens -- in an effort to lead to improved household welfare and increased incomes among resource-poor farmers and vulnerable groups, especially women. As the lead agency, KARI will ensure that lessons learned and good practices stemming from the project are shared with the Project and that synergies are explored.

110. *"Managing agricultural biodiversity for better nutrition and health, improved livelihoods and more sustainable production systems in sub-Saharan Africa: the case of Kenya, South Africa and Benin"* project. Funded by IDRC, the project aims *inter alia* to build up a database of nutritional information about local plants. The proposed Project will build on this initiative in Kenya.

111. Kenya's UNDAF (2009-2013) identifies three priority areas and a number of supporting outputs. While addressing and contributing to many of these, the Project specifically supports Priority Area 3: *Promoting sustainable and equitable economic growth for poverty and hunger reduction with a focus on vulnerable groups* and its concomitant outcomes 3.1: *Economic growth, equitable livelihood opportunities and food security for vulnerable groups enhanced and sustained*; and 3.2: *Enhanced environmental management for economic growth and equitable access to energy services and responses to climate change*.

112. In **Sri Lanka** links will be sought with national initiatives such as the *Dry Zone Livelihood Support and Partnership Programme*, funded by the International Fund for Agricultural Development (IFAD), which is being implemented in three districts by the Sri Lanka Ministry of Agriculture with support from IFAD. The aim of the project is to assist the rural poor to improve their incomes and livelihoods by increasing their access to land and water resources, services, technologies and market linkages. The project targets small-scale farmers, particularly young households and female-headed households, in which there is a chronic shortage of productive members. The project includes participatory assessment of constraints in rainfed and irrigated farming, from production to marketing. In farmer field schools, participants develop solutions that they disseminate to individual farmers. The Project plans to build on these efforts and work in pilot sites in the Small Tank systems in Anuradhapura and Kurunegala Districts.

113. Links will also be sought with the IFAD funded "*Smallholder Plantations Entrepreneurship Development Programme*", which addresses the needs of rural populations that have resettled on non-viable tea estates, of landless people in villages in the Kandy, Kegalle and Nuwara Eliya Districts, and of small-scale farmers in the Moneragala district. IFAD directly supervises the programme, working in partnership with USAID, the private sector and local banks. The objectives are to strengthen the capacity and skills of the poor and build sustainable out-grower schemes.

114. The IFAD supported *National Agribusiness Development Programme*, on the other hand, aims to increase the incomes of smallholder farmers by 20- 30% by: i) providing farmers with business expertise so they can take part in joint ventures with the private sector as equal partners; ii) providing farmers with access to financial resources so they can take advantage of emerging opportunities, helping them to overcome poverty; iii) building farmers' processing capacity and providing them with better access to markets; and iv) increasing on-farm productivity leading to better farm-gate prices. The programme organizes and helps poor rural farmers to form companies, to own shares in processing centres, and to ultimately obtain an income from business contracts with private companies and community-based organizations. The Project will collaborate with this initiative on improving farmer linkages to markets and the development of value chains for agricultural biodiversity and nutrition.

115. The Project also intends to build on outcomes stemming from the collaborative project between the Horticultural Research and Development Institute (HORDI) of Sri Lanka and the United States Department of Agriculture (USDA) on "*Germplasm Conservation Project - Exploration, Collection, Conservation and Characterization of Under-utilized Fruits*". Started in 2002, this on-going programme includes: i) the exploration, collection, characterization, evaluation and conservation of under-utilized fruit species; ii) the development of propagation techniques; iii) studies on crop growth performances, cultivation potentials, and on biotic and abiotic stresses of fruit species; iv) development of a database holding information collected and potential crop distribution maps based on environmental conditions developed using Floramap-GIS software.

116. The joint *World Agroforestry Centre (ICRAF) Sri Lanka Programme*, which aims to enhance the understanding of agroforestry science through educational, research and networking activities. The programme has established three networks (fruit, timber and medicinal plants), and helps network members to prioritize species for domestication. This includes carrying research through national agricultural research systems (NARS) on species such as teak (*Tectona grandis*), *Eucalyptus* spp., Indian gooseberry (*Phyllanthus emblica*), Bael (*Aegle marmelos*), *Annona* spp., jackfruit (*Artocarpus heterophyllus*), dragon fruit (*Hylocereus* spp.) and brindal berry (*Garcinia* spp.). ICRAF supports information sharing within the NARS. It also helps to build regional networks and enhance agroforestry education and research in Sri Lanka. The programme is also engaged in promoting policy documents with national partners. The Project will work closely with this initiative on important and prioritised fruit tree species.

117. The Ministry of the Environment of Japan and the United Nations University Institute of Advanced Studies (UNU-IAS) jointly initiated the *Satoyama Initiative*, an international effort that aims to promote and support socio-ecological production landscapes, which have been shaped over the years by the interaction between people with nature. Sri Lanka is well embedded in the *Satoyama Initiative* having had three case studies accepted for inclusion. The Small Village Tank System and Kandyan homegardens will also be a focus of the Project and will benefit from synergies and complementarities with the *Satoyama Initiative*.

118. The UNEP-GEF project “*In Situ conservation of Crop Wild Relatives through Information Management and Field Application*” has built network of policy-makers and technical personnel at all levels in the Agriculture and Biodiversity Conservation sectors. It also inventoried the country’s Crop Wild Relatives (CWR), which include many wild harvested plants and medicinal plants. The project was identified as one of the most successful Projects conducted in Sri Lanka to date. The approaches used in this project will also be used in the proposed Project.

119. The UNEP/GEF project “*Mainstreaming agrobiodiversity conservation and use in Sri Lankan agro-ecosystems for livelihoods and adaptation to climate change*” aims to establish greater coordination among different national agencies so that agricultural biodiversity can be mainstreamed into strategies for ensuring the resilience and adaptability of the country’s agricultural sector in the face of climate change. There are obviously important collaborations and synergies between this initiative and the proposed Project, and there may also be considerable overlap in terms of selected ecosystems and species.

120. The UNEP/GEF “*Development and application of decision-support tools to conserve and sustainably use genetic diversity in indigenous livestock and wild relatives*” project, executed by the University of Peradeniya, aims to promote the conservation of indigenous livestock for future generations and their increased contribution to livelihoods through enhanced use. It is possible for Project to link with this initiative to enhance the use of nutritious indigenous livestock.

121. Supported by UNDP/GEF and coordinated by the Ministry of Indigenous Medicine, the “*Sri Lanka Conservation and Sustainable use of Medicinal Plants project*” carried out research on many native plant species of both medicinal and agricultural importance. The outcomes of this project, which ended in 2004, will be important to identify useful components of biodiversity, establishing their value and improving biodiversity management of medicinal plants. The Project will add a new element to this work, that is the nutritional value of biodiversity and ways it can be used to manage biodiversity more sustainably and promote its conservation.

122. The UNDP/GEF “*Strengthening capacity to control the introduction and spread of alien invasive species in Sri Lanka*” project, to be executed by the Biodiversity Secretariat, aims to build

capacity across sectors to control the introduction and spread of invasive species in Sri Lanka, in order to safeguard globally significant biodiversity. It may be possible to link with this already approved project and the best practices for control of invasive species could be adapted in the nutrition project sites to conserve nutritious biodiversity.

123. The World Food Programme “*Midday Meal Programme*” is conducted in selected schools especially in rural areas of Sri Lanka. The idea is to provide the junior school level students with a nutritious balanced meal. The department of education provides the menu for meals depending on the area of the school location. The proposed Project will link with the Midday Meal Programme of the nutrition education division of the Ministry of Education to modify the present meal menu by inclusion of food from local biodiversity, growing nutritious local food in school gardens and organizing local suppliers of nutritious locally-produced food to the school meal program.

124. Sri Lanka’s UNDAF (2008-2012) highlights the priority area of economic growth and social services. This effort is pro-poor, equitable, inclusive and sustainable in fulfillment of the MDGs and MDG plus, and focuses in particular on the rural areas, which makes it particularly relevant for the Project. More specifically, this area contains the following outputs which the project would support and contribute to: Output 1.3: (Food Security) Key food security strategies mainstreamed to ensure improved household food security through better food production, access and utilization; Output 1.5: (Sustainable Natural Resources Management) Improved policy and strategic interventions and related investments to ensure sustainable natural resource management are in place; Output 2.2: (Health and Nutrition) Priority health and nutrition concerns are fully integrated into all relevant policies, strategies and programmes for implementation throughout Sri Lanka, including the development of a National Food Security Programme; and Output 4.5 Vulnerable households increase their ability to meet their food and nutrition needs through improved knowledge about dietary practices.

125. **Turkey** has already executed two full-size GEF funded projects targeting the conservation and sustainable use of biodiversity.

126. The World Bank/GEF project “*In Situ Conservation of Genetic Resources*”, executed between 1993-1998 by the Ministries of Agriculture and Rural Affairs, Forestry (MOF), and Environment (MOE). This pilot project aimed to conserve the genetic diversity of wild relatives of cultivated plants and forest tree species of global importance. The proposed Project will build on relevant aspects of this initiative including determination of the nutritional value of some of the biodiversity it addressed. The Project will create links between existing environmental conservation and management strategies.

127. The recently completed project, “*Biodiversity and Natural Resources Management*”, supported by UNDP/GEF, explored opportunities in four distinct sites for mainstreaming biodiversity conservation in forest planning and management, local land use planning, tourism development, agricultural extension and environmental management of water systems. The proposed Project will build on the results of this project, extending the mainstreaming of biodiversity sustainable use and conservation into nutrition and health programmes.

128. The UNDP/GEF project “*Enhancing Coverage and Management Effectiveness of the Subsystem of Forest Protected Areas in Turkey’s National System of Protected Areas*” aims to ensure sustainable use of natural resources in the Kure Mountains and the development of alternative livelihood options for local communities. Kure Mountains is located in the Black sea Pilot Site of the Project and the objectives of these two projects will feed each other.

129. Additional projects and programmes which were or are being conducted by national organizations and which are relevant to the Project include the following:

- “*Determination of National Food Composition and Formation of a Widespread Sustainable System, Turkish Food Composition Database project*”. The project is coordinated by the Marmara Research Centre Food Institute, in collaboration with the Ministry of Agriculture and Rural Affairs, General Directorate of Agricultural Research, the Ministry of Health and the Refik Saydam National Public Health Agency. Project deliverables include: i) national food composition data base; ii) the production of a national food composition data book and nutrition tables; and iii) traditional foods registration documents. The proposed Project will build on the outcomes of this project especially in relation to output 1.2. National portal on local foods, containing databases on nutritional properties of agricultural biodiversity and associated traditional knowledge, developed in each country and linked to relevant national and global nutritional databases.
- The project “*Healthy, Nutrition-Friendly Schools (Beslenme Dostu Okul)*” launched by Ministry of Health in collaboration with Ministry of Education with the aim of educating children on healthy and balanced nutrition. Collaborations and linkages to Project activities on school gardens, meals and education will be established.
- The Project “*Plant Biodiversity Conservation and Research*” and the Project “*Ecosystem Conservation and Management for Threatened Plant Species,*” developed in the framework of the National Plant Genetic Resources Conservation Programme.
- The “*International Winter Wheat Improvement and Germplasm exchange Programme*” jointly carried out by TAGEM, CIMMYT and ICARDA since 1987. This globally-recognised programme has distributed improved material to 165 wheat improvement programmes in 50 countries. This programme also facilitates the collection, conservation and exchange of globally-important germplasm including forages and legumes that will be of relevance to the Project.

130. Turkey’s UNDAF (2011-2015) identifies three priority areas of cooperation which cover areas of significant relevance to the Project: 1. *Democratic and environmental governance*; 2. *Disparity reduction, social inclusion and basic public services*; and 3. *Poverty and employment*. While addressing most of the identified seven concrete results identified in these three areas, the Project would specifically seem to support Result 3: *Strengthened policy formulation and implementation capacity for the protection of the environment and cultural heritage*.

131. **Globally** the Project will contribute to the achievements of the CBD’s “*Cross-cutting initiative on biodiversity for food and nutrition*”, established in 2006 under the CBD’s Programme of Work on Agricultural Biodiversity, which aims to promote the sustainable use of biodiversity in programmes contributing to food security and improved human nutrition. The Project will play a pivotal role in moving forward the agenda of the cross-cutting initiative and will be critical to its ongoing success by demonstrating the results and outputs of country partners. The outcomes and knowledge generated from the project will also be used to inform the Conference of the Parties (COP) and the Subsidiary Body for Scientific and Technological Advice (SBSTA) mechanisms of the CBD through side events and other opportunities.

132. The new CGIAR Mega-programme: *CRP 4 Agriculture, Nutrition and Health*. The CGIAR system is currently undergoing a major restructuring aimed at improving collaboration among international centres. A new operational mechanism, the CGIAR Research Programmes (CRPs),

has been proposed to facilitate such an approach bringing together relevant centres and stakeholders around a particular theme or programme. A number of these CRPs are relevant to the Project including CRP 2. Policy, Institutions and Markets; CRP 3. Grains and Legumes; CRP 4. Agriculture, Nutrition and Health; and CRP 5. Water, Land and Ecosystems. Bioversity is involved in a number of these CRPs especially CRP 4. Involvement of Bioversity as global coordinator of the Project will ensure that activities and outputs are embedded in relevant CRPs and that the Project benefits fully from information, knowledge and opportunities (Annex D, Links between the Project and the new CGIAR CRPs). Bioversity has also developed a Nutrition Strategy 2011-2015 and efforts will be made to ensure the Project is closely aligned with implementation of these strategies and programmes and benefits fully from opportunities and synergies through these broad programmes<sup>33</sup>.

133. The Project will also seek to build synergies with the following FAO country programmes in food composition, through involvement in INFOODS<sup>34</sup>: LATINFOODS in Brazil, SAARCFOODS in Sri Lanka, EUROFOOD in Turkey and AFROFOODS in Kenya.

134. FAO also hosts the *Food Composition Database for Biodiversity*. In addition, food composition training materials that have been developed by FAO, based on the *Food Composition Database for Biodiversity*, for use as distance-learning and classroom courses, will be used to assist country partners develop capacity to undertake compositional analysis and establish national databases and nutritional information systems

135. Both FAO and Bioversity International collaborate with the "*Biodiversity and Sustainable Diets*"<sup>35</sup> initiative. The Project will provide information and knowledge to support this initiative and *vice versa*.

136. *The African Nutrition Leadership Program*. The Project will establish links with this programme which can be leveraged for capacity-building as it aims to assist the development of future leaders in the field of human nutrition in Africa.

137. "*Global Alliance for Improved Nutrition*" (GAIN). The Project can be linked through GAIN for the promotion of fruits and vegetables to ensure it has a wider reach. GAIN also focuses on reducing the prevalence of micronutrient deficiencies among target groups by increasing the regular consumption of fortified foods, using markets to deliver improved nutrition based on public health objectives. The Project will avail itself of all opportunities to lobby and create awareness about Project-tested and evaluated approaches to mobilize and deploy biodiversity for food and nutrition.

138. "*Helen Keller International (HKI)*". Both HKI and the Project have a focus on sub-Saharan Africa. HKI has a strong track record in this region for partnership to address malnutrition and using homegardens to mobilise diversity, which will also be an approach to deployment of biodiversity that the Project will evaluate.

139. "*Alliance for a Green Revolution in Africa*" (AGRA). The Project will explore links with AGRA, which is working on entrepreneurial practices for household/community fruit and vegetable processing products for income generation through better agriculture inputs and output markets.

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<sup>33</sup> A copy of the nutrition strategy is available from the Bioversity website

<sup>34</sup> INFOODS [http://www.fao.org/infoods/index\\_en.stm](http://www.fao.org/infoods/index_en.stm)

<sup>35</sup> Biodiversity and Sustainable Diets <http://www.fao.org/ag/humannutrition/biodiversity/meetings/en/>

140. “*REACH - Ending Child Hunger and Undernutrition*”. The proposed Project supports the goals and objectives of REACH, a global partnership committed to meeting the nutrition needs of the world's most vulnerable children and women, through evidenced based analysis and innovative programming that builds government institutional capacity, strengthens policy planning skills and prioritizes scarce resources. REACH was jointly established by FAO, WHO, UNICEF and WFP. REACH and its partners coordinate and guide government-led efforts to scale-up proven and effective interventions to link child undernutrition, food security, health, and care in a sustainable package. Nutrition interventions are often neglected and under resourced because they require multi-sector cooperation with Ministries of Health, Agriculture, Education, Planning and Transportation (water and sanitation) and do not fit neatly into one government ministry. The outcomes and activities of the proposed Project, will promote effective and tested delivery mechanisms for agricultural biodiversity as an intervention to improve child malnutrition.

141. IFAD-funded project “*Enhancing the contribution of neglected and underutilized species to food security and to incomes of the rural poor*”. As the proposed Project is directly concerned with the conservation and sustainable use of neglected and underutilized species, it will build on the experiences gained through this IFAD-funded, Bioersity implemented programme, which ran from 2001 to 2005 and complement the ongoing activities carried out in the follow-up programme, “Empowering the rural poor by strengthening their identity, income opportunities and nutritional security through the improved use and marketing of neglected and underutilized species”, which started in 2007.

142. The Project will establish synergies with UNEP’s Programme of Work, sub-programme 3: Ecosystem Management through Projects 4 and 9. Project 4, *Biodiversity and Ecosystem Functioning*, seeks to develop practical tools to improve countries’ understanding of the relationship between biodiversity, ecosystem functioning and ecosystem services and apply this knowledge to ecosystem management. It also aims to develop biodiversity targets and indicators that link biodiversity and ecosystem services and integrate them into sectoral management plans. Project 9, *Evaluating the Trade-offs and Benefits of Sustainable Food Production Systems*, aims to strengthen the capacity of national policy makers and planners to understand the linkages between food security and environmental degradation, undertake economic valuation of ecosystem services relevant to food security and analyze the trade offs and distributive impacts of food security policies. The ecosystem approach will be demonstrated at two levels: national policy and decision makers, and food producers in areas of high agricultural intensification.

143. To focus its efforts over the period 2010–2013, UNEP has developed a Medium-term Strategy which will enable it to work more efficiently and effectively to achieve its goals. The new approach strengthens the capacity of UNEP to deliver on its mission by focusing on six thematic priorities, three of which are particularly relevant to the Project: *Resource efficiency* - to ensure that natural resources are produced, processed and consumed in an environmentally sustainable way, paving the way to the Green Economy, in which environmental impact is decoupled from economic growth and social co-benefits are optimized; *Environmental governance* - to ensure that environmental governance and interactions at the country, regional and global levels are strengthened to address environmental priorities; and *Ecosystem management* - to ensure that countries use the ecosystem approach: the holistic management of land, water and living resources to promote conservation and sustainable use to enhance human well-being. Mechanisms will be put in place to ensure sharing and exchange of information on relevant activities and components so as to inform both the Project and the relevant UNEP thematic priorities.

144. UNEP also hosts the study for the *The Economics of Ecosystems and Biodiversity (TEEB)*. TEEB has recently published four comprehensive reports directed at educating specific interest



groups (eg business, policymakers, etc) about the concept of valuing ecosystems and biodiversity. The TEEB project is about to commence Phase III - its implementation phase. Planned work in this phase includes a TEEB for Agriculture study which will look at an analysis of sustaining nutrients in plants and depletion of soils and a TEEB Brazil study. There is considerable potential to explore the synergies between this Project, the TEEB project and work being carried out in this area at the Earth Institute, Columbia University. The Earth Institute are active in the area of sustaining the contribution to human nutrition by nutrients provided through crop production and nutrient recycling to avoid soil depletion (see the De Clerck reference cited in footnote 3). TEEB also has potential to assist with up-scaling of the Project results and outcomes through its extensive network of experts comprising economists and related professionals. Phase II and III of TEEB has a dedicated communications team who could inform and work with the TEEB Network of Experts to support the proposed GEF Project, especially in areas where the 2 projects are complementary.

145. An important initiative, *Community Biocultural Protocols* (CBPs), which UNEP is addressing, has a close link with the Project's planned work with local communities and their traditional knowledge. UNEP, through the MEAs which it administers, and in particular the CBD, and through its own programme of work, addresses traditional knowledge protection and its use for environmental sustainability and human well-being. A good example of UNEP's work on traditional knowledge is the partnerships it has developed in *Community Biocultural Protocols* that were show-cased at the Conference of the Parties of the CBD in October 2010. UNEP has, in the last two years, produced numerous publications intended for advocacy, policy-makers and knowledge base on BCPs and traditional knowledge. Using the BCP approach as a basis, UNEP is currently developing a tool-kit on community based resource rights and how actions on the ground could link to issues of access to resources, conditions of access and sharing of benefits. The BFN related actions need such policy and action linkages at local level that could be better facilitated by the BCP and resource rights based approaches. UNEP is currently working on a publication that looks at the role of MEAs and the law in promoting traditional knowledge for sustainability. The newly adopted Nagoya protocol on Access and Benefit Sharing (ABS) offers a unique opportunity for the countries to link issues of access to knowledge, practice of use of traditional food sources with markets and value-addition actions in a manner the communities could benefit from the ABS agreements, both within the country and outside. Examples of such work could include sharing knowledge, resources and benefits within the Project countries. The proposed Clearing House Mechanism (CHM) under the ABS Protocol at global and national levels could benefit from the establishment of this Portal and *vice versa*. These are areas of work which UNEP could facilitate.

146. In addition, the Project will complement this UNEP/GEF project, executed by FAO, on the "*Conservation and Management of Pollinators for Sustainable Agriculture, through an Ecosystem Approach*". As mentioned both Brazil and Kenya participate in this project. The pollinators' project and this Project use a holistic, eco-health approach and can mutually strengthen each other by simultaneously tackling ecological processes supporting biodiversity conservation and socio-economic drivers supporting biodiversity consumption and use. The two projects will work closely in Brazil and Kenya, and can create synergies at a global level. Of particular interest is that much of the plant biodiversity the Project would work with is often pollinator-dependent or attractive to pollinators, since these traits have not been bred out by conventional plant breeding.

147. UNP/GEF project "*Conservation and Sustainable Use of Cultivated and Wild Tropical Fruit Diversity: Promoting Sustainable Livelihoods, Food Security and Ecosystem Services*". The proposed Project will also benefit from lessons learned from this project, which can provide methods for linking biodiversity to markets and providing guarantees of provenance, while the nutrition project can contribute in turn methodologies on marketing the nutritional qualities of local foods which can strengthen the work on tropical fruit trees.

148. UNEP/GEF project *"In Situ/On Farm Conservation and Use of Agrobiodiversity in Central Asia."* This Project developed applicable methodologies in working together with indigenous communities to enhance the conservation and use of local plants, which can be replicated in communities involved in the proposed Project.

149. Similarly the UNEP/GEF supported project *"Conservation and use of crop diversity to control pests and diseases in support of sustainable agriculture"* has developed methods for community based assessment of diversity of direct applicability to the proposed Project.

### SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

#### 3.1. Project rationale, policy conformity and expected global environmental benefits

150. An enormous array of biological diversity exists collectively between the four countries participating in the Project including many endemic plant species of potential high value from a nutritional and livelihoods perspective. Sections 2.1 and 2.6 summarise briefly some of the work ongoing in countries in relation to the conservation and sustainable utilization of this biodiversity. Some preliminary data has demonstrated the potential value of local biodiversity for food as an appropriate source of nutrients and diversification of diets in the participating countries. Similarly, preliminary data has demonstrated that this same biodiversity has high potential market value and can be utilized to target niche markets thereby generating much needed cash for small farmers and rural poor. However, this rich array of biological diversity is increasingly exposed to threats and barriers in all four countries, including unsustainable harvesting, land degradation, urbanization, changes in land use, droughts and floods including neglect as a result of the marketing and promotion of simplified food systems.

151. There also exist a number of socio-economic and policy-regulatory issues which work against the promotion and sustainable utilization of this BFN in each country. This is compounded by the limited understanding and awareness of the potential nutritional value and benefit of this biodiversity among important stakeholders and decision-makers working in national planning, environment, health and agriculture. While there is some evidence that shows the enhanced nutritional value of this biodiversity, previous efforts to establish a link between biodiversity and dietary diversity and improved nutrition have been limited. This is hardly surprising given the challenge of establishing such a link. Finally, all of this is compounded by the limited, but much needed, cross-sectoral and multi-disciplinary approaches required to address these threats, barriers and challenges.

152. The Project will target a series of activities and interventions aimed at improving the evidence base for mobilizing biodiversity, enhancing the policy and regulatory framework, strengthening value chains for biodiversity and nutrition and improving education and awareness. A major focus of the work will be on assessments of local BFN in selected pilot sites in the four countries to determine the nutritional value of local species while at the same time implementing activities to determine the most effective ways to mobilize this biodiversity to demonstrate that its sustainable utilization can contribute to improved dietary diversity and livelihoods in general. To this end, Component 1 seeks to undertake a significant programme of participatory assessment and research based in 10 selected sites which will establish the availability of local BFN, the chemical nutritional content of a prioritized species in these sites and analyse the effectiveness of deployment methods such as home gardens, school meals, awareness and education campaigns and so forth. The information generated will be consolidated and integrated in national information systems also planned within this component. In so doing, the Project aims to generate incentives and a favourable enabling environment which will strengthen the conservation and sustainable management of agricultural biodiversity through mainstreaming into national and global nutrition, food security and livelihood strategies. **Appendices 4 and 5** outline in logical framework and workplan format the key activities, outputs and outcomes the Project will employ to achieve this.

153. Targeting various core areas (elaborated further in Section 3.3), the Project will build on ongoing country (and relevant global) efforts and networks targeting BFN and add substantially to the body of evidence for the nutritional benefits of biodiversity, its role in addressing issues of dietary diversity and creating incentives for mainstreaming its conservation and sustainable use by:

- Demonstrating and promoting the nutritional diversity and value of local biodiversity especially of local and endemic biodiversity in select sites. The Project will work closely with rural communities in pilot sites in order to map local farming and food systems to capture the biodiversity inherent in this, its functional nutritional diversity and establishing its contribution to local diets and, if resources permit, its impact on nutritional status. The Project aims to promote best practices to mobilize and deploy such BFN such as linking to school meals and gardens and home gardens.
- Emphasising the need to manage information in an appropriate manner which supports Project outcomes and can reach out beyond the Project to influence policy and decision makers. This information will include relevant traditional knowledge associated with biodiversity. This collective body of information and knowledge will be made available through relevant local, national and international information systems. The Project views the demonstration of the links between biodiversity and improved nutrition, and making this information available in appropriate ways, as fundamental to the task of increasing demand for its sustainable utilization, and thereby conservation, and integration and mainstreaming to a wide range of sectors, programmes, strategies and activities covering health and food security.
- Promoting the gradual and sustained development of value chains for biodiversity with potential nutritional benefits and by building on ongoing work of this nature. This will include supporting marketing initiatives and strategies that depend on biodiversity and its sustainable use via interventions specifically designed to address the most important barriers identified in participating countries as described in Section 2.3.
- Bringing together relevant actors and partners the Project intends to establish cross-sectoral platforms which will facilitate the necessary integrated approach for a Project of this nature. This will include relevant stakeholders spanning the environment, agriculture, education, health and other important sectors.
- Facilitating and fostering policies and strategies that promote the mainstreaming of local biodiversity into health, nutrition and agricultural programmes. In this regard policy-makers and decision makers will be a key target group for the Project. The Project will also draft policy guidance and case studies, tools and methods to facilitate mainstreaming biodiversity into food and nutrition strategies.
- Facilitating the scaling-up of outcomes from pilot-site activities which demonstrate the most effective means of mobilizing BFN, including documentation and promotion of best practices, capacity building, education and national awareness campaigns. Synergies will be created with international partners already active in this area with considerable outreach and advocacy.

154. Focusing on these core areas will ensure the Project addresses a range of target groups and beneficiaries including women and children at risk of malnutrition in rural areas; farmers, farmer groups/cooperatives and private and public sector groups involved in value chains; key policy and decision makers from relevant line ministries and other agencies. Other target groups and beneficiaries include universities, schools, NGOs, international agencies in broad areas related to education, awareness and scaling up. Project interventions will pay particular attention to gender and youth mainstreaming as well as observance of the standard environmental and social safeguards put in place by GEF implementing agencies. Further, the Project proposes employing accepted good practices in developing collaborative arrangements when working with local communities in pilot sites such as Community Biocultural Protocols (CBP) to ensure equitable access to and benefits from Project outputs.

155. The Project intervention and approach adheres to CBD principles, guidance and decisions, particularly those relevant to promoting mainstreaming biodiversity conservation and promoting the sustainable use of biological resources including creating market incentives. The Project fully complies with the GEF Biodiversity Strategic Objective 2 (SO2) *to mainstream biodiversity in production landscapes/seascapes and sectors* and its Strategic Programmes 4 and 5.

156. SP4 - *Strengthening the policy and regulatory framework for mainstreaming biodiversity*. The outcomes of the Project will contribute to the GEF's Strategic Programme 4 through the incorporation of biodiversity conservation, sustainable use and benefit sharing in broader policy and regulatory frameworks. This will be done through improving scientific knowledge about the links between food systems and ecosystems, improving capacity, raising awareness, particularly at government level, and developing incentives for conservation. The Project will establish multi-sectoral policy platforms at the national level to target and monitor the mainstreaming of biodiversity into agriculture, health and nutrition sectors using indicators and information generated by the Project. The Project will also link its public awareness activities aimed at consumer attitudes and behaviour to public policy forums and institutions working to improve diets through use of biodiversity and re-focus food systems studies and agricultural census data to incorporate considerations of biodiversity. At the global level, successful models and experiences leading to specific policies and policy actions will be shared across countries to jump-start and accelerate mainstreaming biodiversity in sectors responsible for food, nutrition and food security policies. The process of mainstreaming Project results and outcomes will be facilitated by contributing to the new NBSAP process and by ensuring that both Implementing Agencies take measures to guarantee the Project is embedded in the UNDAF mechanism and their respective programmes of work.

157. SP5 - *Fostering markets for biodiversity goods and services respectively*. The outcomes of the Project will also contribute to the GEF's Strategic Programme 5 through the analysis of market chains and the development of an enabling environment for improved, equitable value chains promoting underutilised plants. This will be done *inter alia* through capacity building among farmer groups, processors, agricultural educational organisations and institutions and policies, improving links to the formal market sector, improved marketing of traditional foods, and public awareness campaigns among consumers. Advocacy and awareness-building will address dietary diversity and nutrition as expressed in official, commercial and popular media. Specifically each country will link market chains to development of regional foods, linked to local ecosystems.

158. The Project also adheres to the CBD principles, guidance and decisions, particularly those relevant to the CBD's *Cross-cutting initiative on biodiversity for food and nutrition*, which aims to promote the sustainable use of biodiversity in programmes contributing to food security and improved human nutrition as well as contributes to achieving the MDGs in particular Target 2 of Goal 1 (i.e., to reduce by half, by 2015, the proportion of people who suffer from hunger).

159. *Expected global environmental benefits*. By consolidating an alternative that simultaneously contributes to sustainable development (including enhanced nutrition status and income to farmers and rural communities) and conservation efforts, the Project will make a contribution to mitigating biodiversity threats in the four countries and barriers to sustainable use. This will be achieved by highlighting the value and benefits of local biodiversity with global significance and its link to dietary diversity, benefits of value-adding and contributions to livelihoods. By highlighting the link between biodiversity, dietary diversity and nutrition, as well as opportunities for income generation based on such biodiversity the Project will contribute to generating incentives for the conservation of species and habitat and their sustainable utilization. The contribution to global benefits can be expected to include long-term conservation of globally significant species and habitats; enhanced role of productive landscapes in harbouring significant

levels of biodiversity; and more biodiverse productive landscapes with enhanced resilience to climate change and land degradation. The global environmental benefits expected to be delivered by the Project are elaborated in Section 3.7, Incremental cost reasoning, of this Project document.

### 3.2. Project goal and objective

160. The **Project Development Goal** is to contribute to the improvement of global knowledge of biodiversity for food and nutrition and thereby enhance the well-being, livelihoods and food security of target beneficiaries in Brazil, Kenya, Sri Lanka and Turkey through its conservation and sustainable use and identification of best practices for up-scaling. The **Project Objective** is to strengthen the conservation and sustainable management of agricultural biodiversity through mainstreaming into national and global nutrition, food and livelihood security strategies and programmes.

161. This Project aims to demonstrate the dietary diversity and nutritional benefit of local agricultural biodiversity by working closely with communities in a total of 10 selected pilot sites across Brazil, Kenya, Sri Lanka and Turkey using community-based participatory approaches. The Project, working closely with the target communities, will undertake community based mapping of their agricultural landscape (both on-farm and *in situ*) to record and document local biodiversity with nutritional value and the traditional knowledge associated with that biodiversity, the extent to which that biodiversity is contributing to household diets, as well as barriers to current use and opportunities for greater awareness, promotion and utilization of biodiversity foods. The latter will include exploring opportunities to better link farmers with markets. This information will add considerably to knowledge already existing on the nutritional value of biodiversity. The Project will analyse the best ways of documenting this information and making it accessible to relevant stakeholders in ways that are acceptable to the custodians of this knowledge, i.e. local communities at pilot sites. Emphasis will also be placed on using community-based approaches for documentation and knowledge sharing such as community biodiversity registers, diversity and food fairs.

162. The information generated from these assessments at pilot sites and other Project activities will greatly assist the various cross-sectoral policy working groups and platforms set up under the Project. These platforms will be tasked with developing an enabling environment favourable for BFN through development of relevant planning, policy and regulatory instruments which encourage the use of this biodiversity as part of national nutrition and food security programmes and strategies as well as its enhanced conservation through improved land use planning. They will also be tasked with encouraging favourable marketing and trade of biodiversity for food and related products. These activities will be backed by campaigns to improve the promotion, awareness and marketing of BFN.

### 3.3. Project components and expected results

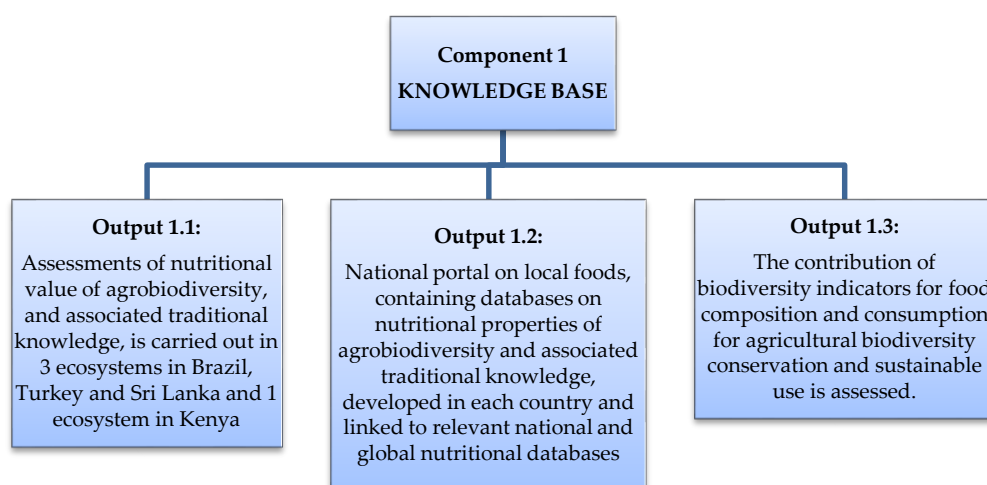
163. For execution, the Project will apply an approach that combines similar national and local components in each of the four participating countries, coordinated globally by Bioversity International to ensure effective coordination and dissemination, awareness raising and replicability and scaling-up beyond the scope and boundaries of the Project itself. **Appendix 4** contains the Project Logical Framework and a listing of the main Components, Outcomes and Outputs. **Appendix 5**, the Workplan, provides a complete listing of the Key Activities by component and output. The terms *Component* and *Result* are used inter-changeably in this Project document, as they refer to the same level in terms of the Project's intervention strategy. Components and their outcomes, and the outputs and activities necessary to achieve them, were specifically

defined during the PPG phase in response to a process of participation and joint reflection on the part of the four countries based on the findings of the different background studies and consultations that were undertaken. The second global Project meeting in Turkey in February 2011 reviewed and finalised both the logframe and the workplan. In turn, each of the countries has independently defined preliminary specific internal activities in order to be able to supply the outputs agreed to, responsive to each country's own characteristics, priorities and progress (see **Annex B**. Country Background Study Reports include descriptions of the scope and a preliminary listing of proposed activities at the country level).

## Knowledge Base

***Outcome 1: Relevant sectors, including agriculture, environment and public health in the four partner countries adopt the integrated knowledge base on BFN to build support for biodiversity conservation and enhanced well-being***

164. The expected outcome of Component 1 will be addressed by three outputs, and the listed key activities, specified in the logical framework and workplan contained in **Appendices 4 and 5**. The outputs for Component 1 are:



***Output 1.1: Assessments of nutritional value of agricultural biodiversity, and associated traditional knowledge (ATK), is carried out in three ecosystems in Brazil, Turkey and Sri Lanka and one ecosystem in Kenya***

165. Evidence supporting the link between agricultural biodiversity and dietary diversity is limited. Establishing such a link is methodologically feasible, even if few studies have been undertaken. This means there is relatively little known about relevant and appropriate methodologies and approaches to assess, deliver or mobilize biodiversity for improved dietary diversity, and few examples to follow. Addressing these gaps will be a major focus of Component 1. In this regard the Project will build on earlier initiatives undertaken by various organizations and agencies, some of whom are involved as international partners in the Project. The role for agricultural biodiversity as a food-based intervention for improving nutrition and health is also contentious, and has had relatively little support from those in the development/nutrition arena including agriculture itself. It will require the identification and implementation of methodologies and approaches that demonstrate that biodiversity-based foods commonly grown in rural areas can and do contribute to

dietary diversity thereby improving household nutrition. To this end, the PPG phase of the Project has reviewed the limited published and tested biodiversity and nutritional assessment methods and approaches for possible implementation in this Project (**Annex E. Towards a Methodology for Linking Biodiversity and Nutrition**). This information together with the complementary activities highlighted in Components 2 and 3 will be critical in promoting and mainstreaming BFN into national health and development sectors.

166. Based on the pre-determined criteria listed below the Project preliminarily identified areas where three pilot sites in each participating country (Kenya will be an exception, where only one site will be selected) will be selected and where the Project will work closely with rural communities to assess available biodiversity within their agroecosystem using participatory approaches and to determine the most effective methods to deploy such BFN. The criteria for pilot-site selection included issues such as:

- incidence of nutritional-related problems;
- levels of poverty and food insecurity;
- quality of diet;
- available local biodiversity;
- infrastructure and capacity at site;
- willingness of community at site to collaborate with the Project;
- level of ecosystem degradation/biodiversity loss; and cultural diversity.

167. The criteria for prioritization of species were also reviewed and defined during the PPG stage and included:

- potential nutritional/health benefits;
- market opportunities;
- multi-functionality of utilization;
- existing information available about the species; traditional and modern uses;
- threatened status;
- endemism.

168. For a preliminary listing of target species and sites proposed by participating countries see **Annex B**. These are preliminary selected sites and will be confirmed at the beginning of full Project implementation by national steering committees. Finalized selected pilot sites will also take account of standard environmental and social safeguards put in place by GEF Implementing Agencies.

169. Opportunities to intervene and promote the utilization and incorporation of select nutritionally rich, biodiversity-based foods will be identified and implemented and will include options for mobilising biodiversity (link to Component 3, Output 3.1) such as home gardens, linking agricultural biodiversity to school gardens and school meals feeding programmes, linking biodiversity procurement to local smallholders, education, awareness and promotion (**Annex F. Mechanisms for Mobilising and Delivering Biodiversity for Food and Nutrition**). In particular, the possibility of linking to current home grown, school feeding initiatives underway in partner countries by integrating agricultural biodiversity and small holders is particularly exciting.

170. In Brazil the Project will integrate and foster ongoing activities of different governmental initiatives and the final pilot sites of implementation will be decided based on: the presence of schools in which the Ministry of Health and the Ministry of Education have allocated personnel that are already involved in project activities such as: gathering anthropometric data from children;



development of good manufacture practices; implementation and maintenance of school gardens. These schools take part in the Schools Meals National Programme (PNAE), in The Food and Nutrition National Policy (PNAN) and in the Food procurement Programme (PAA). The communities where these schools are located will, preferably, be in rural areas and hold cooperatives or producers associations (community leaderships) registered with The Promotion of Socio-biodiversity Product Chains National Plan (PNPSB). These communities will be, preferably, in the same municipality as (or near) a federal or state university that holds undergraduate courses in nutrition, agronomy and related sciences. Data related to the nutritional status of communities will be taken into account and will be an important factor in the final decision on Project sites. Poorest regions that fulfil the above mentioned requirements will be prioritized.

171. In Kenya the Project pilot site will be situated in Busia County in Western Kenya. In Sri Lanka, Project pilot sites will cover three different ecosystems namely: the tank village ecosystem in Kurunegala district; an ecosystem adjacent to tropical wet evergreen forests in Sinharaja; and an ecosystem adjacent to the Knuckles forest range in Kandy district. Although the agricultural biodiversity of each selected ecosystem has not been studied in depth, some homegardens around Sinharaja and the Knuckles forest range, and the Kandyan dry zone homegarden systems have been the object of several studies. In Turkey, Project pilot sites will be selected from: the Mediterranean region including Aegean; the Central Anatolia region; and the Black sea region and their respective transitional zones, taking into account the above criteria defined during the PPG stage (see **Annex B. Country Background Study Reports** for more details). These geographic regions of Turkey are the richest regions in terms of biodiversity, in particular edible wild plants and include transition zones between three biogeographical regions. Furthermore, both cultivated and wild vegetables and fruits traditionally constitute the main diets of local populations in many parts of these regions. On the other hand, biodiversity in these regions is subject to strong pressure from urbanization, industrialization and tourism due to their favourable contexts for transportation, climate, water resources, fertility of soil and other natural resources as raw materials for industry. Consequently, globally important agricultural biodiversity in these regions is under threat of degradation including the loss of associated traditional knowledge on edible wild plants. Therefore, these regions may provide favourable conditions for the demonstration of benefits of BFN with obvious knock-on effects for conservation. These Project pilot sites are preliminary and will be confirmed by national steering committees and target communities during early implementation of the full Project (Activity 1.1.1). Project work at pilot sites will be guided by collaborative agreements with local communities using best practice such as establishment of *Community Biocultural Protocols* and *Traditional Knowledge Commons* where appropriate, for equitable access and benefit sharing<sup>36</sup>. Final selection of Project pilot sites will also be guided by the environmental and social safeguards put in place by GEF Implementing Agencies and for which a preliminary assessment was made during the PPG phase.

172. As highlighted above, the project will endeavour to prioritize local BFN species to work closely with which will include research to determine the nutritional composition of these species (Activity 1.1.7). A preliminary assessment of locally important BFN species was made during the PPG phase. In Brazil, a broad range of up to 100 species, already identified and prioritized by the *Plants for the Future* initiative, will be the main focus of the Project (see **Annex B. Country Background Study Reports** for more details). In Kenya, the species under consideration include: traditional vegetables (Spider plant- *Cleome gynandra*; Cowpea – *Vigna unguiculata*; African nightshade – *Solanum villosum*, *Solanum scabrum*; Slenderplant – *Crotalaria ochroleuca*, *Crotalaria brevidens*; Jute mallow – *Corchorus olitorius*; Pumpkin leaves- *Cucurbita moschata*,

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<sup>36</sup> Community Protocols and Traditional Knowledge Commons for ABS  
<http://www.unep.org/communityprotocols/about.asp>

*C. maxima*; Vegetable amaranths – *Amaranthus* spp. (*A. blitum* *A. lividus* etc.); Vine spinach – *Basella alba*; African/Ethiopian kale – *Brassica carinata*; Mushrooms); Cereals (Sorghums; Millets (Finger millets)); Nuts and oil crops (Groundnuts - *Arachis hypogaea*, simsim - *Sesamum orientale* (*S. indicum*); Bambara groundnuts - *Vigna subterranea*); indigenous fruits (Bush plum - *Carissa spinarum* (*C. edulis*); black plum - *Vitex doniana*); indigenous chicken and quails; termites. In Sri Lanka, the Project will target species and varieties covering the different traditional rice varieties popular in the country, traditional leafy vegetables, traditional root and tuber crops, other underutilized cultivated species as well as wild harvested plants. In Turkey, studies have shown that approximately 1,000 wild species have been consumed as food by local populations in various regions of the country. These species includes vegetables, fruits, bulbs and wild relatives of crops. Among these known species, approximately 30 species will be considered, taking into account the criteria defined during the PPG stage, as potential target species that may have valuable contribution to nutrition as well as to the conservation and sustainable use of biodiversity. These preliminary lists of prioritized species will be confirmed by national steering committees and other relevant Project stakeholders during early implementation of the full Project.

173. Ensuring participating countries commence this Project with a common understanding of methodologies will be a major focus of the scheduled inception workshop at the outset of Project implementation (see Activity 4.2 in workplan). Further, particular attention is required to capacity building in these methodologies (Activity 1.1.3) so that robust baseline data is collected (Activity 1.1.4), to enable the identification of realistic interventions to deploy agricultural biodiversity (Activity 1.1.8) and to monitor the effectiveness of such interventions (Activity 1.1.9).

174. The Project will also build on the lessons learned from using community-based biodiversity management (CBM) approaches in the counterpart UNEP/GEF project “*Conservation and sustainable use of cultivated and wild tropical fruit diversity: promoting sustainable livelihoods, food Security and ecosystem services*” and other similar initiatives. There is growing support for CBM, the fundamental strategy of which is to build capacity of communities and their institutions so they can manage their biodiversity resources in such a way that they can have access to information, knowledge and other necessary livelihood assets for the development of sustainable livelihood strategies. The Project will also build on research undertaken by the Earth Institute, Columbia University, one of the Project’s international partners, to compare species diversity and functional nutritional diversity in selected pilot sites across partner countries (see reference in footnote 3).

175. Traditional knowledge associated with relevant biodiversity will be assessed and documented in appropriate ways giving preference to community-based approaches (**Annex G**, Ethnobotany: Participatory Exploratory Methods – Options and Guidance). Attention to this aspect of local knowledge is also covered in the above-mentioned manuals and is a particular focus of Activities 1.1.5, 1.1.6 and 1.1.10. This knowledge will also include information of local food systems, utilization of foods, food processing and preparation and traditional recipes. The Project sees it very much as part of its mandate to revitalize the importance of traditional foods and their contribution to the identity and cultural assets of communities, as well as the contribution of local foods and diets to food and nutritional security. In this regard there will be strong links to relevant activities in Component 2 to link farmers to markets (Output 2.4) and Component 3 to document and enhance awareness and promotion of local foods and diets using approaches mentioned above (Outputs 3.2, 3.3 and 3.4). The Project will be guided by good practice in the area of working with

communities and their food-associated traditional knowledge, including a strong emphasis on ‘giving back’ as opposed to information extraction<sup>37</sup>.

**Output 1.2:** *National portal on local foods, containing databases on nutritional properties of agricultural biodiversity and associated traditional knowledge, developed in each country and linked to relevant national and global nutritional databases*

176. The Project will work closely with national data holders to establish collaborative and sharing arrangements. The Project will establish the necessary infrastructure and capacity for developing a national portal and database information system. It will attempt to do this by integrating information at local, national and global scales. Based on these kinds of assessments and surveys, the Project will work with countries to improve availability and accessibility to relevant information by encouraging integration of pre-existing data and knowledge through global, regional and national information systems (see **Annex H. Reviewing Opportunities and Obstacles for Managing and Making Accessible Information and Data on Nutritionally-Rich Biodiversity**). Information from pilot sites and other Project activities will feed into these information systems. FAO hosts the INFOODS (**Annex H**) network with links to a series of regional food composition information networks. The Project is also required to ensure that national information systems are linked to relevant national and global nutritional databases. The most obvious mechanism in this regard is for the Project to undertake activities to build synergies between participating country initiatives with these already existing systems through the following FAO regional/country programmes: LATINFOODS in Brazil, SAARCFOODS in Sri Lanka; EUROFOODS in Turkey and AFROFOODS in Kenya. Other options for regional and global integration will also be explored. The utilization and exchange of traditional knowledge will be guided by community agreements and *Community Biocultural Protocols* where employed.

177. The Project will also benefit from the lessons learned on sharing and exchange of information and protocols put in place by UNEP, Bioversity and national partners in participating countries in implementing and executing a range of GEF supported projects dealing with agricultural biodiversity and information management such as the UNEP/GEF projects “In Situ Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application” and “In situ/On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia”.

**Output 1.3:** *The contribution of biodiversity indicators for Food Composition and Consumption for agricultural biodiversity conservation and sustainable use is assessed*

178. The Project partner countries – Brazil, Kenya, Sri Lanka and Turkey – have expressed interest to field test biodiversity indicators for food composition and consumptions at pilot sites (**Annex H** describes these indicators in detail). It is hoped that this will stimulate the collection and dissemination of food composition data and that the number of foods reported and the number of food consumption surveys taking account of biodiversity will show a positive trend, indicating the increasing recognition of the importance of BFN. Output 1.3 will utilize the above-mentioned instruments for monitoring and measuring the level of dietary diversity based on the use of local sources of biodiversity and increasing the consumption of nutritionally-rich local food cultivars, wild and underutilized species, which will contribute to the conservation and sustainable use of biodiversity using nutrition as the entry point.

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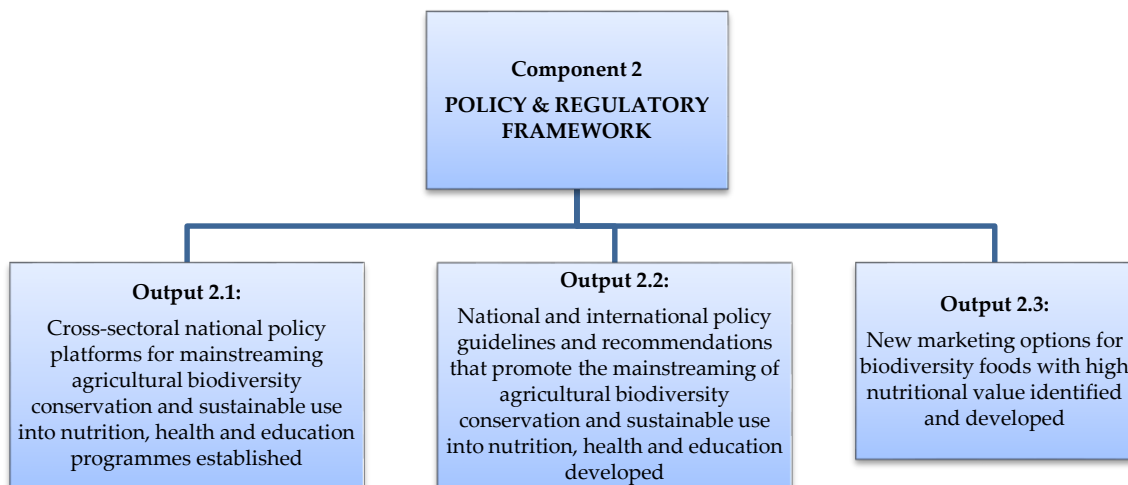
<sup>37</sup> See Laird (2002) Biodiversity and Traditional Knowledge (Earthscan) and **Annex H** Reviewing Opportunities and Obstacles for Managing and Making Accessible Information and Data on Nutritionally-Rich Biodiversity, section 1.3

179. The activities envisaged to achieve this output, for monitoring and evaluating changes and trends, are the following: 1) baseline data are collected through the implementation of a survey based on the assessment instruments and adapted for biodiversity at community level (field data); 2) subsequent data collection is carried out at the end of the Project through a further administration of the assessment instruments adapted for biodiversity, for measuring and monitoring changes in diets; and 3) the collected data are included in the tracking system through use the *Food Consumption and Food Composition Indicators for Biodiversity*. The count of foods at cultivar/variety/breed level reported in the different surveys will be monitored.

## Policy and Regulatory Framework

### *Outcome 2: Enhanced policy and regulatory frameworks support the mainstreaming of biodiversity conservation and sustainable use across sectors*

180. The expected outcome of Component 2 will be addressed by the outputs and the listed indicative key activities, specified in the logical framework and workplan contained in **Appendices 4 and 5**. The outputs for component 2 are:



### *Output 2.1: Cross-sectoral national policy platforms for mainstreaming agricultural biodiversity conservation and sustainable use into nutrition, health and education programmes established*

181. The Project will establish cross-sectoral working groups and platforms that bring together decision and policy-makers in each country to influence planning and policies supportive of improved health and nutrition using biodiverse, food-based approaches targeting populations with nutritional deficiencies. Specifically, the Project will seek to strengthen multi-disciplinary and institutional partnerships to facilitate this objective and to ensure mainstreaming biodiversity conservation and sustainable use.

182. National cross-sectoral policy platforms will provide the institutional framework and institutional home for the strategy to promote the mainstreaming of BFN, ensuring the positioning of the mainstreaming programme within relevant sectoral mandates. These platforms will strengthen institutional coordination mechanisms to effectively harmonize the actions of the different stakeholders, especially the agriculture and health sectors (also education and environment). They would also oversee the development and implementation of the national strategy (Output 2.2) to promote mainstreaming of BFN, ensuring broad participation but, more importantly, sustainability. Where necessary, it would be the task of these platforms to push for

and obtain required policy, regulatory or legislative support. Such support could be tied to already existing policies or legislation which lends itself to promoting mainstreaming of BFN. For example, in Brazil the school meals feeding programme is a universal law embedded in the country's Constitution. Brazil is enacting a law to establish that at least 30 per cent of the food used by the school meals feeding programmes is procured locally. Integrating local biodiversity as an add-on to such a law would appear to offer but one opportunity for mainstreaming, providing market incentives (as outlined in Output 2.3).

**Output 2.2:** *National and international policy guidelines and recommendations that promote the mainstreaming of agricultural biodiversity conservation and sustainable use into nutrition, health and education developed*

183. Countries will undertake to develop a national strategy that will create the political and legal foundations to promote the mainstreaming of local biodiversity into relevant sectors and programmes. The strategy would focus on enhanced land use planning policies to more effectively conserve BFN as well as policies and plans to promote its sustainable utilization. Such a strategy will also add legitimacy to the programme and clearly define its purpose and objectives. National strategies to promote the mainstreaming of BFN would seek to:

- Ensure coordination of planning and implementation so that collaboration occurs and activities are harmonised between the relevant sectors and actors involved;
- Institutionalize the practice of mainstreaming biodiversity across relevant sectors by embedding it in national planning mechanisms supported by relevant policy, legislative, financial and capacity measures and resources from relevant sectors;
- Promote public awareness (see Output 3.3) and understanding of the importance and value of BFN as a resource for addressing malnutrition and poverty;
- Promote awareness on the need to conserve this valuable resource for development;
- Provide a mechanism for implementing allocation of management responsibilities and reporting national progress towards agreed targets and plans.

184. Based on extensive reviews of current institutional, policy and legislation frameworks, which influence the mainstreaming of BFN, and the outcomes of key activities in Outputs 2.1, the Project will publish a series of policy briefs (including as part of the best practices series Output 3.1) to provide guidance on the development and implementation of national and international policies and strategies that support the mainstreaming of biodiversity into health and nutrition strategies.

185. This output will be developed taking into consideration experiences and lessons learned by FAO while assisting member countries in the development of policies and programmes that foster better understanding of diets that promote health and raise levels of nutrition. The general framework used by FAO in supporting policies will be adapted and used for mainstreaming sustainable use of biodiversity for improved human nutrition and well-being, which includes activities based around the following:

- Analysis of the effects of macro-level policies and sectoral or integrated development plans on nutritional well-being, especially of the most vulnerable population groups;
- Increasing awareness among policy-makers and planners of the extent and severity of nutritional problems and their causes, of the economic benefits, the activity status of interventions and of activity status of different socio-economic groups;

- Incorporating clear nutrition goals and components in national development policies and sectoral plans, programmes and Projects, particularly in the areas of food and agriculture, livestock, fisheries, forestry, rural and urban development, commerce, infrastructure, credit, water and sanitation, health, education, environmental and social-welfare;
- In countries where the operation of the market is a mechanism for the coordination of production and the consumption of food is relied upon, developing education and communication programmes so that nutrition and biodiversity objectives can be achieved through appropriate consumer choice based on enhanced consumer awareness and knowledge, and encourage the development of social welfare policies that will enable the more vulnerable population groups to exercise informed dietary choice;
- Developing or strengthening the technical capacities of, and institutional mechanism with, each relevant ministry and, at intermediate levels of government, identifying nutritional problems and their causes, and improving the planning, management and evaluation of programmes and development Projects that can integrate nutrition with biodiversity;
- Establishing a flexible national mechanism with strong technical support to promote effective intersectoral co-operation, to keep the nutrition situation in the country under continuous review and to facilitate the development of national nutrition policies and programmes which can benefit from addressing biodiversity concerns;
- Encouraging the private sector, including small-scale producers and processors, industries and NGOs, to promote nutritional well-being through biodiversity;
- Incorporating appropriate and relevant elements of nutrition and biodiversity in school curricula, starting from primary school;
- Improving nutrition by directing additional investment into agricultural research with a focus on local food biodiversity and food as an ecosystem service.

***Output 2.3: New marketing options for biodiversity foods with high nutritional value identified and developed***

186. In addition to policy and strategy, Component 2 also seeks to address income generation options through the sustainable production, processing and marketing of biodiversity foods with high nutritional value for low income rural producers. Section 2.3 has already highlighted and articulated the many barriers to marketing of BFN, some of which the Project will certainly need to consider and take account of in decision-making. Some are beyond Project control. The Project will employ models and approaches that have been demonstrated as successful for marketing of other similar types of BFN and can enhance income-generating options for farmers and rural communities through sustainable production. To this end, during the PPG phase, the Project undertook to review models and approaches that might be built upon or explored during implementation (**Annex I. Analysis of Market Opportunities and Obstacles for Biodiversity-Sourced Food Products**). The growing demand from consumers in developed and developing countries for diversity and novelty in food is creating new markets for BFN-type species. This situation can generate new opportunities for additional income for poor farmers in less-favoured environments where these species have comparative advantages over staples or other commercial crops. The ability of modern technologies to transform such raw materials into a wide range of products and to allow shelf life extension offers opportunities to develop new uses and markets beyond their current commercial boundaries.

187. The Project will build on the earlier efforts by Bioersity and partners to add value and enhance income generation based around biodiversity such as minor millets, Andean tubers and ALVs, which demonstrate the contribution that underutilized species have made to income generation of individual farm families and the economic development of rural areas in recent years. Further examples include the case of hulled wheats (einkorn, emmer and spelt) in Italy, where these

almost relic crops have been brought back to life thanks to marketing strategies that have banked on nutritional and cultural aspects. Other cases are those of bambara groundnut, a pulse from Sub-Saharan Africa and quinoa, a highly nutritious grain of the Andes (Latin America), whose multiple uses are being promoted through simple technological innovations at the community level among farmers and small processing enterprises.

188. All four participating countries have experience with the marketing of neglected and underutilized species and the particular challenges and barriers this presents. This Project will build on these and attempt to complement this by employing successful approaches and lessons learned from other similar initiatives. The Project will employ methods which place emphasis on participatory approaches to market development, with potential to link farmers and communities from previously mentioned pilot sites. Approaches such as Participatory Market Chain Approach (PMCA) and the Marketing Approach to Conserving Agricultural Biodiversity (MACAB) appear to offer considerable scope in this regard<sup>38</sup>. The Project will also look at opportunities to build on already existing value chains where agricultural biodiversity can be integrated.

189. All countries involved in the Project have expressed a strong interest in the potential integration of BFN into national school meals programmes and other school-based activities, and this presents opportunities for income generation by linking procurement through local farmers and communities similar to local procurement models like Purchase for Progress (P4P) and Home Grown School Feeding (HGSF) employed by the World Food Programme<sup>39</sup>. As mentioned above, in the example of Brazil, the opportunity to integrate procurement of biodiversity from local farmers as part of such home grown school feeding programmes could be a real opportunity for the Project.

190. Finally, the Project will pay particular attention to monitoring the possibility that marketing, promotion and commercialization of specific crops or species might lead to displacement scenarios that actually decrease biodiversity in agricultural ecosystems or cause over-harvesting from the wild.

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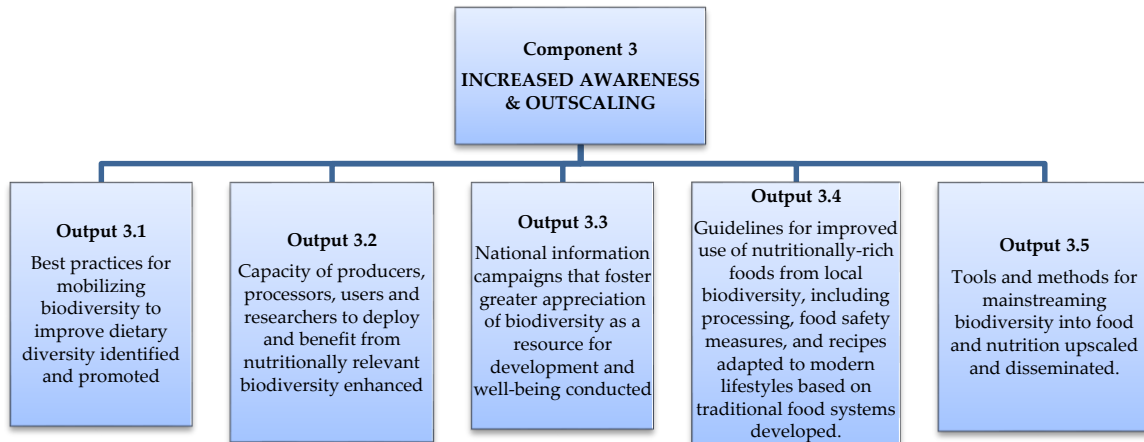
<sup>38</sup> Annex I, Analysis of Market Opportunities and Obstacles for Biodiversity-Sourced Food Products provides a detailed review of market opportunities and obstacles including lessons learned, good practices, guidelines and toolkits available for participating countries. Giuliani (2007) Developing Markets for Agrobiodiversity (Earthscan) also contains useful guidance Value Chain Approaches specifically for developing markets for NUS.

<sup>39</sup> <http://www.wfp.org/purchase-progress>

## Increased Awareness and Outscaling

### *Outcome 3: Tools, knowledge and best practices adopted and scaled up in development programmes, value chains and local community initiatives*

191. The expected outcome of Component 3 will be addressed by the outputs, and the listed indicative key activities, specified in the logical framework and workplan contained in **Appendices 4 and 5**. The outputs for Component 3 are:



#### *Output 3.1: Best practices for mobilizing biodiversity to improve dietary diversity identified and promoted*

192. There remains a large gap in our understanding of best practices for mobilizing biodiversity to improve dietary diversity and how to integrate biodiversity into the nutrition programmes of other international organizations working on nutritional problems. This remains a serious constraint for the integration of local biodiversity as a component in complementary strategies that address malnutrition. Analyzing approaches to effective deployment of biodiversity to enhance dietary will be a critical focus of the Project.

193. Key lessons learned and good practices from key activities in all three Component areas will be analysed and reviewed to identify and promote best practices for mobilising biodiversity to improve nutrition and well-being, and which can be utilised for replicability and scaling-up by other countries and regions including other international organizations. This will include documentation of best practices for mobilizing biodiversity as part of nutrition, health, food security and other relevant development initiatives, especially for value adding and improving livelihoods. **Annex F. Mechanisms for Mobilizing and Delivering Biodiversity for Food and Nutrition** contained herewith, presents an extensive review of the literature and experiences to date of methods and approaches to deploy agricultural biodiversity for improved dietary diversity. One key output from this Component area will be a series of publications to disseminate these best practices, guidelines and tools. The Project also plans to develop a portal platform (Activity 3.1.8) that will document case studies from the Project (and other relevant initiatives promoting biodiversity to improve dietary diversity), combined with robust data and clearly articulating ‘what really works’ when it comes to mobilizing biodiversity for improving diets and nutrition. FAO’s experience in promoting school



gardens and nutrition education will be key to identifying best practices. Further, special attention will be given to organise participatory workshops with stakeholders to review and refine best practices (Activity 1.1.4) and undertake capacity building and the development of training modules (Activities 3.1.5 and 3.1.7). Pilot testing of best practices (Activity 3.1.6) will be implemented in parallel with the interventions identified in Component 1.

***Output 3.2: Capacity of producers, processors, users and researchers to deploy and benefit from nutritionally relevant biodiversity enhanced***

194. The mainstreaming, marketing and promotion of BFN have significant unrealized potential. However, most countries and communities for which promotion and commercialization of BFN species would be most attractive lack the necessary capacities to assess the market potential, to obtain up-to-date market information, to create the necessary physical infrastructure and to develop support strategies for their marketing.

195. This applies to the four countries participating in the Project. Capacity building at multiple levels in these four countries is a crucial pre-requisite for successful and sustainable exploitation of these BFN species. Capacity building to support those researching and promoting biodiversity is also required, as are elements of capacity building on other relevant specific and cross-cutting themes. The Project will identify priority areas/topics where such capacity building is required and most needed, and these priority areas will form the basis of the Project's capacity building action plan. Based on these needs, training courses on all aspects related to marketing and value chains (market evaluation, information and communication, establishment of producer/exporter organizations, development of post-harvest technologies, product development, product presentation, trade regulations, quality requirements of buyers/processors, etc) will be identified or developed. Particular attention will be given to strengthening partnerships and collaborations to encourage south-to-south exchanges among Project partner countries, and other relevant countries, to share information and expertise in relevant areas including exchange visits and workshops (Activity 3.2.7). In addition, the Project's capacity building plan (**Annex K. Developing a Project Capacity Building Plan**) would include training relevant to methodologies and community-based management approaches outlined in Component 1 as well as a series of modules on best practices for integrating and promoting biodiversity in nutrition and health programmes (see also Outputs 2.3 and 3.5).

***Output 3.3: National information campaigns that foster greater appreciation of biodiversity as a resource for development and well-being conducted***

196. Partner countries will undertake and build on relevant and appropriate approaches to undertaking national information and awareness campaigns using culturally appropriate tools and media. Campaigns will be based on lessons learned and best practices from previously evaluated awareness campaigns. Critical activities to the success of appropriate national campaigns will be establishment of a national information campaign taskforces (activities 3.3.1 and 3.3.2) and the development and implementation of relevant national information campaign strategies (activities 3.3.4 to 3.3.7). **Annex J. Promoting Biodiversity for Food and Nutrition** is an extensive review of community and national based approaches to create awareness of nutritionally rich biodiversity in other countries facing similar threats and barriers to the promotion and utilization of BFN.

***Output 3.4: Guidelines for improved use of nutritionally-rich foods from local biodiversity, including processing, food safety measures, and recipes adapted to modern lifestyles based on traditional food systems developed.***

197. The Project will also tap into the rich cultural knowledge that exists on food preparation and local recipes in all four participating countries, and devise strategies for adapting these to modern lifestyles. This will include the preparation of recipe books dealing with BFN. Guidelines that address issues of sustainable production and harvesting, processing, food safety, packaging, marketing and so forth will be developed. The integration and promotion of traditional foods and products into school meals, as well as their associated knowledge, will be another key activity in trying to scale-up awareness and sustainable use of BFN. To facilitate this process the Project, nationally and globally, will collaborate with other national and international organizations actively involved in strengthening the utilization and conservation of local foods and biodiversity, such as Slow Food and Crops for the Future.

***Output 3.5: Tools and methods for mainstreaming biodiversity into food and nutrition strategies upscaled and disseminated.***

198. Mainstreaming biodiversity conservation and sustainable use for improved human nutrition and well-being is a massive challenge for the Project. Basically, there are few tools and methods which have been tried and tested in this context, across the relevant sectors with which the Project will work. To this end the Project will work towards developing a guide - based on the nutritional and livelihood benefits of BFN - describing a range of approaches and tools/methods for biodiversity mainstreaming aimed at relevant sectors and which can be applied at different levels (e.g. global, regional, national and local level) and by a range of users (government, non-governmental and community-based organisations, businesses and private sector organisations). Such tools could include National Sustainable Development Strategies; National Biodiversity Strategy and Action Plans; National Agricultural Development Plans; National Poverty Reduction Strategy Papers; National Nutrition Policies, Strategies and Action Plans and so forth. The previously mentioned UNDAF mechanism also offers options for mainstreaming the results and outcomes of the Project, and lessons learned in this regard will be documented and shared.

199. Some tools developed by FAO are useful instruments to be taken into account for dissemination after adaptation to countries' needs. *The Food Composition Study Guide* has been developed to reach a wide audience in need of knowledge about food composition and food biodiversity. It is intended to be used by self-learners, in conjunction with food composition courses, and by universities and schools that mean to include food composition into their curricula. Likewise, *Setting Up and Running a School Garden: A Manual for Teachers, Parents and Communities* draws upon experiences and best practices derived from school garden initiatives all over the world. School gardens allow the production of a variety of nutritious vegetables and fruit (and where possible, some small-scale livestock such as chickens or rabbits). Classroom lessons are linked with practical learning in the garden about nature and the environment, food production and marketing, food processing and preparation, and marketing healthy food choices. Further, *Nutrition Education in Primary Schools: A Planning Guide for Curriculum Development*, contains nutrition education activities at the country level which aim to: a) influence public policies and promote access to a variety of nutritious foods; b) increase knowledge of the nutritional value of foods; c) influence behaviours, attitudes and beliefs; d) develop personal skills and motivation to adopt healthy eating practices.

### **3.4. Intervention logic and key assumptions**

200. The Project follows a two-fold goal. Firstly, it aims to demonstrate the contribution of BFN to dietary diversity and the ways in which this can improve livelihoods in rural areas of the four participating countries by linking farmers to markets. These values and benefits in turn contribute to strengthening biodiversity conservation and sustainable use. The Project will apply a multi-sectoral approach in working with key stakeholder groups and partners that can effectively

influence the relevant sectors. The governance and decision-making bodies of the participating countries will have to provide an enabling environment that promotes the benefits of biodiversity for enhanced nutrition and health and that enhances growth in the use of BFN through markets.

201. **Component 1** seeks to ensure that the agriculture, environment and health sectors of the four countries have reliable access to an integrated knowledge base on food sources from biodiversity and on the nutritional and health benefits which can build support for biodiversity conservation and use it as a strategic resource for development and well-being. The key assumptions for this component include:

- Policy-makers, planners, private sector, farmer groups and others actually make use of the available information on BFN and take actions to integrate this information into strategies, plans, programmes targeting nutrition/health programmes, markets, food security and biodiversity conservation.
- Communities in Project pilot sites and partner countries want to participate in, and collaborate with the Project.
- Partner organizations make available required information and agree to share and exchange this information nationally and globally.
- Communities in Project pilot sites agree to share and exchange their ecological knowledge and traditional food knowledge, making it available nationally and internationally.

202. **Component 2** seeks to develop policy and regulatory frameworks that can effectively support the mainstreaming of biodiversity conservation and sustainable use across sectors vital for nutrition, food security, health, and well-being. The key assumptions for this component include:

- Policies will be implemented and regulatory frameworks enforced and there is cross-sectoral political will to mainstream across sectors.
- Legislative bodies are willing to receive support and information that will help facilitate a favourable environment for mainstreaming BFN.
- Policies and strategies will be accepted, ratified, endorsed and implemented in participating countries.
- Incentives and benefits of BFN are apparent.
- Policy guidance provided by the Project will be followed and acted upon.
- Market opportunities exist and private sector will want to get involved in developing value chains.
- Continued access to markets for these products, there are no regulatory barriers.
- Demand for BFN products continues to grow.

203. **Component 3** seeks to enhance the conservation and deployment of nutritionally relevant agricultural biodiversity through markets, communication, cultural practices, and nutrition interventions, which can contribute to combating hunger, malnutrition and improve human well-being. The key assumptions for this component include:

- There is sustained political will on the part of national partners and programmes involved in the Project.
- There are effective channels of communication at local, regional, national and global levels.
- Other Nutrition/Health projects/programmes and market chains are successful in applying the approaches and tools developed by the Project.

- The Project can produce successful pilot examples of mainstreaming at the local, regional and national level.
- Other relevant stakeholders are interested in mainstreaming BFN.
- Media are interested in promoting and creating awareness of the value and benefits of BFN.
- Consumers favour the consumption of BFN products.
- Market chains are receptive to BFN and demand for services guided by BFN values and benefits continues to grow.
- Partners and new actors/players beyond the Project are interested in the value and benefit of BFN.

### **3.5. Risk analysis and risk management measures**

204. A series of risks that the Project faces in trying to reach its objectives was considered during the PIF and PPG phases. At the same time, critical assumptions were formulated (see Section 3.4 and Project logical framework, **Appendix 4**), the attainment of which is expected to minimize the respective risks. During the PPG phase, assessment and analysis of the main barriers were taken into account by designing a commensurate strategy of intervention for the issues that the Project and its key partners are in a position to address. Aspects that remain outside the reach of the Project represent risks. However, these have been classified as relatively low, resulting in a high sustainability probability for the Project. The risks and some of the measures for mitigation considered for the Project are:

205. Marketing and promotion of specific BFN species and products leads to reduced on farm biodiversity. BFN species are often found in species-rich or ‘fragile’ agricultural landscapes, in which biodiversity contributes to agricultural productivity and income stability. Attempts at commercialization of a particular species can have a positive effect on the livelihood of the producers and collectors; however, on the other hand, a focus on a few commercially-oriented species or varieties can lead to displacement of (other) traditional products and the homogenisation of production systems or even the overexploitation of wild food resources. Furthermore, a switch to market-oriented agriculture can result in increased use of agricultural chemical inputs, with potentially negative effect on health and biodiversity. Such possible negative outcomes and impacts will be actively monitored as part of the Project.

206. Resistance from the nutrition and health community to biodiversity-based food approaches. As mentioned earlier, this type of approach often falls outside the scope of clinical nutrition or public health practitioners, and has therefore been under-researched and under-promoted. There tends to be a preference for the international nutrition and health community to focus on technological or quick-fix solutions such as supplements, fortification and biofortification as a solution to nutritional problems where biodiversity-based food approaches could be part of the solution, and a sustainable one at that. Advocating to the clinical nutrition community that food-based approaches can be complementary will be a challenge. Malnutrition is too complex and too overwhelming an issue not to use all possible resources and avenues in ensuring it is eliminated as rapidly as possible. It will be essential that this Project, and the various partners and initiatives with which it aligns itself, be an effective advocate for the benefits of biodiverse food-based approaches to malnutrition and hidden hunger.

207. Inadequate collaboration between environment, health and agriculture sectors. A Project of this nature requires that all sectors work collaboratively and productively from the beginning. National and international partners must ensure they come together in a true spirit of collaboration and commitment and be willing to make a strong case for biodiverse food-based approaches to malnutrition and hidden hunger at all opportunities.

208. Key Project partners, communities and farmers are not prepared to share and exchange information. Many projects and programmes have been hindered by issues affecting information sharing and exchanging. Issues such as refusal or reluctance to share, or examples of key partners using information from other partners without permission or acknowledgement. An important strategy of the Project to address this will be to sensitise partners to this issue and the fact that the Project will not attempt to misuse, appropriate or distribute information which might be of a sensitive nature without the prior, informed consent of key partners and full disclosure and acknowledgement of information sources. This will form the basis of data sharing and exchange and will be guided by Bioversity, UNEP, FAO and its collaborating partners, which have extensive experience in this area. Bioversity has considerable experience working with data sharing and exchange agreements. An equally important strategy of the Project will be to promote such issues at the local and community level. The Project will undertake to promote community sensitization and empowerment activities at the outset of Project implementation, which will help shape ownership of relevant Project activities and outputs and an understanding and appreciation that with the Project comes a decision to share and exchange information. Using community-based biodiversity management (CBM) tools such as Biodiversity Registers to empower communities will help them to make decisions on what to share and exchange. Collectively with other participating communities, the Project will articulate the benefits of give and take.

209. Political and economic instability. This risk is considered of medium impact and relates to the political/economic instability and differences over policy implementation of the Governments in the four participating countries. The Project's strategy for minimizing the risk is to work with the key actors of the different portfolios in the respective states and make them aware of the benefits of developing long-term, internal policies to foster mainstreaming of biodiversity conservation and sustainable use based on values and benefits related to improved nutrition and well-being. An important strategy of the Project is to work closely with communities and local institutions for the implementation of activities so they take ownership and have capacity to run basic Project activities in the context of political instability and other economic and environmental vulnerability and shocks. With established global and regional presence and expertise, the global Project, in coordination with the national executing agencies, is well placed to recommend alternative Project sites of equal value in terms of biodiversity richness and robust food systems if necessary.

210. Climate change can impact biodiversity-based products in mainly two ways. The first is by threatening the medium and short-term survival of the species being used in the production and promotion processes outlined in this Project, and therefore the businesses and strategies in question. The second is by shifting the geographical location of the species into areas in which they cannot be accessed at an acceptable cost. The likelihood of these two types of impacts is deemed minimal. It is unlikely that climate change will threaten all nutritionally-rich species equally. In fact, some of these species might be well-adapted to the new conditions brought about by climate change. Since this Project is based on maintaining and promoting diversity, it will provide an implicit adaptive strategy to cope with the effects of climate change. This supplies farmers and consumers with some level of insurance against the negative effects of climate change.

211. Limited resources for Project activities in Kenya. The breadth and scope of the Project is considerable, yet Kenya has allocated a small budget for participation in this Project. This could limit their full participation and exploitation of the various benefits and opportunities presented by a global Project. However, the benefits of a multi-country Project will also ensure there is global co-financing allocated to Kenya. Bioversity maintains a sub-regional office in Kenya and with other international partners involved in this Project undertakes a range of related activities. It should also be highlighted that Kenya's country partners have a wealth of experience in projects that have mobilised BFN, they have already established a substantial baseline in this area. The recent efforts

to link farmers to urban markets through African leafy vegetables (ALVs) is frequently showcased as a ‘success story’. It will be important for the Project to build on these previous experiences and outputs and mainstream this to other countries.

<b>Risk</b>	<b>Rating*</b>	<b>Risk Mitigation Measure</b>
a) Marketing and promotion of specific BFN species and products leads to reduced on farm biodiversity	L	<ul style="list-style-type: none"> <li>Local users, communities and farmers, in conjunction with the Project, will monitor biodiversity on farm and from wild harvest areas</li> </ul>
b) Resistance from the nutrition and health community to biodiversity-based food approaches	L	<ul style="list-style-type: none"> <li>The Project will seek out and engage champions within the nutrition and health sector already familiar with the benefits of agricultural biodiversity.</li> </ul>
c) Inadequate collaboration between environment, health and agriculture sectors	M	<ul style="list-style-type: none"> <li>The Project will seek early inclusive engagement with health partners, define shared objectives &amp; opportunities and identified need to work together</li> </ul>
d) Key Project partners, communities and farmers are not prepared to share and exchange information	L	<ul style="list-style-type: none"> <li>Promoting community sensitization and empowerment activities at the beginning of Project will help develop ownership of the Project</li> <li>Community biodiversity management tools will empower communities and farmers to make decisions what to share and exchange</li> <li>The Project will make every effort to demonstrate that sharing is a two-way process and that there are benefits of give and take</li> </ul>
e) Political and economic instability	L	<ul style="list-style-type: none"> <li>Empower communities and local institutions to implement Project activities so that they can run basic Project activities in a situation where there might be political unrest and other types of shocks</li> <li>Governments, communities and local institutions understand the importance of the Project outputs</li> </ul>
f) Impact of climate change	M	<ul style="list-style-type: none"> <li>Conservation efforts will target wild and local diversity which is well adapted</li> <li>Community based conservation actions for identification of particular species adapted to cope with extreme climatic events</li> </ul>
g) Limited resources for Project activities in Kenya	M	<ul style="list-style-type: none"> <li>Strategy to better mobilize additional funds through local sources</li> <li>Strategy to target global co-financing for Kenya</li> <li>Opportunity to build on substantial baseline already established in Kenya</li> <li>Partners explore constructively opportunities to reverse this situation</li> <li>Develop better links between government, NGO and relevant global actors to tap resources and mobilize resources</li> </ul>

\*Risk rating – H (High Risk), S (Substantial Risk), M (Modest Risk), and L (Low Risk)

### 3.6. Consistency with national priorities or plans

212. **Brazil** is a signatory to the CBD and has issued a National Biodiversity Strategy and Action Plan (NBSAP). The country has played a lead role at the international level in placing biodiversity and nutrition as priorities within the biodiversity and development agendas and in the development of the CBD's *Cross-cutting initiative on biodiversity for food and nutrition*. Brazil participated actively in the Global Stakeholders' Meeting on the implementation of the Initiative held in Rome in 2006. The Project intervention, particularly the goal of documenting the nutritional benefits to be derived from agricultural biodiversity, is fully in line with Brazil's national priority as specified in the *Zero Hunger Programme*, which seeks to revitalize regional food production in areas where hunger and malnutrition is concentrated, as outlined in Section 2.4. The Project will directly contribute to this priority by fostering the mobilization of nutritious foods sourced from local ecosystems rich in biodiversity. The *Fome Zero (Zero Hunger)* programme is a national priority. In addition to cash payments and direct provision of foods and nutrients to the people most at risk, there is growing recognition that the sustainable use of biodiversity in local ecosystems is a way to empower the poor and build on their knowledge and food cultures. In Brazil, crop land races, traditional varieties of food crops, and sustainable agricultural ecosystems rich in biodiversity have become key elements in Brazil's strategy to fight hunger and malnutrition. Within the Ministry of the Environment, the objectives of the agricultural biodiversity programme include promoting the use and conservation of plant genetic diversity by farm families, legitimizing farmers' traditional knowledge, and implementing public policy to increase rural food security and incomes. Furthermore, the ongoing project "*Plants for the Future*" has already identified some 775 plant species of actual or potential economic value used at local or regional level. Many of these species are underutilized and can become world staples. Some are being developed as new crops through regional development efforts and can serve as a guide for other species.

213. **Kenya** is a signatory to the CBD and has adopted a National Biodiversity Strategy and Action Plan (NBSAP). In an effort to reduce the increasing loss of its biodiversity-rich habitats and genetic erosion of its local traditional food crops loss, Kenya passed the Environment Management and Coordination Act 2000 that provides guidelines and prescribe measures for the sustainable management and utilization of genetic resources in the country. In 2006, Kenya unveiled a long-term planning strategy and *Kenya Vision 2030*, by when the country should be "A globally competitive and prosperous nation with a high quality of life". One of the targets for *Kenya Vision 2030* is achieving the significant reduction of micronutrient deficiencies and nutrition-related chronic diseases. In recognition of the important role traditional and wild foods play in food and nutrition security in the country, Kenya has underscored the importance of these foods in two of its current policies – the Agriculture bill, 2008 and Sessional Paper, 2007-The National Food Security and Nutrition Policy. The former calls for the establishment of the Kenya Biodiversity Centre as one of the Agricultural Sector Governance institutions. The policy supports inventory of biological diversity, reducing threats to species and integration of traditional knowledge in the conservation of plant and animal species. The National Food Security and Nutrition Policy has the objective 'to increase access to adequate, diverse and healthy diets'. Core among the proposed strategies is promoting traditional foods that are diverse and rich in micronutrients and improving the management of local resources and biodiversity in order to maintain productive capacity of the land. Kenya sees immediate potential for mainstreaming and managing biodiversity to cope with the current food crises and nutritional inadequacy.

214. **Sri Lanka** is a signatory to the CBD and has issued a National Biodiversity Conservation Action Plan (BCAP) in 1999. An addendum to the BCAP was made in 2006 to provide more details on the status of cross-cutting areas for biodiversity planning and to integrate, as far as possible and

as appropriate, the conservation and sustainable use of agricultural biodiversity into relevant sectoral and cross-sectoral plans, programmes and policies at the national level. The Government's ten-year development plan (Mahinda Chintana, 2006-2016) recognises the food and nutrition security of the nation as a national priority. The Plan has identified a twin track approach for the food and nutrition security strategy: i) to strengthen production and productivity in agriculture, and ii) to improve access to food for the poor households. A considerable amount from the national budget has been allocated to support local farmers and improve nutrient status of children. In May 2008, Sri Lanka officially launched the "National Action Plan for Agrobiodiversity Conservation and Sustainable Utilization" (NAP). The main objectives of the NAP is to provide a comprehensive, long-term development framework, including necessary guidelines, tasks, strategies and systematic approaches, for the conservation and utilization of agricultural biodiversity in Sri Lanka using an ecosystem approach. The Plan also recognizes the need to "foster, preserve and disseminate traditional knowledge in agriculture relating to organic farming, pest control and preservation and processing food for nutritional and medicinal purposes and facilitate exchange of such knowledge among the farming community" and includes the sustainable use of neglected and underutilized crops for poverty alleviation. The Project is consistent with the following priorities as stated in Sri Lanka's national plan: (i) "Promote research/assessments on traditional agricultural biodiversity systems, sustainability, target species of genetic resources including wild relatives and establish a public information dissemination system on the significance of conserving agricultural biodiversity, and enhance the scientific understanding of such conservation efforts"; (ii) "Promote and popularize traditional foods, food products and methods of preparation, and facilitate traditional food habits using formal and informal awareness programs"; (iii) "Promote wider utilization of agricultural biodiversity in nutrition instruments and poverty reduction strategies (i.e. national policy and planning, poverty reduction papers, food security projects etc)". The Project is also consistent with the ambitious plan called "Let's cultivate and prosper" that the government has launched to achieve food security by intensifying indigenous food production.

215. **Turkey** is a signatory to the CBD. Its national biodiversity conservation strategy is in line with the tenets of the CBD and, in particular, Turkey's Agricultural Research Master Plan gives high priority to agricultural biodiversity. The country's National Biodiversity Strategy and Action Plan (NBSAP) was initially published in 2001 but was revised recently in a participatory manner in the light of the global strategies under the CBD, as well as new challenges at the national level. The NBSAP includes targets specific to ecosystems (agriculture, steppe, forest, mountain, inland water and coastal-marine), as well as the establishment of implementation mechanisms and capacity-building. Goal 4 of the NBSAP sets specific objectives and activities with regard to agricultural biodiversity, which state the need: to identify, protect and monitor the components of biological diversity, which have importance for agricultural biodiversity; to protect genetic resources which have actual and potential values for food and agriculture, and to ensure the sustainable use of such resources; and to ensure the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Goal 5 of the NBSAP also has relevance to agricultural biodiversity in terms of relevant resources which exist in steppe ecosystems, and highlights: to protect steppe biological diversity, to ensure the sustainable use of its components, as well as to ensure the fair and equitable sharing of the benefits from the utilization of genetic resources; and to combat against the loss of steppe biological diversity and the socio-economic results which arise. The Project will contribute significantly to the achievement of the NBSAP objectives and targets and will link directly to food, nutrition and livelihood security targets on "biodiversity and genetic resources" in the 9<sup>th</sup> Development Plan covering the period of 2007-2013. Turkey's rural poor have a long tradition of obtaining additional income from harvesting natural resources, including edible wild plants. Considering this fact, the Ministry of Agriculture and Rural Affairs (MARA) supports a "Providing Food for All" Programme that gives high priority to food safety and security and the protection of natural resources, including biodiversity and genetic resources.



216. As already mentioned in Section 2.7, efforts by the Implementing Agencies (UNEP and FAO) to ensure that the project is fully embedded in the UNDAF mechanism will not only ensure that the Project is consistent with national priorities and plans but that it supports the achievement of the objectives and goals. This should also contribute to the Project informing the new national processes to revise NBSAPs.

### **3.7. Incremental cost reasoning**

217. In the four countries, the baseline situation provides limited and fragmented attention to the benefits and role of biodiversity-based food approaches to improving dietary diversity or as part of national food and nutritional security strategies. Preference is given to less sustainable and cost-effective food interventions such as fortification or biofortification or in other cases food supplements to address nutritional problems. This is exacerbated by the lack of collaboration and integration between the sectors with a vested interest – environment, agriculture and health. The baseline situation also provides limited information and promotional services, which could support greater awareness of BFN. There is also weak support to farmers and local communities who might supply markets with such biodiversity. Overall there is a poor policy and regulatory enabling environment to facilitate the sustainable use of BFN and its conservation. Accordingly, the baseline case for this Project is based on a continuation of current activities, which are neither channelling sufficient support and resources to sectors, nor advancing the development of appropriate biodiversity-based food approaches to health and nutrition nor market opportunities. In this business-as-usual scenario, current rates of loss of biodiversity and habitats would be expected to continue.

218. Linking biodiversity to improved dietary diversity can be a powerful driver to enhance the conservation and sustainable use of unique biodiversity of global significance. All the partner countries have a commitment to mobilizing local agricultural biodiversity to address nutritional problems. However, they lack the capacity to carry out the complex cross-sectoral work required to mobilize the nutritional value of biodiversity for its sustainable use and conservation through full integration into national nutritional policies. Without the components proposed in this Project, countries risk losing an opportunity for a globally relevant, systematic mainstreaming of biodiversity into nutrition policies and international nutritional guidelines. In the absence of this Project, the conservation of agricultural biodiversity will remain divorced from national development goals and receive less support from public policy. Ecosystems particularly rich in diversity will continue to face the threat of genetic erosion and the loss of valuable species, and these valuable resources will not be conserved and integrated into addressing the Millennium Development Goals to reduce hunger, poverty, and malnutrition. An additional benefit of valuing, conserving and mainstreaming biodiversity for food and well-being is that the four countries would directly contribute to the approved COP8 work programme for a *Cross-cutting initiative on biodiversity for food and nutrition*. Furthermore, implementation of the Project will also help meet national priorities and will provide means for both organizations and countries to benefit through shared best practices and experiences in the sustainable management of biodiversity. Without this Project, an opportunity to enhance the sustainable use of valuable agricultural biodiversity to meet conservation and development goals will be lost.

219. The value added of GEF resources lies in supporting the case for the benefits of BFN and in supporting the growth of markets which may be perceived as either risky or of unknown risk by the private sector, but that hold considerable potential and with it, the capacity to deliver global environmental benefits when steered into areas of global biodiversity importance. A global multi-country Project will be well placed to promote exchange, sharing and learning between countries and to bring Project outcomes and experiences to a much wider international arena for greater

impact. The ability to replicate and up-scale Project results, as well as mainstream, is much more considerable in the context of a global Project. Bioversity International, FAO and UNEP all have access to networks and initiatives relevant to the Project through their global operations. Further, the scope to link and build on the range of national and global initiatives now underway (see Section 2.7) presents considerable opportunities which benefit most effectively from a global approach which encourages sharing and exchange of information and resources between countries. The Project through a global approach will be in a greater position to contribute significantly to the tracking of relevant global indicators in the area of biodiversity, health and agriculture and food security. UNEP, FAO and Bioversity as the global agencies responsible for implementation and coordination are adequately embedded in the relevant global processes and mechanisms to ensure that Project results and outcomes feed into the monitoring of relevant global indicators. A global Project could also contribute to informing global discussions on development of cross-cutting indicators on issues of conservation, health, nutrition and livelihoods. The proposed Clearing House Mechanism (CHM) under the ABS Protocol and the Global Information Systems on PGRFA of the international Treaty would both benefit from the establishment of the national and global portals to be developed by the Project and *vice versa*.

220. The national benefits of the Project include: Individuals and organizations collaborating effectively, across relevant sectors; Enhanced awareness of the nutritional benefits of biodiversity; Strong evidence base for the nutritional quality and potential of BFN and its link to improved health; Knowledge and information managed and made accessible; Policy and decision makers promote biodiversity as an appropriate low-cost option for food security and nutritional security; BFN mainstreamed, conserved and utilized, including the knowledge associated with it; Increased land area planted to BFN; Increased production and income from the growing and marketing of BFN; Increased food supply with improved nutritional quality; Enhanced capacity to implement good practices across relevant sectors; Enhanced policy and regulatory environment for biodiversity with nutritional qualities; National planning of agriculture, health and food security strategies gives more importance to biodiversity

221. The global benefits of the Project include:

- Conservation of globally significant crop wild species genetic diversity in terms of nutrition and well-being safeguarded
- Conservation of the knowledge associated with this genetic diversity and its management safeguarded
- Conservation of globally significant habitats supporting nutritionally rich biodiversity safeguarded
- Interventions to support the conservation and sustainable use of BFN improve the livelihoods of the poor and contribute to poverty reduction
- Local communities will practice alternative livelihoods and biodiversity friendly production systems thereby reducing pressures on natural systems and associated biodiversity resources
- Enhanced awareness and management of BFN, including its mainstreaming into relevant sectors, and identification of good practices and lessons learned will safeguard globally important species which are nutritionally rich
- Dissemination of information at the global level, shared through publications and the worldwide web, and promoted through extensive global partner networks
- Globally applicable lessons learned, good and best practices and guidelines for policy making and mainstreaming

- Development of a network of partner institutions and experts who can contribute to significant scaling up of BFN beyond the Project life in neighbouring countries and other geographical regions

222. The incremental costs and benefits of the Project are summarized in the incremental cost matrix (Appendix C). Baseline expenditures amount to US\$ 13,360,000.00 while alternative has been estimated at US\$ 48,429,932.20. The incremental cost of the Project, US\$ 35,069,932.20 is required to achieve the Project's global environmental benefits. Of this amount US\$ 5,517,618.00 (representing 15.73%) is being requested from GEF. The remaining amount of US\$ 29,552,314.20 (84.27%) of the total cost will come from the Governments of Brazil, Kenya, Sri Lanka and Turkey and other international donors. The figure includes both in-kind and cash contributions.

### **3.8. Sustainability**

223. The Project considers sustainability at two levels: 1) national and international policy, agreements and objectives; and 2) farmers, local communities and user groups. The Project goal and objectives are fully consistent with NBSAPs and this contributes to financial stability beyond the Project. Because the Project will build on the activities already underway in Project countries and will link to the national programmes, such as those in Brazil, described in section 2.4, this will also add to sustainability. Sustainability of Project practices will be achieved at the user-group level, when this group derives clear benefits from the implementation of Project activities. The Project objective for local communities in pilot Project sites and other potential user groups is to demonstrate the nutritional and health benefits of a locally available wide portfolio of biodiversity. A second objective for farmers and local communities, and other potential user groups, is to demonstrate that markets exist for this nutritionally valuable biodiversity and that these markets can provide a premium price and enhance incomes and livelihoods. Taken together, these two incentives provide a strong basis for sustainability and mainstreaming biodiversity conservation and sustainable use through relevant national sectors, programmes, plans and strategies, especially if nutrition, health and education sectors integrate such biodiversity into food-based approaches to malnutrition as well as school meals programmes. Limited evidence to date has demonstrated the link of biodiversity to dietary diversity and nutritional benefits, while market analyses carried out to date have shown the potential economic benefits of biodiversity targeting niche markets, particularly when it involves certification of diversity products for environmental sustainability. Increased incomes at farm level have been shown to sustain conservation and management practices in other crop species. Similarly, increased benefits from the use of wild species from natural habitats can be sustainable with appropriate levels of extraction. Furthermore, it has been demonstrated for African indigenous vegetables and other local biodiversity that markets can provide a premium price and share of profits to smallholders compared to their exotic vegetable counterparts.

224. The careful and strategic selection of pilot sites is an important component of the sustainability of the Project (see the detailed description for Output 1.1 in Section 3.3, which describes the process followed during the PPG phase for preliminary identification of pilot sites). The Project has identified criteria which help identify locations with a comparative advantage in terms of availability of a rich BFN and potential for linking farmers to markets e.g. availability of support systems such as markets, post-harvest processing and transport. So long as farmers, communities and national programmes benefit from conserving this diversity, the sustainability of Project activities is mostly assured. A further sustainability strategy built into pilot site selection is the empowerment, capacity building and sense of ownership the Project will engender at the community level. The community-based management approach promoted by the Project will build-in a strong element of self-reliance and the capacity to mobilize communities to generate their own

funds to support Project activities after the completion of Project. This will be complemented by strengthening community linkages with government agencies, non-governmental agencies and private sectors and would link to ongoing government and non-governmental activities that will ensure sustainability at the national level. This would be strengthened by the wider national promotional, awareness and information-sharing activities which would enhance sustainability by encouraging others to get involved on a wider scale.

225. This will be complemented by strengthening local institutions and ensuring that all participants and stakeholders are fully engaged and that partnerships and institutional linkages are solid and that cross-sectoral platforms and working groups established within the Project continue after completion. Together with the accessible and comprehensive national information systems, this will ensure continued implementation of the positive policy and regulatory enabling environment established by the Project and the ongoing mainstreaming of BFN into national plans and strategies.

226. The Project's substantial awareness and outreach activities will be an important element of sustainability and will facilitate ongoing scaling-up in other regions of participating countries as well as other countries. This will include best practices for mobilizing biodiversity as part of nutrition, health, food security and other relevant development initiatives, especially for value adding and improving livelihoods. For example, the successful integration of biodiversity into national school meal programmes, linked to local procurement from farmers and communities, could be a powerful mechanism for scaling-up and sustainability. The efforts which are built into the Project are designed to capture, analyse and document the lessons learned from the work in the partner countries and to upscale these will contribute to the overall sustainability of the Project. Further, Project outputs and outcomes will be closely linked with national priorities and action plans.

227. The Project will also benefit from Bioversity International's, UNEP's and FAO's and other key international partners' relationship with other existing regional and international networks to reach broader audiences with Project outputs and impact such as the World Food Programme's involvement in school meals programmes. The potential for the Project to contribute, and for outputs to be maintained and coordinated, through the CBD's *Cross-cutting initiative on biodiversity for food and nutrition* is an additional mechanism for sustainability. These UN agencies will have an important role ensuring that the project is integrated into national UNDAF mechanisms. If this were successful it would contribute substantially to sustainability.

228. In addition to the abovementioned strategies which link to financial sustainability, the Project will support other measures to improve the financial sustainability of Project initiatives. The economic, financial and sustainability analyses of the different components are closely related. One such example is the efforts of the Project to strengthen producer linkages to markets for nutritionally-rich biodiversity for example by linking school meals programmes to local procurement of agricultural biodiversity and the creation of niche markets and value chains which are both biodiversity and nutritionally sensitive.

### **3.9. Replication**

229. Experiences gained from the Project implementation particularly in terms of Project management, coordination of activities in the Project management committees and pilot sites shall promote effective stakeholder participation on decision making at different levels. It will ensure that conservation, sustainable management and benefit sharing go hand-in-hand with efforts in raising public awareness and education which is likely to improve the livelihoods of local

communities dependent on biodiversity for food and nutrition. The lessons and best practices learned from Project implementation will be shared with other relevant programmes in partner countries and with neighbouring countries through national and international workshops and relevant networks. The involvement of Bioversity and other international partners will contribute to informing other countries globally through their extensive networks and partnerships. The experiences of the Project will be disseminated by posting regular reports on the progress of the Project on the Project website and relevant portals. In addition, Project staff will participate actively in regular meetings of the Project implemented in partner countries and other relevant projects globally which can bring in new experiences and develop the individual and institutional capacity.

230. The outputs from Component 3 “Awareness and Outscaling” of the Project represent what would be the cornerstone of any replication strategy to scale up outputs and achievements. The Project’s replication strategy would be guided by ongoing monitoring and evaluation, including lessons learned and good practices identified through any Project mid-term review and final evaluation. Collectively this would include: 1) best practices for mobilizing biodiversity to improve dietary diversity and improving livelihoods through market chains; 2) capacity building plans to support sustainable use of nutritionally rich biodiversity in nutrition and health programmes and market chains, including improved capacity of producers, processors, users and researchers to deploy and benefit from nutritionally relevant local biodiversity; 3) training modules on best practices for use in nutrition and health programs that can be adapted for use elsewhere in the four countries and more widely in other countries and regions; 4) guidelines for developing and implementing national and international information campaigns and communication strategies that foster greater appreciation of biodiversity as a resource for development and well-being; 5) Guidelines for improved use of nutritionally-rich foods from local biodiversity, including processing, food safety measures, and recipes adapted to modern lifestyles based on traditional food systems; and 6) documentation and dissemination of tools and methods, including international and national policy guidance, for mainstreaming biodiversity into food and nutrition activities that can be up-scaled and adapted for use in other local, national and international contexts.

231. Replication of Project activities and outputs would also be supported by the establishment of national and international information systems, which will make relevant information accessible to relevant user groups. Of course a major replication strategy for the Project would be the partnership established to facilitate implementation. This partnership would have a clear role in replication at the local, national and international level, as already alluded to in Section 3.8. However, attention should be particularly drawn to the role of Bioversity International and FAO in spearheading the CBD’s *Cross-cutting initiative on biodiversity for food and nutrition* as well as other Project international partner’s networks and collaborations. Together this represents a significant mechanism for replication elsewhere.

232. The Project inception workshop will also aim at improving indicators to measure the success of replication as a result of the Project and ways to identify and document lessons learned throughout the Project.

### **3.10. Public awareness, communications and mainstreaming strategy**

233. All three elements – awareness, communication and mainstreaming – will be supported by strategies at the local, national and global level with effective links to partners at all levels. As highlighted in Section 3.3 awareness strategies based on approaches such as ‘Go Local’ will build on community-based initiatives and will target other communities through national initiatives. Public awareness planning and implementation will be an integral component of the Project’s

overall communications strategy (see **Annex L**, *Developing a Project Communications Strategy*). Component 3 supports the development of national awareness campaigns and the other Project components have an in-built awareness raising strategy and activities that will, in particular, target respective collaborating partners.

234. Of key importance for the mainstreaming strategy of the Project is its inclusion of and collaboration with a broad range of key stakeholders and institutions. Mainstreaming biodiversity for nutrition refers to the integration of relevant biodiversity, its conservation and utilization, into policy programming and operational practice of relevant sectors, such as that of agriculture and health but other sectors too. So that serious consideration is given in institutional thinking to the employment of biodiversity as a viable option to address nutrition, health, livelihoods and food security problems. Mainstreaming of such considerations into the agriculture sector would ensure that sustainable utilization of biodiversity is given due credit and consideration in policy and practice so that agriculture programmes and projects have appropriate nutritional objectives and outcomes linked to this. Similar scenarios would be expected in other sectors such as Health and even Education when dealing with extensive school meals programmes. It is essential that relevant actors from these organisations be included and engaged in the Project's mainstreaming strategy.

235. Component 2 aims at establishing appropriate cross-sectoral partnerships aimed at fostering the respective national enabling environments for the promotion of biodiversity conservation and sustainable utilization for enhanced nutrition and well-being. This will include a strong focus on policy, regulatory and mainstreaming issues. A focus of mainstreaming will have to be internal (to the Project core team) and external (with other partners). Internal mainstreaming, in addition to building knowledge, will need to focus on building mainstreaming capacity, mentoring and on-going support. External mainstreaming will require on-going dialogue, promotion and advocacy with partners and donors, building strategic networks and alliances related to priority issues. Component 3 of the Project will produce important outputs in this regard including the documentation and dissemination of tools and methods for mainstreaming biodiversity into food and nutrition activities which can be upscaled, outscaled and adapted for use at the local and national levels but also in other regional and international contexts. Such methods and tools will be a first of their kind.

236. The Project's mainstreaming strategy will be developed during the first inception workshop to address national and global levels including UNDAF mechanisms. Nevertheless, communication and awareness raising campaigns will devote particular attention to: the messages to be disseminated (easily understandable and differentiated according to the specificity of the beneficiaries); channels of communication and media; elaboration of information and communication materials (simple and addressed to the specific purpose as well as focused on different needs of the groups of beneficiaries); methodology to be used and choice of main beneficiaries/target groups to be achieved (see **Annex L**, *Developing a Project Communications Strategy*).

### **3.11. Environmental and social safeguards**

237. The major environmental dangers of a Project of this nature arise largely as a result of the promotion of biodiversity through enhanced linking of farmers to markets in order to improve income. Firstly, this may put undue pressure on the biodiversity resource leading to possible over-harvesting and depletion. Secondly, focusing on markets and commercialisation of a particular species, food or product, introduces the possibility of influencing the dynamic on farmers' fields possibly reducing the overall biodiversity maintained. Thirdly, with marketing and commercialization also comes the risk of increased use of inputs, especially damaging pesticides.

This latter issue has the potential to introduce both environmental and social problems through leaching and build-up of chemicals in soils and waterways, as well as damage to human health. The Project will ensure environmental safeguards are provided through the close connectivity between the areas of production and employment of sustainable use tools, possible certification schemes and compliance with general eco-trade principles, which ensure sustainable harvesting and sustainable management and production. In addition, the Project will monitor the biodiversity which exists on farmers' fields and ensure that products for market are not coming from farms where biodiversity is being negatively affected.

238. By focusing on rural communities and smallholders as target beneficiaries of nutritional and health promotion and linking farmers to markets, the Project ensures the involvement of a high percentage of the marginalized population in rural areas, including indigenous communities and family-run businesses in the four participating countries that otherwise might not have access to subsistence income. Strong farmer alliances should guarantee a more equitable distribution of income from marketing. Strengthening their income base, as well as their empowerment and social capital and linking them to relevant agencies and initiatives, can be seen as a social safeguard in its own right.

239. The Project's plans to integrate more nutritious biodiversity into national school meals programmes, school education programmes and local procurement initiatives would contribute to the dietary diversity of school-age children in participating countries with positive implications for well-being. Women, both of a child-bearing age and the elderly, will be a specific focus group for certain Project activities such as biodiversity and nutrition education awareness. Other projects have highlighted the importance of this as an intervention, especially with other approaches to mobilize biodiversity. Women will stand to benefit in a number of ways through access to Project inputs and resources.

240. Nutritional and income-generating opportunities of the biodiversity which the Project promotes are not the only tangible benefits. Such biodiversity is locally adapted and requires fewer external inputs and will be important in helping local communities to adapt their agroecosystems to climate change.

#### **SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS**

241. The United Nations Environment Programme (UNEP) and the Food and Agriculture Organization of the United Nations (FAO) have partnered to implement this Project and together they combine a body of scientific and empirical experience of critical relevance to the objectives of the Project. UNEP has provided global leadership and encourages partnership in biodiversity conservation including agricultural biodiversity conservation as well as a wealth of experience on mainstreaming biodiversity into policies, programmes and practice. FAO brings experience in conservation and sustainable management of agricultural biodiversity – the lead organization for the CBD Programme of Work on agricultural biodiversity. FAO provides policy and technical assistance on a wide range of food security and nutrition issues, including the conservation and sustainable use of agricultural biodiversity. FAO also brings its substantive knowledge on the nutritional value of biodiversity, as well as capacity building and information management in this area.

242. **UNEP, as the leading GEF Implementing Agency** for this Project will provide overall coordination of the activities of national and international partners, technical and scientific expertise and enhancement of regional and international cooperation. More specifically, UNEP will be responsible for implementation of Component 1: Output 1.1; Component 2: Outputs 2.1 2.2 and 2.3; Component 4 and 5. UNEP will be in charge of: transfer of financial resources needed for execution of these Project components to the Global Project Executing Agency: approval of expenditure on activities; monitoring and evaluation of execution and output performance in consultation with the national executing agencies, FAO and Bioversity International, the Project Global Executing Agency: commissioning mid-term and final evaluations of the Project in coordination with FAO. UNEP will be a knowledge partner in providing technical support and expertise in coordinating the development of environmental policy consensus through sharing experiences of its other projects being supported by GEF or other agencies. As a leading 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 community to partners who are working at the development interface at national levels, with the overall aim of mainstreaming biodiversity into development. This platform will help to adopt at national level the policy frameworks that link biodiversity conservation, human health and nutritional security.

243. **As GEF Co-Implementing Agency, FAO** will provide supervision and technical guidance services for the implementation of Component 1: Output 1.2 and 1.3 and Component 3: Outputs 3.1; 3.2; 3.3; 3.4 and 3.5. Specifically, FAO will: enter into an Agreement with Bioversity International as the Global Executing Agency for the provision of services to the Project; manage and disburse funds from GEF to Bioversity International in accordance with the rules and procedures of FAO; oversee and monitor project implementation in accordance with the project document, and approved work plans and budgets, in consultation with UNEP and the Project International Steering Committee; provide technical guidance to ensure that appropriate technical quality is applied to project activities; carry out periodic supervision missions; in collaboration with UNEP, report on project progress to the GEF Secretariat and the GEF Evaluation Office through the annual Project Implementation Review; provide financial reports to the GEF Trustee in accordance with the Financial Procedures Agreement between FAO and the GEF Trustee; and jointly with UNEP, commission mid-term and final evaluations of the Project.

244. UNEP and FAO, as the GEF Co-Implementing Agencies, will be responsible for overall Project supervision to ensure consistency with GEF and UNEP and FAO policies and procedures and will provide guidance on linkages with related UNEP, FAO and GEF-funded activities. UNEP



and FAO will monitor implementation of the activities undertaken during the execution of the Project and will be responsible for clearance and transmission of financial and progress reports to the Global Environment Facility, UNEP and FAO retain responsibility for review and approval of the substantive and technical reports produced in accordance with the schedule of work.

245. **Bioversity International, as the Global Project Executing Agency**, will be responsible for the overall coordination and execution of the Project in accordance with the objectives and key activities outlined in Section 3 of this document. They will undertake this task by making full use of relevant expertise at their Headquarters in Rome and the relevant regional and country offices in the Americas, Europe, Sub-Saharan Africa and the Asia regions.

246. **The Global Project Management Unit (GPMU)** will be established and will be hosted at Bioversity International headquarters. The GPMU will be under the overall management of Bioversity's Senior Scientist (Nutrition and Biodiversity) who will act as Global Project Director. The GPMU will include a Global Project Coordinator/Manager and Scientific Programme Assistant. The full description of the GPMU and the TORs for essential positions are provided in **Appendix 11** Terms of Reference. The Global Project Coordinator will be responsible for day-to-day follow-up on execution of the Project, coordinating activities, technical back-stopping, reporting and facilitating the exchange of information and managing the Project's financial aspects. He/She will be responsible for the coordination with the national executing offices and each of the Project's national counterparts.

247. The GPMU will establish reporting guidelines for all partners and ensure they submit quality reports which meet the reporting schedule; prepare biannual and quarterly financial reports and annual summary progress reports for UNEP and FAO and carry out a programme of regular visits to Project sites to supervise activities and to address concerns related to any implementation problems. The GPMU office will also be assisted by several other staff throughout Bioversity headquarters and its regional and country offices.

248. The Project will establish an **International Steering Committee (ISC)** composed of representatives from UNEP and FAO as implementing agencies, Bioversity International as global executing agency, and national executing agency representatives from and for each of the countries. The ISC will also comprise participation of representatives of relevant international partner organizations (see below), who would form the basis of a Project **Technical Advisory Committee** (see below). This would ensure that the level of participation in the ISC was kept at a manageable level, reducing the costs and possibility of duplication of technical roles. The ISC will be responsible for taking policy decisions about the implementation of the Project. It is responsible in making, by consensus, management decisions for the Project and holding periodic reviews. In order to ensure UNEP's and FAO's ultimate accountability, the final decision-making with UNEP and FAO will be in accordance with its applicable regulations, rules, policies and procedures. The International Steering Committee will meet physically once a year and its functions will be mainly to evaluate the progress of the Project relative to the outputs and milestones expected, to provide strategic direction for the implementation of the Project and to guarantee the necessary inter-institutional coordination. Continuous exchange of information through electronic means will be established from the outset, and steering committee meetings via telephone conference or other electronic means can be called by requirement. Reports and recommendations of all ISC meetings will be prepared and disseminated no later than one month after the actual meeting. All partners will undertake to disseminate information about the Project and its outputs through their various networks, conferences, meetings and other relevant consultations. Detailed description of the roles and responsibilities of the ISC are provided in **Appendix 11. Terms of references** and **Annex C. Project Management and Public Involvement Plan**.

249. A **Technical Advisory Committee** (TAC) will be established to provide expert guidance in relation to implementation of biodiversity food based approaches; policy and regulatory frameworks; information management; and marketing and value-adding (see paragraph 248). The TAC will provide ongoing technical advice to the Project and will participate in ISC meetings. A Description of the expertise required and roles and responsibilities of the TAC are provided in **Appendix 11**.

250. Given the cross-sectoral and multi-disciplinary nature of this Project, the Project partners have agreed to bring together relevant international partners, which can facilitate both implementation and scaling up beyond the boundaries of the Project. This would also bring a wider range of experiences, tools and resources to bear on the Project. To this end, during the PPG phase of the Project, considerable time and effort was spent approaching, discussing with and screening potential partners who might add value and were committed to participate. The list of partners include the: World Food Programme (WFP); Earth Institute, Columbia University; Crops for the Future; the World Agroforestry Center (ICRAF) and the World Vegetable Centre (AVRDC). UNEP in 2011 signed a Memorandum of Understanding with the World Food Programme, in order to forge closer ties. A full description of each partner, their defined role, inputs and contributions are provided in the partner matrix in **Annex C**.

251. The role of this international partnership would be to assist participating countries, agencies and their partners in the execution and implementation of the Project and specifically to:

- Promote awareness of relevant tools, resources, data sources and so forth which the Project might integrate and build on
- Provide backstopping and technical guidance on relevant issues and topics in areas where they have particular strengths and institutional expertise
- Explore how the Project can link up with initiatives partners have underway in participating countries, or which might be relevant to consider during Project start-up
- Put national partners in touch with relevant counterparts in-country and assist in networking
- Assist in the development of approaches and methodologies and ensure harmonised and standardised approaches are in place for implementation, monitoring and measuring impact
- Provide training where appropriate
- Participate in regular international meetings, to assist in reviewing progress and guiding future implementation
- Provide ongoing guidance and inputs to global coordination and Project execution by participating countries
- Explore ways in which the Project approach can be better integrated and scaled-up

252. Representatives from these international partners will be the basis of the TAC and will participate in regular ISC meetings as observers and will provide ongoing backstopping to global and national coordination.

253. **At National Level**, the Project will be executed by:

- Biodiversity Conservation Department, Biodiversity and Forestry Secretariat, Ministry of Environment, Brazil
- Kenya Agricultural Research Institute (KARI), Nairobi, Kenya.
- Ministry of Environment through the Department of Agriculture, Sri Lanka; and

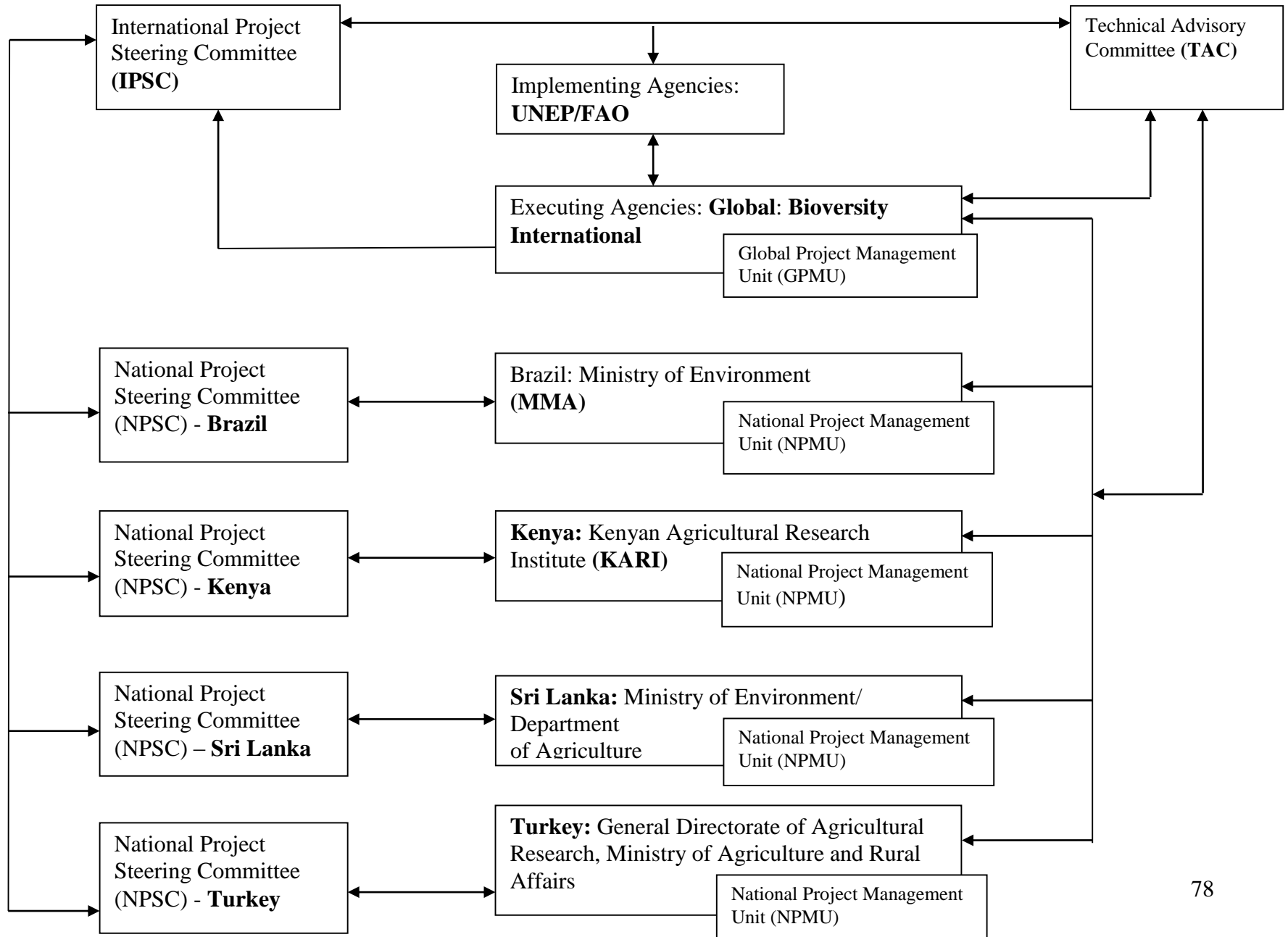
- General Directorate of Agricultural Research, Ministry of Agricultural and Rural Affairs, Ankara, Turkey

254. It has also been agreed that a **National Project Management Unit (NPMU)** will be established in each partner country. The NPMU will consist of the National Project Coordinator (NPC), Project Assistant and thematic consultants (on a needs basis). The TORs for national staff in the NPMU are provided in **Annex C**. The NPMU will serve as the critical link between the Project pilot sites and district and national committees and the GPMU to ensure that lessons learned are shared among sites and within national committees and between countries and to provide visibility of the Project at the national and international level. The NPMU and the GPMU will be responsible for ensuring adequate communication of information to all national and international partners. The NPMU will be hosted by the institution that has been identified at the national level as the Project Executing Agency in each country (see above).

255. **National Steering Committees (NSC)**, and where relevant thematic and other committees, will be established in each participating country. Each NSC will consist of representatives of major partners actively involved in the activities of the Project and will work in partnership with Bioversity International in the execution of Project activities at the national level. It will consist of representatives from 1) National Executing Agency, 2) GEF Focal Point, 3) Government agencies (Agriculture, Environment, Health and Natural Resources), 4) Private institutions, 5) Local institutions, 6) Non-Governmental Agencies (NGOs), 7) Women's organizations, 8) Farmers' organizations, and 9) National Project Coordinator. However, composition of the NSC varies from country to country. For a full detailed description of the NSC and the roles of national partners see **Annex C**. Project Management and Public Involvement Plan.

256. These formal implementation arrangements will ensure a constant exchange of information and experiences among the countries involved, as well as with the executing and implementing agencies at international level. The interweaving of national and international representation in the Project's steering and decision making process, as well as linkages through the international partner's network will allow for a dissemination and scaling up strategy (See Component 3) that is well embedded in the overall Project approach and responsive to national and international needs, priorities and experiences.

**Figure 1. Global Project Management Structure**



## SECTION 5: STAKEHOLDER PARTICIPATION

257. A Project of this nature depends on inclusive involvement of stakeholders from a broad range of sectors, through grassroots to senior policy and decision makers, from institutional to individual (**Annex C. *Project Management and Public Involvement Plan***). Clear mechanisms for participation, partnership building and effective communication will be essential and must be considered at the outset of Project implementation to ensure full inclusion of all relevant stakeholders. It is essential that spaces are created to enable partners to work together effectively and that all stakeholders are kept fully informed of Project progress (**Annex L. *Developing a Project Communications Strategy***).

258. The main beneficiaries of this Project will be individuals, households and communities in pilot sites, especially women and children, who will be the target of interventions through such mechanisms as home and school gardens. Farmers will benefit from improved linkages to markets and the contribution this will make to their livelihood. Communities in general will benefit from the enhanced conservation of biodiversity and its sustainable utilization. The Project plans to elaborate these benefits through the employment of good practice when establishing collaborative arrangements with local communities such as through the use of Community Biocultural Protocols. Efforts at scaling-up and promotion, and awareness campaigns to increase the consumption of such foods at the national level will benefit general public health.

259. The Project will work closely with individuals, farmers, households and groups at the community level in selected locations to achieve specific key activities across all 3 components. This will involve working closely with communities to assess and map the available biodiversity they have access to, as well as its contribution to household diets and nutrition. The Project will work closely with communities to document local knowledge relevant to the conservation and sustainable utilization of this biodiversity with a focus on food preparation and nutrition. This will involve capacity building at the community level to facilitate community-based management of biodiversity and associated knowledge and information. Farmers and community/rural groups will also be a focus of the marketing work to better link them and BFN to markets. Finally, communities will be an important focus for promotional and awareness campaigns and it will be important that the Project works closely with community development and mobilizers.

260. The various PPG studies and consultations have indicated that schools are clearly a priority for the countries involved in the Project and this will include the establishment of school gardens as an educational tool for students, as well as exploring avenues for biodiversity to make a greater contribution to school revenue. This will necessitate the involvement of students and teachers as important stakeholders, but will also involve engagement with other relevant actors such as producers, farmers, chefs, researchers, community development workers and so forth as will the buy-in of Ministries of Education in countries.

261. In addition to the considerable expertise that UNEP, FAO and Bioversity can bring in relation to biodiversity, food and nutrition they can also provide expertise to other important areas and disciplines within their organizations, such as agricultural marketing, policy and regulation, information management and public awareness and communications. Additionally, both organizations have considerable networks and outreach through national and regional offices. Both organizations will also ensure that the Project is integrated into relevant UNDAF mechanisms. Bioversity will also ensure that the Project is well embedded and aligned with the relevant CRPs (proposed new collaborative research programmes) currently being developed within the CGIAR restructuring process (see Section 2.7). These linkages must also be explicit in Project communication strategies (See **Annex L**).

262. The multi-disciplinary scope and cross-sectoral approach of the Project will necessitate that additional guidance and backstopping is provided by other relevant agencies with respective expertise across the spectrum of the Project. In fact, if this Project is to be successful and to scale-up the benefits of BFN as a viable approach or alternative to conventional nutrition interventions, it will be essential to engage an international partnership platform to support this across all three components (see Section 4).

263. The Project will require considerable efforts to support a number of cross-cutting initiatives and will need to ensure that the Project builds up a considerable body of stakeholders who can provide support to Project-wide capacity building, building effective partnerships, creating effective public awareness and information management. This will require an effective team of trainers, community facilitators, partnership facilitators and communications experts. Such needs should be identified early on in the Project and integrated into the Project capacity building plan (**Annex K. *Developing a Project Capacity Building Plan***).

264. The country partners' strong commitment to the implementation of the Project is reflected in the significant interest and involvement of the different relevant agencies and organizations in the different countries during the PPG phase. To date, many of these organizations have been actively working together during the PPG phase to provide background documentation and other information. These various country documents include a detailed list of the main groups of actors involved in the Project or who are affected by it (see Section 4). Thanks to the participative nature of this Project, many of these actors have played a very important role in the drafting of the Project document, as active collaborators in the design of the intervention strategy or through the many consultations which have taken place at the country level during the PPG phase.

## SECTION 6: MONITORING AND EVALUATION PLAN

265. The Project will follow UNEP and FAO standard monitoring, reporting and evaluation processes and procedures. Substantive and financial Project reporting requirements are summarized in Appendix 8. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by Bioversity and UNEP, and execution agreement between Bioversity and FAO.

266. The Project Monitoring and Evaluation (M&E) plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in **Appendix 4** includes SMART indicators for each expected outcome, as well as mid-term and end-of-Project targets. These indicators, along with the key deliverables and benchmarks included in **Appendix 6**, will be the main tools for assessing Project implementation progress and whether Project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in **Appendix 7**. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall Project budget.

267. The M&E plan will be reviewed and revised as necessary during the Project inception workshop to ensure Project stakeholders understand their roles and responsibilities *vis-à-vis* Project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day Project monitoring is the responsibility of the Project management team (Global and National Project Management Units), but other Project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Coordinator/Manager to inform UNEP and FAO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

268. The Project's International Steering Committee will receive periodic reports on progress and will make recommendations to UNEP and FAO concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the Project meets UNEP, FAO and GEF policies and procedures is the responsibility of the UNEP Task Manager and the FAO Lead Technical Officer. The Task Manager and Lead Technical Officer will also review the quality of draft Project outputs, provide feedback to the Project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

269. At the time of project approval about 60 percent of baseline data is available. Further baseline data collection will be the first activity of each component of this Project. Baseline data gaps will be addressed during the first year of Project implementation. A plan for collecting the necessary baseline data is presented in **Appendix 5**. Baseline data collection at pilot sites is specifically addressed by Activity 1.1.4 while Activities 1.2.2 and 1.3.2 establish the baseline situation for national information systems and status of biodiversity indicators. Activities are also embedded within Components 2 and 3 in order to establish baselines and gaps.

270. Project supervision will take an adaptive management approach. At Project inception the UNEP Task Manager and FAO Lead Technical Officer will develop a Project supervision plan, which will be communicated to the Project partners during the inception workshop. The emphasis of the UNEP Task Manager and FAO Lead Technical Officer supervision will be on outcome monitoring but without neglecting Project financial management and implementation monitoring. Progress, *vis-à-vis* delivering the agreed Project global environmental benefits, will be assessed with the Project's International Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by Project partners, UNEP and FAO. Risk assessment and rating is an integral part of the Project Implementation Review (PIR) process. The quality of Project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure

cost-effective use of financial resources. Monitoring will also include periodic assessments of the Project's performance in relation to the environment and social safeguards put in place by GEF Implementing Agencies.

271. A mid-term management review or evaluation will take place in Project year 3, as indicated in the Project milestones. The review will include all parameters recommended by the GEF Evaluation Office for terminal evaluations and will verify information gathered through the GEF tracking tools, as relevant. It will, *inter alia*:

- a) review the effectiveness, efficiency and timeliness of project implementation;
- b) analyze effectiveness of implementation and partnership arrangements;
- c) identify issues requiring decisions and remedial actions;
- d) identify lessons learned about project design, implementation and management;
- e) highlight technical achievements and lessons learned; and
- f) propose any mid-course corrections and/or adjustments to the implementation strategy as necessary.

272. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the Project will be consulted. Such parties were identified during the stakeholder analysis (see section 2.5 of the Project document). The Project International Steering Committee will participate in the mid-term review and develop a management response to the evaluation recommendations, along with an implementation plan, with the main aim of improving the remaining time period of the Project. It is the responsibility of the UNEP Task Manager and and FAO Lead Technical Officer to monitor whether the agreed recommendations are being implemented.

273. An independent terminal evaluation will take place at the end of Project implementation. The terminal evaluation will review project impact, analyze sustainability of results and whether the project has achieved its objectives, in addition to point d) and e) above. The evaluation will furthermore provide recommendations for follow-up activities. The Evaluation and Oversight Unit (EOU) of UNEP and the FAO Evaluation Office will manage the terminal evaluation process. A review of the quality of the evaluation report will be undertaken by both UNEP and FAO and submitted along with the report to the GEF Evaluation Office no later than 6 months after the completion of the evaluation. The standard terms of reference for the terminal evaluation are included in **Appendix 9**. These will be adjusted to take into consideration the special needs of the Project, the evolving guidance from the GEF Evaluation Office and FAO evaluation procedures

274. The Project's Communications strategy (**Annex L. Developing a Project Communications Strategy**) will ensure that internal communication agreements will be developed for the Project to guarantee the flow of information between the Project parties at the national and global levels. Personnel from the executing agency, the global and national coordinators of the Project and the implementing agencies, will be regularly kept abreast of Project progress. The following main reports will be prepared by the Global Project Management Unit (GPMU) based on inputs provided by the National Project Management Units and other partners: (i) project inception report; (ii) semi-annual project progress reports; (iii) co-financing reports; and (iv) terminal report. All reports will be submitted to the Project Steering Committee through UNEP and FAO. UNEP and FAO, with inputs from the GPMU, will prepare and submit annual Project Implementation Review reports to the GEF Secretariat and Evaluation Office. These reports will reflect the performance of the Project and the stage of compliance of the products with the Project and their contribution to the tracking tools. In addition to the reports mentioned, and as part of financial management and reporting on the use of GEF resources, the GPMU shall prepare financial reports for submission to UNEP and FAO in accordance with the legal instrument/execution agreement.



275. The GEF tracking tools are attached as **Appendix 15**. These will be updated at mid-term and at the end of the Project and will be made available to the GEF Secretariat along with the Project Implementation Report (PIR). As mentioned above, the mid-term evaluation will contribute to Project performance improvement, while the terminal evaluation aims at verifying the information of the tracking tool.

276. In addition to the standard M&E activities (Component 5) related to Project implementation, the Project, through its global approach, will be in a position to contribute significantly to the tracking of relevant global indicators in the area of biodiversity, health and agriculture and food security. Particularly relevant are results and outcomes of the Project which can be used to measure progress against the *CBD Strategic Plan for Biodiversity 2011-2020* and the *Aichi Biodiversity Targets* (see Section 2.2 for the specific goals and targets the Project might address) and which will also provide a good platform to link issues of BFN and broader biodiversity conservation, use and sharing of resources. Also relevant will be reporting of the global Project in relation to indicators identified in the CBD's *Global Strategy for Plant Conservation* (GSPC). Further, Bioversity and FAO's involvement in the development and implementation of indicators on agricultural biodiversity as part of the *Global Plan of Action* (GPA) of the ITPGRFA will be informed of the global Project's results and outcomes, as will the relevant core indicators of the Millennium Development Goals and the Committee on World Food Security. UNEP, FAO and Bioversity, as the global agencies responsible for implementation and coordination, are adequately embedded in the relevant global processes and mechanisms to ensure that Project results and outcomes feed into the monitoring of relevant global indicators. The Project could also contribute to informing global discussions on development of cross-cutting indicators on issues of conservation, health, nutrition and livelihoods.