

## **PROPOSAL FOR REVIEW**

<b>PROJECT TITLE:</b>	<b>REGIONAL: CONSERVATION AND SUSTAINABLE USE OF DRYLAND AGRO-BIODIVERSITY OF THE  FERTILE CRESCENT</b>
GEF FOCAL AREA:	Biodiversity (cross-cutting with Land Degradation)
COUNTRY ELIGIBILITY:	Under financial mechanism of Convention (ratification): Lebanon - 15 December 1994; Jordan - 12 November 1993; Syria - 4 January 1996; Under paragraph 9 (b) of the Instrument (See also CEO's note 2 August 1996 to Council Members): Palestinian Authority
TOTAL PROJECT COSTS:	US\$ 18.78 (includes \$359,400 preparation costs)
GEF FINANCING:	US\$ 8.18
GOVERNMENT CONTRIBUTION:	In-kind: US\$ 2,068,000
COFINANCING:	<ul style="list-style-type: none"><li>• The International Centre for Agricultural Research in the Dry Areas (ICARDA): \$5,300,000</li><li>• International Plant Genetic Resources Institute (IPGRI): \$855,000</li><li>• Arab Centre for the Study of Arid Zones and Dry Lands (ACSAD): \$495,000</li><li>• UNDP: US\$ 1,575,000</li></ul>
ASSOCIATED PROJECTS:	US\$19,305,000 (Annex 7)
GEF OPERATIONAL FOCAL POINT:	Lebanon: Minister of Environment Jordan: Nadieh Al-Juhareh, Minister of Planning Syria: Abd Al-Hamid Al Menajed, Minister of State for Environmental Affairs Palestinian Authority: Nabeel Sha'ath, Minister of Planning and International Cooperation
GEF IMPLEMENTING AGENCY:	UNDP
EXECUTING AGENCY:	Government of Lebanon Government of Jordan Government of Syria The Palestinian Authority ICARDA (regional component)

Lebanon: Agricultural Research Institute,  
Ministry of Agriculture  
Jordan: Ministry of Planning  
Syria: Scientific Agricultural Research  
Directorate, Ministry of Agriculture and  
Agrarian Reform  
Palestinian Authority: Ministry of Agriculture  
Agriculture Research Institute of Jerusalem

OTHER PARTICIPATING AGENCIES: International Plant Genetic Resources Institute (IPGRI)  
Arab Centre for the Study of Arid Zones and Dry Lands  
(ACSAD)

ESTIMATED APPROVAL DATE: July 1997

ESTIMATED STARTING DATE: October 1997

PROJECT DURATION: 5 years

GEF PREPARATION COSTS: PDF B: US\$ 52,000  
Co-funding: US\$ 307,400 (UNEP, ICARDA,  
IPGRI, ACSAD)

## COUNTRY AND SECTOR BACKGROUND

### Global Significance of the Agro-biodiversity of the Fertile Crescent

1. The modern territories of the Near East (including Jordan, Lebanon, the Palestinian Authority, Syria, southeast Turkey and southern Iran) encompass the region of the "Fertile Crescent". The Fertile Crescent is an area of megadiversity of important food crop and pasture species. It is one of the few nuclear centres where numerous species (notably wheat, barley, lentil, pea and vetch) of temperate-zone agriculture originated 10,000 years ago, and where their wild relatives and landraces of enormous genetic diversity are still found (Annex 4; Figures 1 and 2). Many fruit trees such as almond (Figure 3), olive and pistachio are also originated from this region and have dominated its traditional agricultural systems (Harlan, 1975)<sup>11</sup>. They are present as a diverse range of wild relatives and local varieties. Cultivated olive, for example, exists as fifty different clones in the region; while almond, one of the most widely cultivated fruit trees in the Mediterranean, exist as more than fifteen local clones with distinct variations in fruit size, inflorescence, hairiness and flower colour.

2. The Levantine Uplands which comprise Lebanon, western Syria, small parts of Jordan and the northern Palestinian Authority, and the associated Mediterranean coasts and valleys, are considered one of the major centre of plant diversity and endemism in the world, and especially in southwest Asia and the Middle East (WWF and IUCN, 1994<sup>12</sup>; Figure 4). Seven genera of vascular plants are endemic to this region. Moreover, drylands are most outstanding for their within-species genetic diversity. Indigenous crops and food plants of the Fertile Crescent region are known for their resistance to disease and abiotic stresses, making them a valuable source of genetic material for germplasm enhancement upon which global food security depends. **The present project is concerned with agricultural biodiversity, referring to biological resources of actual or potential agricultural value, and the diversity of these species within agroecosystems. Given that dry lands of the Fertile Crescent represent the resource base for productive agriculture and given developing countries' food security priorities, the project is concerned with the conservation of biodiversity within agricultural systems.**

3. Wheat and barley, originated from the Fertile Crescent, have become two major staple crops upon which a large proportion, about one third, of the world's population depends. Wheat currently occupies 16% of the world's arable land. World production of wheat averaged 550 million MT between 1992-1994, approximately 30% of the global production of all cereals, exceeding that of both rice and maize. The production of Barley, averaged at 165 million metric tons from over 70 million hectares of land, contributes to 20% of the global production of coarse grains. In many of the least developed countries, barley is the primary human staple although in developed countries, it is used mainly as animal feed and for brewing.

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<sup>11</sup> Harlan (1975). Crops and Man. Second edition.

<sup>12</sup> WWF and IUCN (1994). Centers of Plant Diversity. A guide and strategy for their conservation. Volume One - Europe, Africa, South West Asia and the Middle East. IUCN Publications Unit, Cambridge, UK.

4. The best example of economic value derived from genetic pasture species, whose source includes the countries/authority in and around the Fertile Crescent, is the Australian ley farming system, developed since the 1930s, using medics and clovers introduced into rotation with cereals (Puckridge and French 1983)<sup>13</sup>. This agro-biodiversity brought to Australia is worth hundreds of millions of dollars, in terms of meat, milk, wool, added nitrogen fertility and cereal yield sustainability. Similar annual legume exploitation has contributed or could contribute to successful pastures in Argentina, California, Oregon, Chile, North Africa, the Near East, Portugal, South Africa, Turkey, Uruguay and the European countries/authority on the northern rim of the Mediterranean Basin.

### Threats to Global Agro-biodiversity

5. The major causes of plant genetic erosion or loss of agro-biodiversity have been summarized in the Report on the State of the World's Plant Genetic Resources (1996)<sup>14</sup>. as follows:

- a. Replacement of local varieties
- b. Land clearing
- c. Over-exploitation of species
- d. Population pressure
- e. Environmental degradation
- f. Overgrazing
- h. Legislation/Policy
- i. Changing agricultural systems
- j. Pests/weeds/diseases
- k. Civil strife
- l. Reduced fallow

6. The Near East region supports a population of some 48 million. With an average growth rate of over 3% (3.61 % for Syria), the population is expected to more than double by 2025, reaching over 100 million. For a majority of the population in this region, agricultural production is the principal economic activity. In an effort to achieve national food self-security, agricultural land use has been intensified and expanded, leading to degradation of vegetation, soils and water. **Genetic diversity is seriously eroding through the degradation of their natural habitats, intensification and expansion of cultivation and overgrazing in natural rangelands.** Overgrazing is especially threatening to herbaceous crops such as wheat, barley

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<sup>13</sup> FAO, 1996. Report on the State of the World's Plant Genetic Resources (ITCPGR/96/3). International Technical Conference on Plant Genetic Resources, Leipzig, Germany, 17-23 June 1996.

<sup>14</sup> FAO, 1996. Report on the State of the World's Plant Genetic Resources (ITCPGR/96/3). International Technical Conference on Plant Genetic Resources, Leipzig, Germany, 17-23 June 1996.

and lentils, and their wild relatives, as it can wipe out entire populations. For tree crops and their wild relatives, regeneration can be seriously impaired as a result of overgrazing. Many of the major crops important in this region (e.g. wheat, barley, medics, almond) are threatened by overgrazing, habitat fragmentation and settlement expansion (Table 1).

7. The result is that now, wild relatives of crop species grow only in marginal land areas such as field borders, shallow soil and remnants of natural vegetation. The type of habitat supporting these precious resources is either patchy or degraded. During the last four decades, forest cover has continued to decrease in Syria despite substantial afforestation effort (5-25 million trees per year). Furthermore, afforestation programmes often fail to re-create the lost natural habitats of many wild relatives. Intensive agricultural practices, such as "de-stoning" fields using heavy machinery prior to planting to facilitate subsequent mechanized harvest and increase production, also lead to serious habitat destruction and fragmentation which are seriously threatening the populations of wild wheat, barley and lentils in the region. Furthermore, wild lands are often ploughed or disturbed as a means of securing property right by use, a tradition supported by law in many countries/authority with the Ottoman tradition. Over 30% of the steppe (or *badiya*) in Syria have been ploughed for this reason which has led to widespread habitat destruction and degradation.

8. Traditionally, farming systems have maintained diversity in order to preserve stability of production under climatic, disease and pest risks. Wild relatives of fruit trees used to be left growing on field borders to supply seeds or root stocks for planting. **The replacement of the traditional farming system by modern agricultural practices are endangering these wild relatives. Food demands and market forces have encouraged the replacement of the locally adapted varieties (landraces and local varieties) of both fruit trees and field crops with higher-yielding cultivars, hence hampering the gene pools of these crops** (Table 1). For example, the improved cultivar of bread wheat is now occupying 70-80% of the global wheat areas. Over time, genetic diversity has erode. Agricultural production is now based on fewer and fewer crops and, within crops, on fewer and fewer genotypes. The genetic uniformity of modern cultivars and a tendency towards monoculture make them vulnerable to disease and pest epidemics and weather extremes.

9. Demands for higher-yielding food crops which must also be adapted to the ever changing weather and biotic stresses, and are disease- and pest-resistant, requires continuous and reliable access to genetic resources that can be used to impart such superior qualities. The loss of traditional agriculture to modern monoculture takes away with it the associated and potentially beneficial insects (pests and predators) and micro-organisms, as well as the invaluable traditional knowledge on the distinct qualities, uses and growth requirements of wild relatives and landraces. Addressing the current loss of agro-biodiversity in developing countries of the Near East is of global importance.

### **Urgent Need for *In-situ* and On-farm Conservation**

10. Genetic materials of several agriculturally important species of the Fertile Crescent, such as wheat, barley, and lentil, have been collected and characterized in terms of the diversity

of their responses to environmental factors such as cold, heat and drought stresses, resistance to disease pathogens, insect pests, as well as potential to increasing yield. Though still far from completion, substantial germplasm banks have been created as a means of *ex-situ* conservation. This is especially important for a number of species with only scattered and small wild populations which are unlikely to be viable, and which can be more effectively conserved through *ex-situ* conservation. ICARDA holds approximately 6500 *Medicago*, 3500 *Trifolium*, 1500 *Lathyrus*, 3000 *Vicia* and 5000 accessions from other annual legume genera, second only to the Australian holdings. However, the richness of many pasture and forage legume species in the Fertile Crescent are now under threat due to unmanaged overgrazing, especially those species with larger seeds.

11. Moreover, germplasm banks are only part of the process of maintaining agrobiodiversity. For large and highly varied populations, it is impossible to obtain a representative sample. For example, in 1992, fifty plants of *Triticum dicoccoides* were sampled on a transect of 500 m from one of the wild populations in southern Syria. Gliadin fingerprinting revealed that none of the plants was identical; instead, 50 distinct banding patterns were distinguished. It is increasingly recognized that *ex-situ* conservation has the limitations that only a small proportion of existing genetic resources may be sampled, and, as genetic make-up is not static but evolves in response to environmental changes, collections may represent only the variation present at one point in time. Naturally occurring and evolving populations must be maintained *in-situ* within their environments; this aspect of conservation has received much less attention than collection and *ex-situ* storage.

12. Degradation of biodiversity is attributed to the destruction of natural habitats, largely through human activity. However, in developing countries/authority of the Fertile Crescent, these same habitats represent the resource base for productive agriculture, the livelihood of farmers and pastoralists. Large exclusionary "reserves" to preserve biodiversity, which remove land from productive use and do not take account of local needs, will not be acceptable. In addition, indigenous knowledge about cultivated species and their wild relatives, and traditional agricultural practices and systems of land and water management, is an invaluable resource in the search for new and appropriate ways of conserving and using genetic resources. Landraces which have been developed over the centuries by farmers' selection for desirable traits, are usually genetically more heterogenous and highly adapted to their specific agro-ecological environment. The conservation of the valuable and highly diverse genetic resources carried by these landraces can only be achieved through on-farm conservation and continuous use of these landraces in traditional farming systems. Conservation of the genetic diversity of many crops such as wheat, barley and lentil, as well as a number of forage and fruit species, therefore requires both *in-situ* and on-farm strategies, the success of which depends a great deal on community-based management.

13. Furthermore, exclusion by means of protected areas is not necessarily the best means of species or genetic resource conservation. For many species and environments, active management (often involving restoration or creation of niches and habitats within agricultural systems, promotion of traditional land management practices, or reform of social and economic policies) is required to conserve their population and the genetic diversity.

## Country Background

14. The proposed regional project encompasses Jordan, Lebanon, the Palestinian Authority and Syria. Jordan, Lebanon and Syria have all ratified the Convention on Biodiversity (CBD).

15. Jordan, Lebanon, the Palestinian Authority and Syria have each established a National Biodiversity Committee under their respective institutions. Jordan, Lebanon and Syria are currently conducting Biodiversity Country Studies, supported by GEF/UNEP, which will document the status of flora and fauna in each country, identify endangered species and priorities for conservation or conservation, propose measures for the conservation and sustainable use of biodiversity, and assess the benefits of conservation of biodiversity and the cost of intervention. The reports from these studies will provide significant guidance to official policies as well as the planning and implementation of subsequent projects dealing with biodiversity and environment. Further details of official strategies and institutional framework of each of the four countries/authority, as well as the relevant NGOs, are given in Annex 5.

16. Jordan has completed a National Environment Strategy (1991)<sup>15</sup>. and the Lebanese Environment Strategy is awaiting final Government endorsement. However, all countries/authority have prepared a National Report on Plant Genetic Resources as bases for the Global Plan of Action for the Conservation and Sustainable Utilisation of Plant Genetic Resources for Food and Agriculture (1996)<sup>16</sup>. For the Palestinian Authority, Environmental Profiles have been prepared for the West Bank<sup>17</sup> and Gaza<sup>18</sup> respectively.

17. GEF assistance for biodiversity conservation has been provided to Jordan and Lebanon through two protected areas projects. However, these two projects do not address the issue of agro-biodiversity. The conservation and sustainable use of agro-biodiversity and plant genetic resources require a totally different approach from protected areas for biodiversity at species level. The present project focuses on conserving the genetic diversity of ten target crops of global significance within eight target areas in four countries/authority of the Fertile Crescent. (Species addressed by the project are marked in bold in Annex 4).

## PROJECT OBJECTIVES

18. The overall, long-term, global objective of the project is to ensure the continuous availability of agro-biodiversity in the Fertile Crescent that is essential to the sustainable

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| 5  | National Environment Strategy for Jordan - A Resource Book of Information and Guidelines for Action. The Hashemite Kingdom of Jordan, Ministry of Municipal and Rural Affairs and the Environment, Department of Environment, and IUCN.                 |
| 16 | FAO, <i>in prep</i> . The Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture. International Technical Conference on Plant Genetic Resources, Leipzig, Germany, 17-23 June 1996. |
| 17 | Environmental Profile for the West Bank. Applied Research institute - Jerusalem (ARIJ), 1995.   |
| 18 | Environmental Profile of Gaza., 1995.   |

development of agriculture in that region, as well as to global food security and production.

19. The specific project objectives include the development of:

- (a) An information base on the genetic diversity of ten target crops in the Fertile Crescent, and the social, economic, landuse and agricultural policies and practices which affect them.
- (b) A replicable, transferable, integrated approach for the conservation and sustainable use of agro-biodiversity within agriculturally productive ecosystems, adopted by participating countries/authority and driven by local communities, in selected target areas of representative agro-ecosystems.
- (c) National environmental, landuse, social and economic policy measures (involving incentives, compensation, and alternative income) to support and ensure the sustainability of the agro-biodiversity conservation activities.
- (d) Strengthened national capacity for the conservation and sustainable use of agro-biodiversity (including technical and management capability), through training, regional collaboration, networking and exchange in experience.

## **PROJECT DESCRIPTION**

20. The project strategy is to develop community driven *in-situ* and on-farm agro-biodiversity conservation initiatives in representative, targeted areas of global agro-biodiversity significance. These community driven initiatives will be supported by national, legislative, social and economic policies adapted to agro-biodiversity conservation during the project process, and benefit from the institutional capacity strengthened through personnel training, and regional networking and support. The twinning of a specialised international institution such as ICARDA with national institutions participating in the project will greatly enhance the absorptive capacity of the cooperating countries/authority. Awareness promotion is a priority at all levels of the project.

21. The involvement of land users as primary participants is fundamental to agro-biodiversity management. Innovative approaches to *in-situ* and on-farm conservation will be developed alongside appropriate resource management, which will at the same time, maintain the productive capacity of the resources and secure the economic viability of the community. Focus will be given to ten target crops (or crop groups) of global significance, all of which are originated from the Fertile Crescent or Central Asian region (Table 1). Both wild relatives and landraces of the selected crops will be studied and managed, incorporating indigenous knowledge and traditional practices, such as farmers' selection for desirable traits, which have over the years, generated genetically heterogenous crops and landraces which are highly adaptive to their specific agro-ecological environments.



22. The project activities will complement existing agricultural development and resource management projects, as well as *ex-situ* conservation activities (Annex 7), to enhance the process of conservation and sustainable use of agro-biodiversity. The co-financing leveraged through this project will also support training of researchers and extension services for farmers, institutional strengthening through the provision of equipment and facilities, and networking with institutions in the region and elsewhere, all of which will contribute to future sustainability.

23. A step-wise, long-term approach is needed to build the national capacity needed for the development and sustainability of the project. The project will strengthen institutional and community capacity, in order to phase in a progressively greater national contribution to agro-biodiversity conservation and management. The project implementation will focus on indigenous technical knowledge in communities concerning the target crops and their uses, build trust and bring people and government institutions into a collaborative mode of work. Issues concerning indigenous property rights will also be addressed in the process.

24. Eight target areas where *in-situ* and on-farm conservation activities will be carried out through this project have been selected in the four countries/authority, based on the following criteria:

- a. Wild "progenitors" of globally important crops
- b. Wild relatives of globally important crops
- c. Populations of high genetic diversity
- d. Presence of more target species
- e. Endangered populations
- f. Species which are difficult to conserve *ex-situ*
- g. Traditional agricultural systems
- h. Traditional germplasm (landraces, breeds)
- i. Linkage with agricultural development projects

25. The selection of the target areas was undertaken with the aim to capture the maximum genetic diversity of the target crops in the minimal number of areas possible. The target areas were therefore selected to cover the widest possible range of topography, climate and species concerned. For example, Ajlun is a mountainous area 500-1250 m with steep slopes and valleys and is rich in both field and fruit crops diversity; Baalbek is characterized by a semi-arid Mediterranean climate and is very important in field crops including forage legumes; Hebron Area which has a sub-humid Mediterranean climate and is especially diverse in fruit crops (e.g. olive, plum and almond); and Sweida which is largely devoted to dryland farming and grazing, and is extremely important as 34 *Trifolium* spp., 6 *Aegilops* spp., 10 *Allium* spp. and 10 *Medicago* spp., as well as the close relative of almond and rootstocks species for cultivated pistachio and pear are found (Table 2, Annex 6).

26. The presence of wild relatives and landraces or local varieties of the target crops in each target area is listed in Table 3. Together, the target areas are able to capture significant fractions of the genetic diversity within the globally important target crops. Existing data

indicate that 30-40% of the world's wild "progenitors" and wild relatives of wheat (*Triticum spp.*) and barley (*Hordeum spp.*) can be protected through this system of target areas (Table 3). Amount of genetic diversity of wild pear and wild pistachio that can be protected is estimated at 30 % and that for wild medics is 25 %. Collaborative efforts through this network of representative target areas in four countries/authority of the Fertile Crescent greatly increases the cost-effectiveness of this regional project.

27. Furthermore, the selection of the target areas has been a truly participatory process, through discussions in three workshops<sup>19</sup> participated by all the concerned countries/authority. The National Plant Genetic Resources Programmes were actively involved in site proposals and final selection, based on the above listed criteria, and in consultation with ICARDA, IPGRI, ACSAD, UNEP and UNDP. All the sites were visited by at least one person from each of the other countries/authority to encourage exchange. Due to the presence of different target crops, differing range and intensity of threats, and varying socio-economic conditions at the different target areas, the activities require for each area are also different (Table 4).

### **Project Component 1: Agro-biodiversity and Socio-economic Inventory and Monitoring**

28. The information concerning wild relatives and landraces of field crops, fruit trees and forage plants is limited and scattered. This project component will be aimed at documentation and characterization of agro-biodiversity in the selected target areas, as well as land use practices which are contributing to the maintenance or loss of agro-biodiversity, during the course of agricultural development. Assessment will be made on the threats to agro-biodiversity hidden in wild relatives and "progenitors" of the target crops in their original habitat and farmers' landraces of the target crops. Local land users and community representatives will participate actively in these surveys carried out by local scientists. ICARDA will provide the needed training to the local scientists prior to and during this process, thus ensuring the local absorptive capacity up front.

29. Results from the inventory activities will contribute to the databases and baseline mapping of the target areas. These will be integrated into a GIS system, containing information obtained from the inventories carried out under this component, as well as existing data generated by other projects and institutions on the biological, soil and water resources, ecology, land tenure and land use practices etc. This integrated mapping and database will provide the baseline for monitoring and improving the effectiveness of agro-biodiversity management, as agricultural, landuse, social and economic patterns change in time.

#### ***Activities:***

30. Activities of this project component will be carried out for all target areas (Table 4),

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19 ICARDA, 1995. Dryland Biodiversity Conservation through Natural Resource Management - Summary Proceedings of a Workshop 5-9 February 1995, Amman, Jordan. Sponsored by UNEP, ICARDA, IPGRI and ACSAD.

but with different amounts of details according to the amount of existing information and complexity of the local issues.

a. Agro-biodiversity, Land Use and Socio-economic Inventory

- i. Carry out detailed eco-geographic surveys and genetic diversity analyses on the wild relatives and landraces of the target crops. Legal advice will be sought concerning intellectual property and farmers' right.
- ii. In partnership and consultation with land users, carry out detailed socio-economic, landownership and land use surveys in the target areas; especially document the extent of use of landraces and other traditional agricultural management practices, as well as land use practices contributing to habitat destruction and biodiversity degradation.
- iii. Organize consultative workshops to present and discuss the results with all stakeholder in the project, including community representatives, participating government/territory agencies, NGOs, technical institutions and regional organizations.

b. Establishment of Databases and GIS

- i. Review the current availability and application of databases on relevant agro-biodiversity information in the four countries/authority.
- ii. Based on the above review, establish new databases and GIS or upgrade and expand from existing systems, integrating the various information obtained from the above inventory, and existing data from established institutions such as IPGRI and other projects. Update regularly and make available the stored information to the general public, farmers, agricultural developers, scientists and other interested parties, in the appropriate format and interpretation.
- iii. Provide GIS training to national scientists working in the project.

c. Development of Monitoring Programme

Develop a monitoring programme to detect changes in the distribution and abundance of wild relatives, the use of landraces, and their genetic diversity, in relation to land use changes and other human-induced threats, and to project impacts. A network of extension officers will carry out this activity, with inputs from local communities. Some more specific indicators used for monitoring are described in the habitat management section of component 2. Feed the results of the monitoring programme back in the GIS system for analyses.

***Expected Outputs:***

- The genetic diversity of the target crops, especially in terms of morphological and ecological attributes, will be identified and documented. Some of these wild relatives and landraces will be used in breeding programmes described under component 2.
- By recognizing the knowledge of land users and by involving them actively in the surveys, support and commitment for appropriate *in-situ* and on-farm conservation of genetically diverse populations of wild relatives and landraces of the target crop species, will be generated. In return, a more diverse spectrum of genotypes will be made available to farmers and pastoralists in the region, hence generating incentives for participation and enhance project sustainability.
- The databases and GIS established will provide genetic resource scientists, conservationists, and agricultural developers and managers, with up-to-date practical information on the genetic resources of target crops in the target areas. Practical information, such as the distribution and growth requirements of specific wild relatives and landraces, can also be extracted from the databases and interpreted for applications by local farmers. Intellectual property right and farmers' right will be protected during this process.
- The monitoring programme developed will allow objective assessment of the long-term benefits and impacts of the agricultural and land use modifications to be introduced at the target areas.

**Project Component 2: Community-based Agro-biodiversity Management**

31. Globally important agro-biodiversity has been evolving as a part of the Near East landscape over the centuries. The objective of this activity is to maintain sufficient heterogeneity in farming systems and provide the necessary habitats to sustain agro-biodiversity. Technology plays a role in improving sedentary farming and rangelands farming systems, but the role of management is also crucial. Top down approaches have proved to be ineffective in regulating land use and allowing sustainable agro-biodiversity management and conservation within agro-ecosystems. On the contrary, community-based management, will generate widespread efforts in sustainable management of agro-biodiversity, given substantial efforts for public awareness, transfer of the needed know-how, and partnership building.

32. One main, overreaching issue related to genetic erosion is the breakdown of traditional agricultural systems. Mechanization, increased transportation means, land reclamation (stone removal) and irrigation have expanded agricultural production through area expansion and intensification. For example, the Government of Syria is committed to reclamation of degraded pasture lands through de-stoning and planting of fruit trees. While these activities can be used to the advantage for agro-biodiversity, the current management is working against it, as it removes all rocky field border habitats and maximizes repeated ploughing under orchards. In

addition, as cultivation has generally expanded to its limit, grazing pressures from small ruminants are intensifying, seriously threatening pasture biodiversity as a whole.

33. The issue of balancing agricultural production with agro-biodiversity conservation is a challenge, when economic and sustainable production systems have to be maintained. In low rainfall areas, farmers are slow to adopt modern varieties (especially of barley), preferring to use better adapted local landraces, and hence contribute to agro-biodiversity. However, the relatively low production has also led to increasing habitat destruction for agricultural expansion. Creation of alternative livelihoods, incentives or compensations, are needed to reduce the pressure on the land by needy people and to promote the cultivation of the less productive wild relatives and landraces.

### ***Activities:***

#### **a. Species management**

- i. Based on findings from the inventories and data analyses in Component 1, initiate *in situ* conservation to protect wild species of the crop genepool in their original habitats. These habitats may be modified when necessary to ensure sufficient population size and gene flow. Different target species will require different management. For example, populations of wheat, barley and lentil wild "progenitors", *Triticum dicoccoides*, *Hordeum spontaneum* and *Lens orientalis*, growing on field borders of the respective crops are a special case for *in situ* conservation. These three crops and their "progenitors" develop hybridizing complexes, allowing introgression in both directions. The hybridizing complexes may be enhanced by frequent planting of cultivated species in fields adjacent to wild "progenitor" populations. *In situ* conservation will take place where mutual agreement has been achieved in dialogue with elements of the community (individual land owners or villages).
- ii. Based on findings from Component 1, initiate on-farm conservation on selected farms located in specific locations which harbour important target crop populations. The strategy is to encourage farmers to grow landraces and local varieties of the target crops in their fields, especially in buffer areas, corridors or habitat strips, through awareness building and incentives in the form of alternative livelihood. The latter may include apiculture (Habitat management section b-v), supply of rootstocks (section b-ii) and seeds (v-iv), or technical assistance in soil management (b-vi), water harvest (b-ii) and livestock health care (b-vii). Some of these activities are supported by existing non-GEF projects (Annex 7).
- iii. Field gene banks will be established to grow vulnerable crop species for replanting in field margins and improved habitats as native trees or as adapted rootstocks. These field gene banks will be open to farmers and other visitors to promote public awareness.
- iv. The wild relatives and landraces, characterized in relation to particular biotic

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- i. Land use planning of the target areas will be developed to provide buffers, corridors or habitat strips for the target species. Cooperate with the ongoing IFAD (International Fund for Agricultural Development) project in Syria to make use of the stones removed from land reclamation for farming, to provide both water catchment and habitat for crop "progenitors" and wild relatives.
  - ii. Building of small but simple dams and terraces in agreement with villagers to provide niches for diversified plant production and alternative income generation. Develop community level water harvesting techniques where necessary. These will help protect target tree species as a genetic resource along with their use as rootstocks for grafting newer more productive cultivars, and also provide the necessary habitats for herbaceous species.
  - iii. Promotion of biodiversity-maintaining agronomic practices (sustainable intensification) such as sowing mixtures of cereal land races in rotation with forage legumes to maintain soil fertility and production in rainfed cropping areas to avoid poor management.
  - iv. Pasture seed nurseries using local species of pasture legumes will be established in villages to provide sources of locally adapted material for revegetation of degraded common lands.
  - v. In conjunction with pasture and forest rehabilitation efforts, promote apiculture where ecologically and economically viable. This has proved to be a very effective intervention in Turkish projects, and could become an important means of income diversification and incentive generation for conservation efforts.
  - vi. Advice and assistance on sustainable grazing management, pasture and range condition monitoring, and animal nutrition and health, will be provided to villagers through extension services and on-site training. The aim is to demonstrate compatible ways to preserve germplasm while maintaining animal production. Some of these activities will be undertaken with non-GEF funding

from other ongoing projects (Annex 7).

- vii. Training on soil and water resource management techniques and nursery management will be provided to villagers in target areas as tools for habitat and agro-biodiversity conservation. Organization will be focused at the local level, through farmer cooperatives, NGOs and community leader associations, depending on the target areas.
- viii. Species and ecotype diversity in the sites subject to improved management will be monitored. Case studies will be made at several sites to measure progress in achieving agro-biodiversity conservation and socio-economic benefits. All costs and returns, and the effect on labour requirements of the improved management will be monitored, and the benefits of the interventions assessed.

***Expected Outputs:***

- Safeguarded populations of wild "progenitors" of wheat, barley, lentil, and wild relatives of these and other target crops, and some associated plant species within target areas, through *in situ* conservation and habitat management.
- Larger portions of genepools of the target crop landraces conserved on farm, through public awareness and incentives from alternative income and other assistance.
- Improved habitat management including sustainable grazing practices and revegetation of overgrazed and eroded land.

**Project Component 3. Social Economic Policy and Property Rights**

34. Promising technologies exist for better management of agro-biodiversity, water, soil, land and cropping systems but their adoption has been inhibited by disincentives to rational and sustainable use of these natural resources, both in the settled areas and in the rangelands. Uncertainties over property rights among users of the natural grazing and water catchments, as well as economic distortions, are often the main obstacles against proper land and resource management. Some tribal institutions which once regulated grazing or water rights have been broken down or undermined by government nationalization of land. Some rangelands are being privately appropriated through new settlement and conversion to cropping while many are open access areas where users have neither the incentive to improve productivity or conserve agro-biodiversity.

35. In all four countries/territory, the governments are preoccupied with supporting and improving agricultural production since this region has some of the highest population growth rates in the world and a widening trade gap in food and agricultural products. Of prime concern to the governments is agricultural production. Hence policies which negatively impact on agro-biodiversity conservation tend to be those directed primarily at enhancing agricultural

productivity. Although there are limited policies in the four countries/authority targeted at agro-biodiversity conservation, there is no holistic plan (including landuse planning) for its implementation.

36. Most of the target areas are agro-biodiversity rich upland sites and a few are adjacent to rangelands. The rangelands users are increasingly dependent on the target areas for supplementary feed and forage supplies, or for dry-season grazing on crop residues. This is causing significant competition over resources, hence, any policy changes must take into account the spatial and temporal linkages among the production systems, both in and outside the target areas.

37. It is recognized by the Governments involved that changes are needed but they will take time to implement. The strategy is therefore to place a strong emphasis on the communities as land managers, and to modify current government incentives for the benefit of agro-biodiversity conservation. In Syria, for example, the Government buys strategic crops (wheat, barley, cotton, sugar beet) at attractive prices; taxes on agricultural vehicles are lower than for non-agricultural ones; feed concentrates are distributed at cost through farmers cooperatives; the Government controls the price of meat; and there is no tax on agricultural land. Some of these policies may be modified after the demonstration of feasible policy alternatives through the project.

### ***Activities:***

#### **a. Agricultural and land use policies**

- (i) Analyze existing agricultural and land use policies, and legislation related to agro-biodiversity and resource management including indigenous property rights. Identify ways to modify these policies to remove or reduce negative impacts and promote agro-biodiversity conservation without jeopardizing agricultural production aims or benefits of the local communities. This activity will be done in tandem with work currently being carried out under the IFAD/AFESD special project on policy and property rights (in Syria, Jordan and Lebanon) and the Dryland Resource Management Project (DRMP). Both of these initiatives also address macro-level agricultural policy analysis.
- (ii) Within the target areas, assess grassroots responses to existing policy and legislation. Through participatory dialogues and the activities to be launched as component 2, zones of intervention will be defined for testing policy options which will conserve agro-biodiversity while maintaining economic benefits for the communities. These may include current incentive practices for land clearing, herbicides and pesticides, land ownership and agricultural expansion. This exercise will also identify the outside influences which affect management, social changes and policy implications in the target areas.
- (iii) Based on the above assessment and landuse findings from component 1, and working with the Governments and communities, develop the necessary



legislative measures and agreements needed for land use and access to the target areas (or zones of intervention within them). Reform of tenure, usufruct and management systems in the target areas will depend also on incentive policies to be developed in the next section. Through the past two years of project preparation, the four countries/authority have all indicated their willingness to address these issues as an integral part of their involvement in this project.

b. Social and economic measures

- (i) Work with the governments/authority to review agricultural economic policies which affect agro-biodiversity conservation directly or indirectly. Initiate policy changes which will provide incentives for agro-biodiversity conservation where necessary. These may relate to credits, interest rates, agricultural pricing, input subsidies for feed, fertilizers and fuel and quantitative restrictions on cropping patterns and inputs, depending on the target areas.
- (ii) In tandem with current agricultural development projects which include provision for establishment of credit facilities, loans, development of alternative income earning opportunities, or added value to agricultural products, but may be causing environmental damage and agro-biodiversity loss, analyze their impacts. Work with these and other development projects, develop immediate and direct interventions and remedy against negative measures or disincentives to agro-biodiversity conservation. Develop mechanism to give access of micro-agricultural credit to agro-biodiversity enhancing activities (e.g. terracing, apiculture, nursery plantations) or products (e.g. landraces, local fruit varieties, locally adapted pasture seeds, organic produce). The focus for many of these activities will initially be based on already on-going micro-credit schemes which are available within the UNDP (Lebanon) and IFAD (Syria, Jordan) programmes (Annex 7).

***Expected Outputs:***

- Formulation and adoption of national policies which stimulate agro-biodiversity conservation, through an assessment of the most positive interventions and their feasibility for broad-scale extension to other areas. This project component will enable difficult policy changes to take place, based on lessons learnt from the participatory and collaborative approaches tried in the target areas.
- Stakeholder commitment will be generated for the sustainability of the project through intensive public participation, and government incentives such as loans or pricing support for agro-biodiversity enhancing practices and products.

**Project Component 4: Institutional and Human Resource Capacity Strengthening**

38. Sustainability of the present project and its long-term objectives will rely on the

institutional and human resource capacity concerned with agro-biodiversity at the national levels. Long-term national plant genetic resources programmes, complemented by coordinated regional activities, will provide the framework for sustainable agro-biodiversity conservation. However, skilled human resources are lacking in the region. Training needs of the countries/authority range over a number of disciplines and levels and involve both short and long term training. These include specialized training in plant identification of wild relatives and landraces, *in situ* and on-farm conservation, agro-ecosystem ecology, population genetics, and agricultural socio-economics. Administrators, technicians as well as managers in this field require specially adapted in-country training courses. Other related academic and research training will be provided by non-GEF resources (Annex 8). The participation of regional centres e.g ICARDA, IPGRI(WANA)<sup>20</sup>, ACSAD and national universities will enhance the process of institutional and capacity building through networking, information dissemination and in-country training.

***Activities:***

a. Training

- i. Organize training courses and study programs especially to train “trainers” in the specific areas related to agro-biodiversity, as requested by each country (Annex 8). Professional training, most of which funded by non-GEF resources, will be conducted at international centres of excellence e.g. in the Genetic Resources Conservation Program, University of California, USA, or School of Biological Sciences, The University of Birmingham, U.K. Ph.D. projects will be based in-country and on the target areas wherever possible so that the findings generated can be applied in the target areas subsequently.
- ii. Designate agro-biodiversity training centres in the countries/authority concerned, e.g. University of Jordan, American University of Beirut (AUB) in Lebanon and University of Damascus in Syria.
- iii. The trainers, in consultation with mentors and administrators will develop agro-biodiversity curricular at non-degree, BSc. and MSc. levels in the designated training centres. On-the-job, in-country training will be provided, together with field training courses, in each of the target areas.

b. Networking

Strengthen the existing linkages among countries in the region, with regional and international institutions (ACSAD, IPGRI, ICARDA), the selected international centres of excellence, other centres, institutes and Universities in the region, and the designated training centres in each country. This can be enhanced by strengthening existing networks such as IPGRI/WANANET and participation in regional seminars, field

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20 International Plant Genetic Resources Institute - West Asia North Africa Network.

courses and workshops on agro-biodiversity related issues.

c. Public Awareness

Develop public awareness programs on agro-biodiversity. This must operate at all levels, from ministers to farmers and the general public. Many of the training courses and the widespread extension services developed in the project will play a role in public awareness. Other important channels for public awareness will be through the mass media, publication of appropriate bulletins in Arabic for farmers and students.

***Expected Outputs:***

- The national institutional capacity of the countries/authority concerned will be strengthened, through the injection of a critical number of “trainers” and newly trained persons with agro-biodiversity conservation and management skills, and networking with established institutes and among themselves.
- Public awareness levels for agro-biodiversity will be raised in the concerned countries/authority and their partners.

**RATIONALE FOR GEF FINANCING**

39. Lebanon, Jordan and Syria have all ratified the Convention on Biological Diversity.

40. The project is developed closely in line with the GEF Operational Programme for Arid and Semi-Arid Ecosystems<sup>21</sup> of the Biodiversity focal area which emphasizes the "prevention and control of land degradation through development of sustainable use methods for biodiversity conservation..." The Operational Programme also calls for special attention for the "demonstration and application of techniques, tools, and methods to conserve traditional crops and animal species in their original habitats", and "Promotion of sustainable production and use of natural products, such as non-timber forest products, wild relatives of domesticated species, and agro-biodiversity-related products, including the development and implementation of sustainable harvesting and marketing regimes."

41. The GEF Scope and Preliminary Operational Strategy for Land Degradation<sup>22</sup> highlights "*In-situ* conservation of genetic varieties of plants (grasses, shrubs and trees), insects, birds, worms, and micro-organisms (e.g. root bacteria like rhizobium, mycorrhiza and other useful fungi) by improving management practices, institutional arrangements, policies and incentives, and community participation", as one of the GEF-funded activities in the

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21 Operational Strategy of the Global Environment Facility, 1996. GEF, Washington, D.C. USA

22 Scope and Preliminary Operational Strategy for Land Degradation. GEF/C.3/8. Approved by the Executive Council, 22-24 February 1995.

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- <sup>23</sup> GEF/C..9/6 - Follow-up Action to the STAP Workshop on Land Degradation (Prepared by the Scientific and Technical Advisory Panel). GEF Council April 30 - May 1. 1997, Agenda Item 9.
- <sup>24</sup> GEF/C.9/5 - Principles for Financing of Targeted Research (Prepared by the Scientific and Technical Advisory Panel). GEF Council April 30 - May 1. 1997, Agenda Item 8.

- (j) strengthening the involvement of local people in the conservation of biological diversity and the sustainable use of its components; and
- (k) promoting the conservation and sustainable use of biological diversity in environmentally vulnerable arid and semi-arid areas.

44. The proposed participatory approach actively involving local communities will contribute to the identification and development of economically and socially appropriate incentive or compensatory measures for local communities participating in biological conservation, according to Article 11 of the CBD.

#### **SUSTAINABILITY AND PARTICIPATION**

45. To achieve the overall goal of this project will require a long-term sustained programme of community participation, training and institutional development. This project is envisaged as a starting point that will provide the basis for a sustained programme of integrated measures for the conservation of agro-biodiversity within priority ecosystems. The project will contribute to this sustainability through its emphasis on institutional strengthening, capacity building, regionality, and community (land user) participation. A great deal of government and stakeholder commitment have already been shown during the development of the present proposal.

#### **Government/Authority Commitment**

46. All four countries/authority have shown strong willingness and priority for environment, agro-biodiversity conservation and community development during the development of the present proposal through the PDF process. Each country/authority's representative GEF operational focal point has confirmed their support to and participation in the present project.

#### **Government/Authority Financial commitment:**

47. For each selected target area in each country, the government/authority has agreed to identify staff with appropriate expertise to form the interdisciplinary units which would work at the target area. The specific disciplines needed to make up the units vary according to the nature of the problem and the prominent species in the target areas. The governments/authority have ranked their contributions to the project as a high priority. Their contributions include costs in staff time, both administrative and scientific, agricultural equipment as well as office and laboratory equipment, telecommunications, utilities and premises.

48. Participation of a regional organization such as ACSAD will ensure that the links to other regional initiatives, already ongoing will be maintained. The National Plant Genetic Resources Programmes are already linked through regional projects/programmes, some

coordinated by ICARDA. The Project will broaden these linkages, to link these national programmes with other national institutes/organizations involved in agro-biodiversity conservation, both within and among countries/authority. Participation of ICARDA and IPGRI (through IPGRI-WANA), will provide the means for institutional strengthening of national institutions by ensuring strong international linkages with other institutions and relevant technologies, and providing the forum on which exchange in national experience and technical advice will be promoted.

49. The present project is designed to be implemented in parallel with a large number of related ongoing, national and regional projects, many of which are development oriented and supported by foreign agencies (Annex 7). The institutional capacity built and strengthened by the present project and these other ongoing activities, as well as the social economic measures initiated by this project, will enable the concerned governments and institutions to pick up the recurrent costs, after the GEF project is concluded.

#### **Stakeholder Commitment:**

50. Sustainability is directly linked with the development of effective mechanisms for local participation, and the explicit consideration of the local communities' livelihoods, within the project. The project's concepts, objectives and activities stress the importance of the involvement of local communities as fundamental to integrated biodiversity conservation in agriculturally used areas. By including land users as managers responsible for biodiversity conservation, in a manner compatible with the agricultural production that is their livelihoods, sustainability is ensured. Furthermore, returning the results from the use of that biodiversity to farmers, by involving them in germplasm enhancement and breeding programmes utilizing their local biological resources, will ensure a long-term interest by farmers in conserving the sources of genetic diversity.

51. This project proposal has resulted from extensive consultations and workshops at the national and regional levels involving government/authority organizations, NGOs and regional and international organizations and experts, and has been officially endorsed by the representative Ministry of each country. The initial project concept paper was circulated widely to national programmes run by national scientists and managers, regional institutions in the Near East, IPGRI, ACSAD and technical institutions/universities in donor countries/authority. A consultation and project planning meeting was held in Amman in June 1994. Following discussions with UNDP (Damascus) a full UNDP project document was developed which provided the basis for a follow-up workshop in Amman in February 1995, with presentations and detailed discussion on specific components/topics of the project which have contributed to the development of the current Project Brief. The proceedings of this workshop are in considerable demand and have just been reprinted. PDF funds provided for collection of supporting information and further consultations necessary for preparation of this Project Brief.

52. Jordan, Lebanon and the Palestinian Authority now have several NGO's participating in solving various environment problems. These NGOs will be actively involved in the

implementation of this project.

## LESSONS LEARNED AND TECHNICAL REVIEW

53. The external reviewer rated the project "high priority and with great relevance to the countries involved and even more so to the rest of the world". Covering ten target crops and eight target areas, the project promises to yield much important information and operational experience and serve as a **"prototype for other projects in the centres of origin of crops, or in places of great biodiversity, and where significant changes in rural life and agricultural production are taking place."** The reviewer has great confidence in the participating agencies (ICARDA, IPGRI, ACSAD) with specialized expertise in plant genetic resources management. The ongoing partnerships among these agencies and their substantial experience in the region are described as crucial to the success of such a complex project involving many actions by many actors. The reviewer emphasized repeatedly the weak knowledge base for *in situ* conservation which must be overcome, and that the present project will help greatly in improving this knowledge base through participatory "research" in the broad, basic sense; i.e. surveys and inventory on the agrobiodiversity, the land use and socio-economic conditions. Building on the strengthened knowledge base, the project will be able to provide valuable experience and achievements in both *in situ* and on farm conservation in non-reserve settings, alongside agricultural lands. Furthermore, by involving primarily land users, the project will become a prototype for participatory management of genetic resources.

## PROJECT FINANCING AND BUDGET

54. The total incremental cost of the programme amounts to **US\$ 18,776,400**. Of this amount, US\$ 359,400 of GEF and non-GEF resources were used during the preparatory phase of the project, **US\$ 8,124,000** is now being requested from the GEF to achieve global biodiversity benefits, while the remaining US\$ 10,293,000 will be secured from Government contributions and co-financing from ICARDA, IPGRI, ACSAD and UNDP (See indicative budget). The amount requested from GEF will support activities in Lebanon, Jordan, the Palestinian Authority and Syria, as well as regional technical coordination. Of the requested GEF resources, \$975,000 will be managed by ICARDA to implement the regional activities and provide technical backstopping; through the provision of a full time Regional Coordinator, regional training, communications, and short term technical consultants. Government contributions to the project amount to US\$ 2,068,000 as in-kind contributions of national programme personnel and supporting facilities including premises, agricultural, laboratory and office equipment. Contributions of ICARDA and other participating agencies represent the dollar values of contributions of personnel, facilities and actual project funding.

55. In addition, the project will be supported by ICARDA's core programme and the complementary activities in other regional projects implemented by ICARDA, IPGRI and ACSAD, as well as other research and development projects/programs undertaken in the

participating countries/authority with support from the governments/authority and/or foreign funds (see Annex 7). Furthermore, co-financing is also being sought, in collaboration with advanced research institutions, for specific complementary activities related to the project, such as the documentation, characterization and evaluation of genetic diversity and *ex-situ* collections (including the application of biotechnology techniques), and the utilization of genetic diversity in germplasm enhancement.

## **INCREMENTAL COSTS**

56. Please see Annex 1 for full Incremental Cost analysis in accordance with GEF formats.

## **ISSUES, ACTIONS AND RISKS**

57. The success of the project depends on the full participation of local communities of land users, which is very different to the traditional approach to agricultural development in the participating countries/authority. The development of appropriate procedures and methodologies for achieving this likely to be a learning experience for all concerned. Elucidation of land users' production objectives, the factors influencing and constraining production and farm resource management decisions, and the rules or patterns in social behaviour governing the utilization of common resources requires expertise particularly in the social sciences that are not usually strongly represented in national programmes. Giving priority to training nationals in these areas will enhance public participation throughout the project period and beyond. In addition, Lebanon, in particular, has initiated a number of projects that involve local participation (see Annexes 5 and 7) and the project will benefit from their experiences.

58. A second issue with which the project will be dealing is to ensure to build the trust and maintain communication lists of the local farming communities. Amongst many of the world's farming communities there is often a lack of trust in central authorities and government policies. These prevailing attitudes are also likely to meet the present project in some of the farming communities. The project will therefore have to work directly with the participating stakeholder, with strong extension and outreach components, in order to ensure that these potential obstacles can be overcome so that on-going dialogue is maintained.

59. A third issue of relevance is the necessity that the project leverages government/authority reform with respect to securing in-situ agro-biodiversity conservation. Through the preparation of the present project, the authorities in question have already signified their willingness to institute reforms in this area, based on the lessons learnt in the selected target areas. However, as with any reform process, it is already clear that this will involve a number of competing interests, and the project will therefore have to ensure a transparent and participatory process as far as the various



governmental authorities are concerned and further ensure an active dialogue on the lessons learnt from the activities of the target sites so that broader policy reform can be proposed, initially for the target areas, but eventually for wider adoption in the countries/authority.

## **INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

60. The proposed project will essentially be managed as five components such that there will be a nationally executed component for each of the four participating countries/territory, and a regional component of \$975,000 executed by ICARDA. This arrangement will ensure that the bulk of the GEF resources will be programmed, managed and spent on activities in the participating countries/territory. The regional component will ensure tight linkages among the four national projects and enhance the positive impacts from networking and exchange in experience and expertise. The government/authority agencies and non-governmental organizations, regional and international agricultural organizations involved in the programme are listed in Annex 5. The project will be implemented over five years.

61. Each country component of the project will be nationally executed. National authorities will designate one representative in each country as the National Coordinator of the institutions participating in the Project at the designated sites. These National Coordinators will coordinate on-site activities to be carried out by the various national institutions and NGOs as well as forming the linkages with the regional activities.

62. As the executing agency of the regional component of the programme, ICARDA will be responsible for planning and coordination of the regional activities, notably networking and training. In consultation with the participating countries/authority, ICARDA will recruit a Regional Project Coordinator who will be responsible for these activities as well as the provision of technical backstopping and overall project coordination, monitoring and technical reporting. The Project Coordinator will be located at ICARDA's Headquarters to take advantage of its regional and international linkages and facilities for administrative and logistical support.

63. Coherence across activities and partners will be achieved through the following:

- A Steering Committee will be established, comprised of the National Coordinators, the Regional Project Coordinator, representatives of other participating agencies (IPGRI, ACSAD), UNDP and donor representatives. The Steering Committee will meet at least once a year, at a time to be agreed by the members. The Committee will finalize and approve the detailed work and financial plans for the coming year presented at the annual regional coordination meeting (see below).
- Regional Technical Coordination and Planning Meetings, involving concerned scientists from all participating organisations, will be held prior to meetings of the Steering Committee. Results of the previous years work,

and workplans and budgets for the next year's work, will be presented and discussed. To minimize coordination costs, and to ensure integration of the project with other complementary activities, where possible the technical and Steering Committee meeting would coincide with the regular annual regional coordination meetings of ICARDA.

## INDICATIVE BUDGET

{PRIVATE } Component	Staff cost	Subcontract	Equipment	Training	Misc	Total
1. Agro-biodiversity & Social Economic Inventory & Monitoring						
1.1 Surveys	0	80	10	60	60	210
1.2 GIS	225	80	160	160	100	725
1.3 Monitoring	225	60	10	80	60	435
<b>GEF Contribution</b>	<b>450</b>	<b>220</b>	<b>180</b>	<b>300</b>	<b>220</b>	<b>1,370</b>
Non-GEF						540
Sum						1,910
2. Community based Agrobiodiversity Management						
2.1 Species						
2.1.1 <i>In-situ</i>	425	60	100	125	60	770
2.1.2 On-farm	225	120	60	120	160	685
2.2 Habitat	425	60	90	125	60	760
<b>GEF Contribution</b>	<b>1,075</b>	<b>240</b>	<b>250</b>	<b>370</b>	<b>280</b>	<b>2,215</b>
Non-GEF						6,985
Sum						9,200
3. Social Economic Policy & Property						
3.1 Agricultural & Landuse	425	40	20	125	80	690
3.2 Social & Economic	425	40	85	90	80	720
<b>GEF Contribution</b>	<b>850</b>	<b>80</b>	<b>105</b>	<b>215</b>	<b>160</b>	<b>1,410</b>
Non-GEF						1,335
Sum						2,625
4. Institutional Strengthening						
4.1 Training	0	120	40	950	50	1,160
4.2 Public Awareness	0	50	20	100	30	200
4.3 Networking	0	40	65	80	50	235
<b>GEF Contribution</b>	<b>0</b>	<b>210</b>	<b>125</b>	<b>1,130</b>	<b>130</b>	<b>1,595</b>
Non-GEF						1,150
Sum						2,745
Project Coordination						
Regional Coordinator	425	0	10	0	0	435
Four National Coordinators	360	0	0	0	0	360
<b>GEF Contribution</b>	<b>785</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>795</b>
Non-GEF						283
Sum						1,078
<b>Project Support Services</b>	<b>316</b>	<b>75</b>	<b>67</b>	<b>201</b>	<b>79</b>	<b>739</b>
<b>Total GEF Contribution</b>	<b>3,476</b>	<b>825</b>	<b>737</b>	<b>2,216</b>	<b>869</b>	<b>8,124</b>
Total Non-GEF:						
Governments						2,068
ICARDA, IPGRI, ACSAD						6,650
UNDP						1,575
<b>Total Non-GEF contribution</b>						10,293
<b>GRAND TOTAL</b>						18,417

