UNDP Project Document

Government of China

United Nations Development Programme

Conservation and Sustainable Utilization of Wild Relatives of Crops

Brief description

Wild relatives of rice, soybean, and wheat are significant for sustainable development in both China and the world. The *China Agricultural Agenda 21* (1999) identified a large number of important *in-situ* conservation sites but, because of capacity and financial constraints, threats still exist at most sites. Initial urgent conservation measures have involved non-sustainable approaches, including the construction of physical barriers and removal of land from production. This project will eliminate barriers to the mainstreaming of conservation of wild relatives within the agricultural sector, thus promoting integration of conservation and production, and ensuring that the global environmental benefits secured thereby are sustainable.

The project will involve participation from local stakeholders in eight diverse provinces and autonomous regions to secure conservation of wild relatives of soybean, wheat, and rice, in their natural habitats. This will be achieved through a combination of actions aimed at establishing sustainable sources of financial and other incentives for conservation, modification to the legal framework, capacity building and awareness raising.

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Acronyms

ABS	Access and Benefit Sharing
APR	Annual Project Report
AWP	Annual Work Plan
BCAP	Biodiversity Conservation Action Plan
BD2	GEF Strategic priority 2 in the Biodiversity focal area
CAAS	Chinese Academy of Agricultural Sciences
CBD	Convention on Biological Diversity
CBPF	China Biodiversity Partnership Framework (a UNDP/GEF initiative)
CCA	Country Cooperation Agreement
CEARD	Centre of Excellence in Agrobiodiversity Research and Development (a CAAS-IPGRI partnership agency)
CEO	Chief Executive Officer
CGRIS	Chinese Genetic Resources Information System
CO	Country Office (of UNDP)
CoP	Conference of the Parties
CP	Country Programme (between UNDP and the Government of China)
CTA	Chief Technical Advisor
DoA	Department of Agriculture (at provincial/autonomous region level)
GEF	Global Environment Facility
GM	Genetically modified or Genetic modification
IR	Inception report
IW	Inception workshop
M&E	Monitoring and evaluation
MoA	Ministry of Agriculture
MoF	Ministry of Finance
NPD	National Project Director
PIR	Project Implementation Report
PMO	Project Management Office
RCU	Regional Coordination Unit (of UNDP/GEF)
RMB	Renminbi (Chinese monetary unit, also known as Yuan, equivalent to US $0.121)
ROAR	Results-oriented Annual Report
SEPA	State Environmental Protection Agency
SFA	State Forest Authority
ToR	Terms of reference
TPR	Tri-partite review
TTR	Terminal tri-partite review
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme

SECTION I : Elaboration of the Narrative

PART I: Situation Analysis

1. Society's growing consumption of natural resources and increasing populations have led to a rapid loss of biodiversity, eroding the capacity of earth's natural systems to provide essential goods and services on which human communities depend. Human activities have raised the rate of extinction to 1,000 times its usual rate. In China, unmanaged agricultural extension, un-controlled grazing, new roads, mines, sources of pollution, and desertification all advance and damage sites with wild relatives of crops. The wild relatives become increasingly contaminated by domesticated and semi-wild varieties, increasing the genetic erosion process. Slowly, these threats will degrade and destroy the last remaining deposits of these wild relatives. The result will be a loss for China and the world of this remaining genetic resource.

Context and global significance

Ecological context

2. The conservation of wild relatives of crop plants provides a unique challenge. Unlike traditional varieties of agricultural crops, wild relatives occur in non-domesticated ecosystems, though they may also occur as weeds on agricultural land. On the other hand, unlike most cases of biodiversity conservation in natural systems, the conservation of wild relatives targets a specific and rather limited number of species. Furthermore, although wild relatives have historically contributed to the immense present-day value of agricultural crops, they may typically have no current commercial value. This means that, unlike traditional varieties, and unlike most specifically targeted species in natural systems (for example, mahogany), which have existing or potential commercial value, there is little or no possibility of generating financial incentives for conservation of wild relatives through sustainable management and harvesting of their products. For example, efforts to produce bean-curd from wild soybean in Anhui province, China, have not yet generated a commercial product.

3. Yet the rationale for conservation of wild relatives is very strong. Under conditions of global environmental change, crop breeders need to produce new varieties that are adapted to environmental conditions not previously encountered in agricultural systems, and it is likely that wild relatives, which are adapted to more diverse and extreme conditions than those found in cultivated systems may harbour genes that will prove to be very valuable in adapting to global change. For example, Yuan Longping, Academician of The Chinese Academy of Engineering, and known as "the Father of Hybrid Rice", successfully developed the prestigious "Three Line Hybrid Rice" based on a specific individual of *Oryza rufipogon* from Hainan Province. This represented a breakthrough in China's rice production as well as a huge contribution to food security of China and the whole world. In 2002, Yuan and his assistant, cooperating with American scientists, discovered two high yield loci in wild rice using molecular techniques. These two loci have supported yield increases of 18% and 17%, which demonstrates the enormous potential value of wild relatives for future agricultural production. Further justification of the global benefits of conservation of wild relatives of crops in China can be found in a CGIAR paper on agricultural biotechnology and the poor in China, showing the potential for using wild relatives to increase food production:

http://www.cgiar.org/biotech/rep0100/Zhang.pdf , C.L.Long *et al.*, *Biodiversity and Conservation* Volume 12, Issue 6, Pages 1145-1156, and L-Z Gao, *Genetic Resources and Crop Evolution*, Volume 50, Issue 1, Pages 17-32.

4. The conservation of wild relatives is therefore directly related to the third objective of the Convention on Biological Diversity (CBD), namely the equitable sharing of benefits arising from use of genetic resources, usually abbreviated as "Access and Benefit Sharing", or ABS. This objective of the CBD has proven to be extremely complex, So much so that at its fourth meeting the Conference of the Parties (CoP) of the CBD decided to establish a regionally balanced panel of experts to *"explore all options for access and benefit-sharing on mutually agreed terms including principles, guidelines, and codes of conduct of best practices for access and benefit-sharing arrangements*." Subsequently, the 5th meeting of the CoP also decided to establish an Ad Hoc Open-ended Working Group to develop guidelines for ABS, which led to the adoption of the "Bonn guidelines" by CoP VI. Subsequently, the Ad Hoc Open-ended Working Group has continued to meet to discuss issues such as measures to support compliance with prior informed consent, the need for capacity building, and elements to be considered for inclusion in an international regime on ABS.

5. China is one of the 15 so-called "megadiverse" countries due to its immense variety of ecosystems and the species diversity they contain. However, notwithstanding its status with regard to overall biodiversity, in terms of agricultural diversity, the global significance of China is yet greater. It is one of Vavilov's seven "independent" centres of crop origin, and Vavilov himself described it as the earliest and largest centre of origin. A large number of crop species trace their origin to central and eastern China, and the number of wild relatives is correspondingly large. It has been estimated, for example, that of about 1200 crop species harvested worldwide, 600 are found in China, and of those up to half originated in China.

6. Rice, wheat and soybean are the three most widely cultivated crops, not only in China, but also around the World. Yet scientists have warned that increasing temperatures will diminish the yield of basic crops of corn, soybean and rice. A US National Academy of Sciences report abstract (June, 2004: *Rice yields decline with higher night temperatures from global warming)*, reported that "grain yield declined by 10% for each 1 degree Celsius increase in growing-season minimum temperature". Wild relatives of all these three crops can be found in China with extensive distribution, large areas and high diversity, and these will become increasingly valuable as "reservoirs" of genes adapted for extreme conditions.

7. From 1978 to 1982, domestic surveys in China revealed that there are 3 wild rice species distributed within China (see Map 1 in Annex 1), namely *Oryza rufipogon* Griff, *O. officinalis* Wall and *O. meyeriana* Baill. They are distributed from longitude 97°56´E to 117°08´E and from latitude 18°09´N to 28°14´N, covering 8 provinces (autonomous regions) including Guangdong, Guangxi, Yunnan, Hainan, Fujian, Taiwan (based on the historical record), Jiangxi and Hunan. Among these provinces (autonomous regions), Yunnan and Hainan possesses all mentioned three wild rice species; while Guangdong and Guangxi have *Oryza rufipogon* and *O. officinalis*; the rest of the provinces only have *Oryza rufipogon.* These three types of wild relatives were distributed in 743 communities of 140 counties (towns) of the above-mentioned 8 provinces (autonomous regions). Among these, 85 counties only posses *Oryza rufipohon*, 10 counties with only *O. officinalis*, 14 counties with only *O. meyeriana*, 18 counties with both *Oryza rufipogon* and *O. officinalis*, 5 counties with both *Oryza rufipohon* and *O. meyeriana*, while 3 counties are with all of the three types. There are 3 sites whose covering area is more than 500 Mu (33.3hm^2) each, 23 sites with 100-500 Mu (6.67-33.33hm^2) each. The wild relatives of rice normally grow in eastern China, where

population density is highest. Some grow in marshes at low altitude, while other species grows in hilly areas and mountains. The wild relatives of rice in China bear potentially valuable characteristics such as salinity-alkali tolerance, drought and low fertility tolerance, pest and disease resistance, and high yield.

8. Soybean is also one of the most important crops that originated in China. There are 6 sub-genera of soybean globally, and China has two of them - one is wild, and the other is cultivated. Of the wild subcategories, there are 3 cultivars found exclusively in China. There is a wide distribution of wild soybean in China (see Map 2 in Annex 1). According to an investigation in 1980, all provinces (regions) except Hainan, Xinjiang, Taiwan, and Gansu, possess wild soybean resources. In the 3 northeastern provinces, wild soybean can even be found in every county, every town. The main characteristics of Chinese soybean are: high protein content, disease resistance, vigor at low temperatures and high altitude, in areas of severe ultraviolet radiation, large variation in leaf shapes, colors, sizes of seeds and colors of flowers.

9. Although wheat did not originate in China, according to the textual research, it has been cultivated in China for more than 4,000 years. China is one of the sub-origin genetic centers for wheat. The resources of wild relatives of wheat are also abundant (see Map 3 in Annex 1). There are 325 species and varieties of wheat in the world, of which 18 are being cultivated (6 for food supply, 12 for feedstuff). China has 160 wild species and varieties out of the 325, and of these, 46 are found only in China. Wild relatives of wheat are distributed in arid areas with low population density. They are tolerant to pests and diseases, draught, sandiness, salinity, alkali, coldness, rich in protein as well as high quality in straw.

Socio-economic context

10. The 15 candidate sites from which the project sites were selected are located in 14 provinces (autonomous regions) in all regions of China. However, despite the wide range of environmental and cultural conditions encountered across the candidate and selected sites, some of the key socio-economic issues are common across all sites.

11. The wild relatives of crops in the more prosperous regions of eastern China and coastal areas have largely been lost in the face of rapid economic development. Surviving populations of wild relatives are typically found in more remote and less fertile agricultural landscapes. Local stakeholders are almost exclusively farmers or herders, and in many sites they are members of minority nationalities. Due to transportation and communication constraints, both crop growing and livestock rearing follow traditional, subsistence patterns, and income generation opportunities are limited. Frequently, the only viable response to increasing population levels and to improve economic conditions is to expand the area of cultivation or herding, or intensification of the production processes. Site surveys found the average annual per capita income of villages in and around the 15 candidate sites to be only slightly more than RMB 2,000, and in only a few villages did annual per capita income exceed RMB 3,000 per capita, mostly due to supplemental income from family members who had migrated to urban centres in search of salaried jobs. Consequently, virtually all sites are located in "national poverty reduction" counties, reflecting the fact that average household income is below the threshold value for poverty (RMB 865/month).

12. In wild rice and wild soybean sites, where population densities are quite high, the conflict between increasing population levels and limited land area is severe. In five of the candidate sites, the available arable land area per capita is less than 1 Mu (667 m^2, or 0.067ha).

13. Opportunities to supplement income in wild rice areas come from cash crops of tropical fruit and rubber trees, or aquaculture, for which fishponds are excavated, often impacting habitat of wild rice. In wild soybean sites, supplemental income can come through cash crops of peanut or sesame, typically grown on drier and less fertile sites, and recently through a national reforestation project, which pays farmers to establish forest plantations, compensating them for loss of income. In the case of wild relatives of wheat, distributed in dry desserts and grasslands of the northwest, opportunities for income generation are largely limited to increasing herd sizes, thus leading to overgrazing.

14. Educational levels are very low, in part due to historical cultural reasons as well as difficulties of access to educational facilities. Site surveys revealed that the average educational level of farmers above the age of 30 is completion of primary school education. About 20% of farmers have graduated from junior high school, and only a very few possess senior high school qualification. Consequently, illiteracy rates are high, with the average illiteracy being 30% across all sites. Current Chinese educational policy calls for 9 years of compulsory education, but even among farmers below the age of 30, who would have been subject to this policy, only 50% completed nine years of education. The educational level of farmers in wild rice and soybean sites is marginally higher than that for farmers in wild wheat sites.

15. All land in China is owned by the state. However, since the 1980's, a system of land contracting has been introduced. Under this system, agricultural land is administered by the township government, and parcels of land are contracted out to farmers for a period of 30 or 50 years. Under these contracts, usufruct rights belong to the farmers. All households are guaranteed a designated minimum area of contract land required for subsistence purposes, but any additional land is contracted out on the basis of competitive tendering, and this land is typically used for cash crops. Consequently, management of agricultural land is in the hands of individual households, and collective management to favour conservation is difficult.

16. On the other hand, traditional cultural values, encompassing respect for authority, facilitates the introduction of conservation measures. Surveys revealed that although the farmers are aware of the loss of their own benefits brought by the conservation activities, they are nevertheless willing to comply with governmental efforts to conserve wild relatives. This is despite the fact that they are unaware of the need for conservation. For example, when asked why wild relatives should be conserved, a meeting of farmers in Tongbai county, Henan Province concluded that it was because conservation was a "national priority". When asked why conservation of these particular species should be a national priority, they speculated that as the species grew in hilly or mountainous areas, they must have some medicinal value.

17. The UNDAF includes 12 objectives, and this project will contribute to three of them, namely:

18. Objective 3: Enhance food security and nutrition, especially at the household level. Under this objective, the UN system will provide assistance in two major areas: a) support to sustainable agricultural development as a means to enhance national food security; and b) interventions targeted to the most vulnerable communities to eradicate household food insecurity. This project helps to integrate conservation with production, rather than separating these two objectives, as has previously been the approach, thus contributing to food security.

19. Objective 9: Improve environmental management capacity, especially in the Western region. The UN system will assist the government in defining a pragmatic and action-oriented national strategy to address environmental issues in a systematic and comprehensive way. In particular, it will allocate responsibilities amongst sectors of society and it will design an incentive framework and system of standards so that all players are involved in the process, and thus further integration of environment and economic development will occur, which is a major goal of the 10th Five Year Plan. It could include integration of agricultural development activities with environmental activities aimed at soil conservation and management of sustainable water resources for both production purposes and personal consumption.

20. Objective 11: Support the implementation of the consensus of the UN conventions and conferences by the government and the civil society. The UN expects to take an important role in strengthening China's capacities to meet these challenges and societal changes and assist China to explore ways in which to facilitate the adoption of these new values and goals at all levels of the government.

21. UNDAF indicators to which the project will contribute include:

- Percentage of ministry officials who know relevant conventions to which China is a signatory
- Per capita food availability according to international nutritional standards
- Percentage of land which is arable by province

22. UNDP's support to China includes interventions in support of:

- Environmental governance that emphasizes building national capacity in implementing policy, legal and regulatory measures; and
- Capacity development to negotiate and implement global environmental commitments.

23. This project will help to strengthen national capacity and empowerment of local stakeholders in environmental management and in promoting biodiversity and conservation, which is one of the expected outputs of UNDP's CCA.

Threats, root causes and barriers analysis

24. While China can justifiably claim the highest global significance in terms of diversity of wild relatives of crop species, threats to those species are also intense. This is, in large degree, due to the fact that China has 23% of the world's population, but only 7% of the world's arable land. Consequently, there is immense pressure to intensify productivity of the scarce arable land, and yet the availability of such land is declining rapidly, due to desertification and the rapid pace of economic development and its attendant demands for increased infrastructure and urbanization. It is estimated that 2.5 million ha of arable land are lost every year. Since most wild relatives occupy ecosystems in close proximity to existing agricultural land, the threats to their survival stem not only from the same processes that impact agricultural land, but also from the consequent pressure to compensate for lost agricultural land by converting land that was previously considered marginal for cultivation. Threats to wild relatives of crop species originate from several sources. These include:

Land conversion

25. Land conversion comes in several forms. For example, wild rice habitats have been converted into fishponds, lotus root ponds and so forth. Similarly, wild soybean habitats have been converted into fruit gardens and commercial forest plantations. Furthermore, some sites have been used for infrastructure development, including road construction and the development of irrigation or drainage systems. Urban development is also threatening areas where wild relatives are found. For example, one site of wild rice habitats, located 30 kilometers away from Guilin, Guangxi Autonomous Region, is the programmed for destruction in the establishment of a new city in Yanshan District. Although legal and policy measures already exist to facilitate conservation of sites harbouring wild relatives, realistically these will not be possible to apply in all circumstances, especially where pressures from urbanization are highest.

Agricultural practices

26. Species of wild rice, wild soybean and wild wheat are considered to be weeds, and are therefore subject to eradication through cultivation.

Intensification of land use

27. Modernization of agricultural production typically involves increased use of herbicides, which also eliminate wild relatives where they occur in farmers' fields or where they are affected by run-off from herbicide use. In pasturage systems, wild rice, wild soybean and wild wheat are all considered high quality pasture. Wild relatives are therefore harvesting for stall-feeding, and are also preferentially used for open range grazing. As the livestock numbers increase, so do threats to wild relatives, especially in the case of wild wheat, several populations of which have become almost extinct as a result.

Spread of invasive species.

28. Several invasive species, such as ragweed and water hyacinth have adversely impacted populations of wild relatives. For example, some wetlands where wild rice was previously found have been fully occupied by water hyacinth. Ragweed and other invasive species have also displaced on wild soybean and wild wheat in some locations.

Pollution

29. In efforts to improve the quality of urban environments, and to provide opportunities for alternative sources of income in rural areas, some polluting enterprises are being moved to remote rural areas. For example, a paper making factory originally located in Zengcheng district of Guangzhou city, Guangdong province, has been moved to an area in the upper watershed, above a site where wild rice is found. Chemical pollutants in the effluent water from the factory have caused a decline in the wild rice population.

Impact of genetically modified crops

30. Although Chinese government has not yet approved the release of genetically modified rice, soybean and wheat varieties, the demand for GM crop releases is growing. In the event that GM products are cultivated near habitats of wild relatives, gene transmissions are possible, thus threatening the genetic integrity of the wild relatives. Although gene transmission between wild relatives and cultivated varieties is virtually certain to have occurred many

times in the past, the potential genetic disruption resulting from gene transmission with GM products is much more significant.

31. The underlying causes of these threats include:

Local government favours short-term economic development measures.

32. Wild relatives tend to be found in the poorer parts of the country. In fact, the large majority of sites where wild relatives are found are located in so-called "national poverty-reduction" counties. Consequently, economic development is viewed as the top priority by local government, and as their performance is measured in terms of rates of change of household income, there is pressure to promote short-term development measures. This generates many of the threats described above, due to intensification of land use, land conversion, and relocation of polluting but profitable industries to rural locations. The China Biodiversity Partnership Framework, being led by UNDP, with funding from the European Union and GEF, will concentrate on effecting policy change at central and local levels in order to promote conservation. Consequently, the project will establish a close relationship with the China Biodiversity Partnership Framework in order to guide and benefit from interventions promoting a balanced approach to economic development, in which conservation needs are accommodated.

Institutional constraints to implementation of conservation regulations

33. Although the central government recognizes the need to balance conservation with development (see section on Baseline situation), and has instituted measures to support conservation at the local level, these have not yet been fully implemented. Consequently, although all counties have well-establish "Rural Development Bureaux", only about 20% have equivalent bodies promoting conservation.

The agricultural extension system is based on promotion of new cultivars and new techniques

34. Just as local government as a whole focuses almost exclusively on short-term economic development, so the agricultural extension system, which should take account of the need to conserve wild relatives in its activities, is only focused on promoting new cultivars and new technologies, without taking account of their potential negative impacts on wild relatives. For example, most extension systems promote increased application of herbicides, and are primary advocates for the release of genetic modified crops.

The status of populations of wild relatives is obscure

35. Although the state has established an agenda for conservation of wild relatives, including the preparation of a list of priority species for protection, in many cases populations are lost before their status is established. For example, a population of wild rice in Yongning County of Guanxi Autonomous Region, which was included as a candidate site in the Concept Paper approved for GEF Pipeline Entry, was subsequently found to have been already largely destroyed as a result of excavation for fishponds.

Institutional, sectoral and policy context

36. The Ministry of Agriculture (MoA) is ultimately responsible for management of agricultural land, which includes most of the locations where wild relatives of rice, soybean and wheat are threatened. In contrast, conservation of biodiversity in natural ecosystems largely falls under the mandate of the State Forest Authority (SFA). Although many species of wild relatives are found in such ecosystems, a classic ecosystem approach to conservation with a major

focus on management of protected areas (in GEF terms, strategic priority BD1) can be adopted for such species.

37. The State Environmental Protection Agency (SEPA) also has a mandate that encompasses protection of natural resources, but in the case of agricultural resources, SEPA effectively, though not officially delegates responsibility to MoA.

38. The MoA, as an agency of the central government, is supported by provincial Departments of Agriculture (DoA). The structures of provincial DoA's follow the same structure as the MoA. Within provinces, each Prefecture has an Agricultural Bureau, which is responsible of coordinating the implementation of agricultural policies within the Prefecture, whilst at the local level, each County within a Prefecture also has an Agricultural Bureau.

39. Each County Agricultural Bureau is made up of a number of sections, responsible for different aspects of agricultural management. For example, every Agricultural Bureau has a technical extension service to provide farmers with technical assistance and advice. Such services are usually provided free of charge, unless a farmer or group of farmers request specialized technical assistance (for example, for the development of a new enterprise) for which external technical assistance needs to be sought, in which case the costs are passed on to the farmer.

40. Other local government agencies also affect agricultural management. For example, the Rural Development Bureau, a subsidiary body of the State Council, is responsible for implementing Prefecture and County level plans for economic development. This involves the development of services and infrastructure, including the construction of new roads, health clinics, and schools. The Prefecture and County Forestry Bureau may also influence farm management, especially with the introduction of the national reforestation programme, under which the Forestry Bureau provide farmers with seedlings for planting, and administer a compensation fund for lost farm revenues.

41. Although most farmers practice seed retention to provide materials for future crop sowing, they can also secure seed of new varieties and hybrid varieties provided by Seed Companies, through the Agricultural Bureau. The Seed Companies are typically provincial semi-governmental enterprises. They, in turn, interact closely with crop breeders in provincial and central research institutes.

42. Until quite recently, the MoA was almost exclusively focused on increasing agricultural production and productivity. However, the importance of conservation has increasingly been recognized. For example, between 2001 and 2003, the MoA has established:

- The Lead Group for Wild Relatives Conservation,
- The Expert Committee for Examination and Approval for Wild Relatives Conservation, The Management Office and Lead Group to Control Invasive Exotic Species,
- The Management Office and Lead Group for Safety of Genetically Modified Agro-products.

43. A National Coordination Committee for Biological Resources Management was formed in 2003 to coordinate the activities related to biodiversity conservation. The committee includes representatives of the MoA, Ministry of Business, Ministry of Health, Ministry of Science and Technology, General Administration of Quality Supervision and Inspection of Quarantine along with SEPA, etc. With the exception of Taiwan, Hongkong and Macao, all provinces (and autonomous regions) in China have set up equivalent organizations. About

20% of counties have also set up the special organizations, while in the rest of the counties (towns), the agricultural administrative department is implementing administrative functions related to conservation.

44. In addition, in 2003, with the approval of the Ministry of Civil Affairs and the cooperation of the MoA and SFA, a National Association of Wild Plant Protection was established. With the guidance from the MoA and SFA, this semi-official association organizes stakeholders to publicize the relevant policies and statutes and popularize knowledge of wild plants, thus enhancing awareness of the need for conservation. These actions consequently have accelerated the development of wild plant conservation. In 2003, as directed by the MoA, the Chinese Academy of Agricultural Sciences has established specialized research and cooperation institutes, such as The Controlling Center for Exotic Harmful Species, and The Network of Protection and Utilization of National Wild Rice.

Legal context

45. In recent years, Chinese government has been attached great importance to wild relative *in-situ* conservation. A series of laws, regulations and policies have been enacted, such as:

- Regulations for Wild Plant Protection,
- The Law of Seeds,
- China 21st Agricultural Agenda,
- CBD National Report (the first, second and third editions).

46. Departments under the MoA have also enacted:

- The management approach for agricultural wild plants,
- The management approach for crop germplasm resources,
- The collection and management approach of *Ephedra* and *Glycyrrhiza*,
- The implementation approach for management of the safety of agricultural genetic engineering.

47. MoA has also prepared detailed regulations concerning conservation and management of wild relatives of crops in China. The enactment of these laws and regulations established the legal status of wild relatives conservation. Furthermore, the related provinces (autonomous regions) have enacted their own regulations concerning wild relatives conservation, which is a driving force for the conservation activities. However, some content of these policies, laws and regulations are either repetitive or incompatible. Some essential laws, such as The Criminal Law, do not even include articles concerning wild relatives conservation, which constrains the implementation of conservation activities. Annex 3 provides a description of relevant laws, regulations, rules and policies that affect conservation of wild relatives and the shortcomings inherent in these legal instruments.

Stakeholder analysis

48. Key stakeholders are the following:

1. The Ministry of Agriculture (MOA)

49. The Ministry of Agriculture is responsible for monitoring and administrating the wild relatives of crops except those in forests and precious wild trees all over the country. The

Wild Plant Conservation Leading Group and the Wild Plant Examining and Approval Expert Committee were set up by MOA in 2002. Meanwhile, an administrative office was also established to be responsible for the daily work on the conservation of wild relatives of crops.

50. Under MOA, the Research and Monitoring Institute for Environmental Protection has established a monitoring network consisted with a main station at the national level and more than 700 sub-stations all over China for agricultural environment monitoring in different regions. The network also involves part of research in respect of wild relatives conservation.

51. At the provincial level, the Department of Agriculture in each province (Autonomous Region or Cities) has an environmental protection agency at present. At least 23 provinces (autonomous regions or cities) have already set up the relevant wild relatives conservation leading groups and administrative offices whose responsibility is to conserve wild relatives of crops in their own land area. However, their work on the conservation of wild relatives of crops should be accordance with MOA's objectives. Similarly, the Agricultural Bureau in each county also assigns a group of persons or some persons specifically to be responsible for the environmental protection and wild relatives conservation under the guidance from MOA or the provincial agricultural department. At the same time, the sections and responsibilities at provincial level and county level government concerning wild relatives conservation are flexible according to the actual situation of each region.

2. State Forestry Administration (SFA)

52. The State Forestry Administration is responsible for monitoring and management of wild plants in forests and precious wild trees outside the forests. The Forestry Department in each province has the protection division for wild animals and wild plants, which is responsible for the wild relatives conservation in forestry system. The Forestry Bureau in each county generally has one section for wild animals protection and one section for wild plants conservation.

3. State Environmental Protection Administration

53. The State Environmental Protection Administration is responsible for the coordination at the national level for biological diversities and the conservation of all biological resources. It organizes different government agencies to make plans and programs of biodiversity conservation as well as supervise the implement of the plans and legislations. It is also responsible for leading and coordinating China's involvement in the development of an international regime for access and benefit sharing under the CBD.

4. National Development and Reform Commission

54. Responsibilities of the National Development and Reform Commission involves arranging and programming of national funded projects concerning wild relatives conservation, participating in formulating of ecological construction programs along with harmonizing ecological constructions.

5. Ministry of Land and Resources

55. The Ministry of Land and Resources is responsible for programming, managing, protecting and reasonable utilization of the land resources.

6. Ministry of Science and Technology

56. The Ministry of Science and Technology is responsible for examining and approving critical technological projects such as conservation and sustainable utilization of wild crops.

7. National Management Office for Rural Development and Poverty Reduction

57. This management office is supervised directly by the state council. It's main responsibility is to find ways to make rural areas in China develop with the objectives of the central government and reduce the number of poor people. The relevant departments and bureaus are also established in provinces (autonomous regions or cities) and in poor counties. The three levels of management agencies for rural development and poverty reduction also play important roles in the conservation of wild relatives of crops by improving the living standards in rural areas.

8. China Wild Plant Conservation Association (CWPCA)

58. CWPCA is a non-governmental association which liaises with and organizes relevant stakeholders concerning issues such as wild relatives conservation, breeding, etc.

9. Scientific institutions, such as the Chinese Academy of Sciences (CAS) and Chinese Academy of Agricultural Sciences (CAAS)

59. The institutions are doing scientific research on wild relatives conservation and innovative utilization. They are engaged in biodiversity surveys, documentation, inventories, evaluations, conservations and utilizations. They also provide technical supports for local governments and farmers.

10. Farmers' Associations

60. In different rural areas, there are many different associations organized and consisted by farmers. For example, many villages or townships have established Farmers' Technical Associations, which organize their members to learn and exchange techniques from each other.

61. The Stakeholder Participation plan in Section IV describes the participation of these stakeholders in project design and their proposed roles in project implementation.

Baseline analysis

62. The regulatory and administrative initiatives undertaken by MoA and associated institutions since 2001 have provided a framework for conservation of wild relatives. However, initial conservation efforts have been top-down and non-participatory. To date, work has begun at 52 sites where wild relatives are found to physically exclude threats from agricultural practices by expropriating land, compensating the farmers, and constructing barriers such as walls or fences. Plans are in place to extend this work to other locations.

63. Such an approach is unsatisfactory for a number of reasons:

- The approach is not sustainable, requiring the maintenance of physical barriers for an indefinite period;
- Inevitably, only small portions of sites can be physically protected by barriers. As the area increases, the construction and maintenance costs grow and the likelihood of failure of the barriers increases;
- The land within the barriers is taken out of productive use. The approach represents a system of single land-use in a country where multiple land-use is essential due to scarce resources;

- Without detailed knowledge of the ecology of the species, it is uncertain that physical exclusion of other uses will actually promote conservation. For example, some wild species may benefit from low levels of disturbance caused by cultivation;
- Although farmers are compensated for land lost in this process, the approach fails to engage farmers, and their attitudes towards wild relatives are likely to worsen.

64. The MoA has acknowledged these shortcomings, and although plans remain to construct additional barriers, the need for an alternative, more sustainable and participatory approach is recognized. The MoA is therefore intent on mainstreaming conservation of wild relatives into administration of agricultural lands, as is indicated by the establishment of specialized units at central, provincial, and increasingly at county level. However several barriers remain to effective mainstreaming, and overcoming these barriers is extremely urgent, given the severity of threats to wild relatives in many locations.

Barriers to mainstreaming are:

Commitment to conservation at the central and local level remains incomplete

65. Although administratively there is a clear commitment to conservation of wild relatives at the central level in MoA, similar commitment is less clear at the local level, mainly due to incomplete institutional capacity, or among other central government agencies. It is only natural that commitment at the local level should still be evolving, given the recent emergence of the issue at the central level. Many counties have not yet established conservation bodies, and even where they have, the staff have only recently been moved from other duties, and have not been trained in conservation issues.

Conservation of wild relatives is viewed as a financial cost, with no opportunity for financial gain

66. As discussed above, there are few, if any opportunities for direct financial benefits from conservation and sustainable management of populations of wild relatives. Consequently, conservation initiatives serve as a drain on the scare financial resources of Agricultural Bureaux and other local government agencies. Without a source of sustainable financing, efforts to build commitment for conservation will be ineffective. In fact, current conservation measures do carry a substantial cost, both in terms of the cost of building and maintaining physical barriers, and in terms of the opportunity cost of lost agricultural production. While the alternative scenario described below does entail costs, these are offset by the savings made by avoiding the costs of the current strategy.

A complex and incomplete legal framework prevents effective enforcement of regulations

67. Even if commitment can be built and a sustainable financing mechanism established, it is still necessary to have an effective legislative framework in order to implement conservation activities. The conservation section of Tong Bai Agricultural Bureau, being one of the first county-level conservation sections, has a staff of four, all of whom have legislation enforcement certificates. Yet at present, if they encounter activities that damage wild relatives, they can only resort to persuasion and education, since appropriate penalties are not defined in the conservation regulations.

PART II : Strategy

Project Rationale and Policy Conformity

68. Under the baseline situation, efforts by the MoA to conserve wild relatives of crops will continue to be based on a physical separation of production and conservation, such as has been initiated at 52 sites to date. For the reasons described above, such an approach is not efficient, cost effective, or sustainable. This project will establish an alternative scenario, in which conservation efforts are participatory, with farmers being intimately involved in conservation activities. This will be achieved by working within existing governmental structures that support dialogue with farmers, but building the capacity of such structures to present and promote agricultural development options that incorporate conservation of wild relatives. Thus, the County and Township Agricultural Bureaux and extension services will be supported in establishing participatory conservation measures in the production landscape. However, this alternative approach in which conservation is mainstreamed into the agricultural sector faces several barriers, including limited commitment and capacity, an incomplete regulatory framework, and most importantly, a barrier to sustainable financing of conservation. This project will overcome these barriers, while at the same time addressing threats and their underlying causes at eight sites across China (see Site Descriptions in Annex 2 and Map 4 in Annex 1), in order to provide the lessons and experience required to develop a truly national system of conservation of wild relatives. In this regard, the project will also ensure that local knowledge regarding conservation and use of wild relatives is incorporated into conservation strategies. One of the threats, namely land conversion, will be addressed by developing a strategic approach, under which efforts will be focused on sites where conservation is possible with the interventions identified in the project strategy. Given the pace of economic development in China, there will be sites where the opportunity to effect *in situ* measures has already passed. However, in such cases, *ex situ* conservation will be promoted where possible.

69. The project fully meets GEF eligibility criteria under GEF Operational Programme 13 "Agrobiodiversity". The project targets the conservation and sustainable use of wild relatives of globally significant crop species, and serves to integrate conservation of wild relatives into the agricultural sector in China. For example, as described in the OP13 document, the project will involve such GEF-eligible activities as (i) integrating agricultural biodiversity conservation and sustainable use objectives in land use and natural resources use management plans; (iii) demonstrating and applying techniques to sustainably manage biodiversity important to agriculture, including wild relatives of domesticated plants …, and (iv) supporting capacity building efforts that promote preservation and maintenance of indigenous and local communities knowledge, innovation, and practices … with their approval and involvement.

70. The project will also contribute to GEF goals in the area of land degradation and to the special priority on adaptation. Conservation of wild relatives will contribute to improved agricultural systems, maintaining productive capacity (the loss of which is one definition of land degradation) and, more importantly, will allow the development of new agricultural varieties that are better adapted to new environments created through global climate change.

71. The project follows closely the guidance provided by the GEF Council with regards to Strategic Priorities, and is based on the lessons learnt under the second operational phase of the GEF. The project corresponds to Biodiversity Strategic Priority 2, 'mainstreaming biodiversity into production landscapes and sectors'. Wild relatives are typically found adjacent to agricultural land, in relatively small areas that are viewed by central and local stakeholders as an integral part of the agricultural landscape. The project therefore seeks to work with stakeholders at two levels. At the central level, the project will build institutional

and systemic capacity to mainstream conservation of wild relatives with agricultural development by developing sustainable incentive measures that promote conservation by farmers, by modifying the legal and policy environment, and by building institutional capacity to support such measures, including the capacity to monitor changes in populations of wild relatives. The current system, which involves compartmentalization of conservation (literally, through building of physical barriers), has failed to arrest rapid losses of wild relatives in the recent past. At the local level, the project will work with farmers in some of the most important sites for wild relative diversity, by helping to develop incentive systems to provide farmers with financial benefits from conservation, raising awareness of the importance of conservation, and involving farmers in measures to add value to wild relatives, for example, through use of germplasm in breeding programmes.

72. The project is also fully in line with the guidance provided by the Conference of Parties of the CBD to the GEF with regard to Access and Benefit Sharing. The CBD's Decision VII/20 para 19 requests the GEF as the financial mechanism of the convention to provide financial resources for country-driven projects based on national priorities that assist in the implementation of the ABS Action Plan and the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising out of their Utilization. The same decision also requests the GEF to support capacity building with regard to transfer of technologies which enables providers to fully appreciate and actively participate in benefit-sharing arrangements at the stage of granting access permits.

Project Goal, Objective, Outcomes and Outputs/activities

73. Given the context, threats, underlying causes and baseline situation described above, the project will undertake activities designed to address barriers to mainstreaming and underlying causes of threats to wild relatives.

74. The **Goal** of the project is to sustainably conserve wild relatives of crop plants in China. In order to achieve this goal, numerous changes are required in terms of policy, regulation and capacity development at a national level. Inevitably, this will require a substantial period of time to effect, and needs to be based on experience and lessons generated at the local level. This project will generate such lessons through addressing threats to populations of wild relatives and their underlying causes at eight sites representing a diverse range of ecological and socio-economic conditions.

75. As wild relatives of most crop plats tend to grow in small populations in ecological conditions that are closely associated with the agricultural systems that utilize crops derived from the wild relatives, a more viable approach to conservation of the wild relatives is to integrate their conservation into agricultural production systems. Consequently, the **Objective** of the project is *to mainstream conservation of wild relatives of crops in agricultural production landscapes in eight provinces of China*.

76. The project will target wild relatives of rice, soybean and wheat in eight provinces across China (see Site Descriptions in Annex 2 and Map 4 in Annex 1). These three crops are among the most important staple food plants globally, and are also found in different ecological and socio-economic conditions. Wild rice species are typically found in wetland sites, and the majority of wild relatives are found in south and south west China. The social-economic conditions of wild rice habitats are diverse. Generally, wild rice habitats in south China are in areas of high population density and (in comparison with rural economies elsewhere in China) in relatively high income areas, but those in south west China are in

areas of lower population density and in relatively lower income areas. Wild soybean is found in northeast, east and central China, on drier sites and often at moderate elevation, where population densities are high and levels of poverty are also high. Wild wheat is typical of western China, where population densities are low and poverty levels high.

77. In order to achieve the project Objective, activities will be undertaken to secure five Outcomes that directly address barriers to mainstreaming and underlying causes of threats to wild relatives. Two of the Outcomes apply mainly at the local level, two others apply at a central, or national level, and the final Outcome seeks to scale-up mainstreaming towards the establishment of an effective system of conservation at a national level.

Outcome 1: Generation of sustainable financial or other incentives for conservation of wild relatives at the county level in eight provinces

78. Traditional cultural values in China mean that farmers tend to accede to the wishes of government, and on the 52 sites where physical barriers have been, or are being constructed farmers have agreed to substitute other land for land they have lost to the conservation areas. However, this leaves farmers at best as neutral and passive observers of conservation, and there is a strong possibility that, if they find their new land less productive, or they feel otherwise unfairly compensated, they may become antagonistic towards conservation. A more equitable and socially sustainable approach would involve farmers as active participants in conservation. To achieve this situation, farmers needs to see that conserving wild relatives yields financial or other benefits, and is therefore something to be desired.

79. The establishment of incentive systems is therefore key to mainstreaming conservation into the agricultural sector. Several approaches have been considered during the project preparatory process, and socio-economic data was collected during site surveys to assess the potential for success of each approach. Some of the options considered were:

- Reliance on increased government budgets to provide direct financial benefits to farmers conserving wild relatives. This is obviously a simple mechanism, and the Government of China has demonstrated that it is able and willing to mobilize large sums of money, for example in its "Sloping Land Conversion Programme", for which the budget allocations since 1998 have amounted to over US$40 billion. The Government of China is committed to providing the necessary resources to promote conservation (see Incremental Costs Analysis), and direct payments are likely to be the simplest measure to introduce, especially in the short-term.
- Trust funds. Although trust funds are a possible mechanism, the project would need to create numerous small funds, which would encounter all of the problems identified by the GEF M&E unit in its assessment of experiences with trust funds.
- Linkage of conservation to provision of technical services. Under this scenario, technical assistance provided to farmers will be provided at reduced or no cost to farmers who conserve wild relatives, with costs being borne by an equivalent increase in costs to farmers who do not conserve wild relatives. It is important to ensure that the technical assistance provided also reinforces the conservation message - i.e., extension services do not support replacement of traditional cultivars or reliance on greater chemical inputs.
- Commercialization of products. In some cases, commercialization of products may be viable, which could provide an incentive for conservation, provided safeguards to ensure sustainable management are introduced.
- Use of credit mechanisms. Linking conservation to availability of loans, for example, by offering reduced interest rates if wild relatives are conserved, could provide an incentive for conservation.

- Access and benefit sharing. As the conservers and providers of genetic resources, farmers may enter into agreements with breeders and seed companies regarding access to genetic resources of wild relatives, and sharing of benefits arising from their use. Currently there are no examples of formal local access and benefit sharing mechanisms in China, although there are cases of effective cooperation between farmers and research institutes in their breeding programmes.

80. The socio-economic data collected during site surveys have demonstrated that no one mechanism exists that will be ideally suited to all sites. The varying degrees of indebtedness in different regions, and differing potential for commercialization of products or incorporation into breeding programmes, means that an efficient and effective mechanism will need to be developed for each site. However, direct government subsidies (conservation payments) to farmers who conserve wild relatives is likely to be an element of incentive systems in all sites, especially early in project implementation, as more sophisticated measures are being analyzed and developed. Consequently, Outputs under this Outcome will directly address the second barrier to mainstreaming described above (conservation of wild relatives is viewed as a financial cost, with no opportunity for financial gain). By establishing a basis for financial or other benefits from conservation of wild relatives, the Outcome will also address one underlying cause of threats to wild relatives, namely local government favouring short-term economic gains.

81. Outputs include:

Output 1.1: Local stakeholders design a socially appropriate incentive system

82. Any incentive mechanism will need to involve four groups of stakeholders: government agencies, research institutions, seed companies, and farmers. Such a model will require coordination of the responsibilities and obligations of all parties, and equitable sharing of benefits so as to ensure the sustainable conservation of the wild relatives.

83. Based on investigations conducted during the PDF-B process, key principles guiding the establishment of a locally appropriate financing mechanism were identified, including:

- Establishing a close relationship between research institutes and farmers.
- Enhancing production on higher yielding land.
- Building the capacity of farmers to assess their real needs for government technical support.

Applying these principles, locally appropriate incentive mechanisms will be developed through a process of consultation among all stakeholders, including farmers and the scientific community. The local Agricultural Bureaux will take the lead in formulating initial designs on the basis of these consultations and in establishing a process for regular review and amendment as necessary (see below, under Output 1.4.

84. Further consultations, guided by national legal and finance experts, will design an incentive system that will yield certain financial or other benefits to encourage farmers to conserve wild relatives. The systems may involve a single or multiple elements, as appropriate. In particular, the potential to link conservation with breeding programmes and the production and use of new varieties will be considered. The use of genetic resources from wild relatives may take several years before research and breeding yields results, so the incentive systems may include short-term and long-term measures, or measures to generate benefits in anticipation of future financial returns.

85. The development of locally appropriate incentive systems is complex, may have perverse outcomes, and needs to be very carefully evaluated, but in this case is facilitated by two factors. Firstly, local government in China is characterized by integration, with local agencies of all relevant sectors working according to common procedures, with frequent inter-agency consultation, supported by well-established government-farmer consultation structures. Furthermore, much of the agricultural sector is oriented towards local action. For example, provincial research institutions are responsible for most of the scientific support to the agricultural economy, including the development of new varieties, while provincial and County seed companies supply seed to local farmers. Technical support to farmers is also organized at a County level. Thus, the administrative environments in which incentive systems need to be developed are rather simple. The second factor possibly facilitating the development of effective systems is the experience gained in China in formulating similar incentive systems for issues such as promotion of biogas facilities, soil conservation and pollution control. An example of promoting biogas facilities became necessary due to excessive demands on forests for firewood. Since 1998, Chinese government adopted an incentive strategy based on the investments from the central government, local government and farmers. When a farmer wishes to establish a bio-gas facility, the central government will pay one third of the total cost (about US$100), the local government will co-finance another one third, and the farmer will pay the rest. After several years' experiments and demonstrations at the local level, including specific villages, this successful model has extended to thousands of families in many provinces in China.

86. Although the factors described above facilitate the development of incentive systems, it is nevertheless not a trivial matter to establish a locally appropriate system. Resources available during the PDF-B were not sufficient to start this work at all project sites, but efforts involved an expert workshop, followed by visits to two of the eight project sites. An expert workshop, held during the PDF-B to consider options for the establishment of an incentive mechanism noted the following principles:

a. Based on local conditions of the project target sites, three possible mechanisms are feasible, namely conservation related support by the government, innovative utilization of the conserved wild relatives, benefit compensation, and establishing a good return system based on conservation.
b. Any such incentive mechanism would need to involve four groups of stakeholders: government agencies leading the design and implementation of the mechanism, research institutions providing technical support, seed companies supporting commercial development, and farmers undertaking conservation. Such a model will require coordination of the responsibilities and obligations of all parties, and equitable sharing of benefits so as to ensure the sustainable conservation of the wild relatives.
c. The utilization of the wild relatives is a complicated and time consuming process, requiring genetic enhancement, based on long term research. Therefore, the partner research institutions will use the conservation sites as part of their experimental base, undertaking characterization, evaluation and genetic enhancement to enable the breeding sector and seed enterprises to develop improved varieties, thereby establishing a benefit feedback mechanism.
d. The conservation of wild relatives therefore requires three phases. The first phase involves appraisal and screening for superior characteristics by research institutions. The second phase involves the creation of genetically improved germplasm having superior characteristics, and the third phase involves production and the improved germplasm through the efforts of breeders and seed companies.
e. Although conservation of wild relatives is supposed to be government supported public affairs, it is possible that the final objective of conservation could be obtained by policy incentive

mechanism, through which the government encourage research institutes, seed companies and farmers' associations to sign cooperation agreements or volunteers' agreements.

87. Following the expert workshop, field missions were carried out to two of the eight project sites: Henan Province (soybean) and Ningxia Autonomous Region (wheat) to consider the details of locally appropriate incentive mechanisms. Stakeholder consulted during these visits included agricultural research institutions and seed companies at provincial level as well as financial departments, rural credit agencies and seed companies at county level, administrative staff in counties, towns and villages and farmers. On the basis of these discussions, it was concluded that:

a. Establishing a close relationship between research institutes and farmers as well as local government and farmers is possible. The farmers can assist research institutes with simple research activities after getting appropriate training, in return for payment by the research institutes.
b. Enhancing production on higher yielding land, through the efforts of local extension services, can contribute to conservation of wild relatives. Some of the current threats to wild relatives derive from overuse of low yielding land. If the farmers can be helped to increase the yield on other lands, conservation of wild relatives will be easier.
c. The experiences gained from poverty reduction activities are relevant for wild relative conservation. Poverty reduction activities have been undertaken for more than 20 years in China, and many experiences and lessons have been accumulated. For example, the early poverty reduction approach, before the 1990s, was called "blood transfusion" because at that time the government simply allocated cash to farmers to let them buy what they needed. However, results were disappointing. From late 1990s, the government used another approach called "hemopoiesis", which built the capacity of farmers to assess their real needs for government technical support. This concept has yielded good results. Therefore, such an approach may be also applicable to wild relatives conservation.

88. Different financial incentive systems will be required on different sites, due to differing local conditions. Suitable models of incentive mechanisms to be adopted at each site will be further developed during the project. In general terms, however, the project will begin by relying on investments funded by the government and the project. As the project proceeds, direct investment by the government and the project will decline, in favour of self-sustaining mechanisms consistent with the access and benefit sharing mechanisms envisaged by the CBD. The system will be adapted as necessary, based on experiences gained during implementation (see Output 1.4). For other project sites, a similar process will be undertaken to develop initial recommendations for local incentive systems. At all sites the project will provide the necessary financial and technical support to implement the systems.

Output 1.2: Local authorities establish the administrative and regulatory structures necessary to implement the system

89. Although the design of incentive systems under Output 1.1 will seek to minimize the requirement for modification to local regulatory structures, some changes will inevitably be required. The project will provide the necessary legal and administrative expertise to assist local authorities to implement such changes. For example, a multi-stakeholder committee may be formed in order to provide a forum for all stakeholders to provide feedback on implementation of the system – which will provide inputs required for Output 1.4.

Output 1.3: Appropriate methods to ensure equitable distribution of financial or other benefits are established with participation of farmers

90. In order to be effective, benefits generated through the incentive system need to be shared equitably, both among stakeholders and within stakeholder groups. For example, benefits derived from the use of genetic resources of wild relatives in breeding programmes need to be distributed in an equitable way among those farmers who conserve the wild relative in their fields. Equitability in this case may be based on the relative area occupied by the wild relative in each farmer's land. Consequently, a transparent system to define and monitor the equitability of the incentive system will be established at each site.

Output 1.4: The effectiveness of the incentive systems is assessed and lessons learned are used in preparing refinements

91. Principles of adaptive management will be applied in undertaking periodic reviews of the effectiveness of the incentive mechanisms. The local Agricultural Bureaux will be responsible for organizing a review process, which will be participatory in involving feedback from all stakeholders, but which will also be independent, being led by selected experts from outside the local stakeholder group. Improvements identified as a result of reviews will be introduced into the incentive systems. This process of adaptive management is targeted at learning within sites. Outputs under Outcome 5 will promote inter-site learning and dissemination to the national level.

Output 1.5: Experiences and lessons are learned from other countries

92. Both establishing the monitoring systems and identifying commercial products of wild relatives are still in the beginning in China. Some countries with abundant genetic resources have carried out *in situ* conservation activities for several decades. Because of the similar nature of wild plants, experiences and lessons in other countries may meet the requirements for *in situ* conservation of wild relatives of crops in China. Critically learning the experiences and lessons could be more effective and efficient to carry out the project in China. This output will be mainly focus on learning and analyzing from south American countries and south Asian countries.

<u>Outcome 2: The policy, legal and regulatory system supports conservation of wild relatives</u>

93. As illustrated in the section on the legal context, there are a number of gaps in the current legal and regulatory environment that constrain initiatives to conserve wild relatives. For example, although the regulations on wild plants define actions that are not permitted, penalties for such actions are not clearly defined, meaning that the regulations cannot be applied effectively. Table 2 (below) summarizes the main constraints identified in the preliminary analysis conducted during the PDF-B. The project will identify each gap or weakness so as to create a more effective enabling environment for conservation of wild relatives.

Table 2: Main legal constraints to conservation of wild relatives (from Annex 3)

Title	Type	Administrative organization	Shortcomings
Seed Law of the People's Republic of China (Dec., 2000)	Law	State Agriculture Administration is responsible for management of crop seeds-related affairs.	No robust means of criminal penalty is stipulated in the Law regarding the behavior to damage or illegally export the germ plasm resources of wild plants of key significance to the nation and makes the national economic interests or biosafety suffer a serious loss.
Regulation of the People's Republic of China on Wild Plants Protection (Sept., 1996)	Regulation	State Agriculture Administration is responsible for the management of affairs related to other wild plants State Environment Protection Administration is in charge of arranging and supervising environment protection with relation to wild plants.	(1) Inter-department contests for wild plants jurisdiction during the real work are serious. (2) In regard to the management of gathering, acquisition and selling of wild plants, the administrative approval process stipulated in the Regulation isn't specific, which gives rise to the poor operability in actual implementation. (3) The Regulation takes little consideration into some key issues related to the safety of wild plants and their original environment, for example, construction and management of peripheral protection belt of wild plants original environment, qualification of subject of construction and management of original environment conservation zones, control of exotic plants in the original environment and measures for protection of wild plants transplant etc. (4) Little consideration is given in the Regulation into problems of acquisition, employment and benefit sharing of wild plant resources that have been raised in the practical protection of wild plants.
Regulation on New Plant Variety Protection of the People's Republic of China (March, 1997)	Regulation	State Agriculture Administration	(1) Unfavorable for mobilization of the initiatives of communities and local residents to protect wild plants; (2) Apt to cause resource abuse and public resource privatization through registration of variety rights.
Measures on Protection of Agricultural Wild Plants (Oct., 2002)	Rule	Agriculture Administration is responsible for management of affairs on agricultural wild plants.	The Measures have defects in terms of exotic plant management, wild plants transplant protection, benefit sharing of genetic resources and peripheral protection belt etc or concern no such content.

94. The process of modifying legislations (including laws, regulations and implementation rules for laws or regulations) in China is very different. Modifying laws is managed NPC (the National People's Congress of the People's Republic of China), modifying regulations is ultimately approved by the central-level State Council, while modifying the implementation rules for laws or regulations is managed by administrative agencies or provincial governments. In general, any change to laws is very complicated and time consuming, and the possibility during the project period is very low. However, for changes to regulations and implementation rules may be carried out. Based on proposals prepared by the administrative agencies responsible for each legislative instrument, consultations will be held by the State Council to review the proposals and prepare the necessary changes. Drafting or modifying regulations and implementation rules is the responsibility of the appropriate administrative agency, though an extensive consultation process must be undertaken with related agencies to ensure consistency with other instruments

95. Outputs under this Outcome directly address the third barrier to mainstreaming described above (a complex and incomplete legal framework prevents effective enforcement of regulations). Outputs include:

Output 2.1: Preliminary analyses of legislative weaknesses undertaken during the preparatory phase are reviewed and proposals for policy and regulation improvement are prepared.

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96. Where existing legislation is incomplete or unclear with regard to conservation of wild relatives, a number of approaches are possible to overcome such problems. The most comprehensive approach is to change the legislation so as to make it more complete or clearer. However, the process of changing laws is time-consuming and complex. Depending on the nature of the legal shortcoming, an alternative process could involve the formulation of new, or modification of existing regulations and implementation rules so that the legal shortcoming is effectively overcome. Based on the analysis undertaken in the preparatory phase, this Output will provide proposals for legislative improvements, identifying cases where changes to legislation is essential, and cases where alternative instruments can be utilized.

Output 2.2: The Ministry of Agriculture drafts new or modified regulations or implementation rules to address identified shortcomings.

97. As conservation of wild relatives falls under the mandate of the MoA, responsibility for the preparation of new, or modification of existing regulations or implementation rules as identified by Output 2.1 will also be the responsibility of the MoA. Under this Output, the MoA will draft new or modified regulations or implementation rules and consult with other agencies, such as the State Forest Administration and.

Output 2.3: Reports received by the State Council on modification of legislation and consultation

98. MoA will make reports on the project implement of legislative issues, analysis of current problems and improvement proposals. Based on the consultation under Output 2.2, MoA will submit the reports as well as the recommendation of new or modified regulations or implementation rules and the consultation results to the State Council. If possible, MoA will also prepare a request for the State Council to organize consultations to consider the necessary modifications.

Output 2.4: The Ministry of Agriculture implements regulations necessary to operationalize the legal framework, including training of personnel in Agricultural Bureaux in technical and legal aspects of the regulations.

99. Policies and laws can only support conservation if effectively implemented. This requires the preparation of regulations and guidance by the Ministry of Agriculture for existing and new policies and legislation, so as to define actual activities to be undertaken by local Agricultural Bureaux. Furthermore, training of local and provincial staff is required to ensure that they have the capacity to implement regulations effectively.

<u>Outcome 3: Stakeholders at the central and local level have adequate capacity to conserve wild relatives</u>

100. At the local level, threats to wild relatives result from the underlying causes described above. Other Outcomes will address some of these underlying causes, but effective conservation requires adequate capacity at the local level, supported by commitment and capacity at higher levels. Activities leading to this Outcome will therefore focus on building capacity and commitment to allow the threats at the local level to be overcome.

101. Outputs under this Outcome directly address the first barrier to mainstreaming described above (commitment to conservation at the central and local level remains incomplete). It will also help to overcome several underlying causes of threats to wild relatives, including the institutional constraints to effective conservation, the emphasis on promotion of new cultivars and techniques by the extension services, and the focus of local government on short-term economic gains. Outputs include:

Output 3.1: Conservation organizations are established in every Country where wild relatives are located in the project sites

102. As the need for conservation of wild relatives is still a relatively newly-identified issue in China, the administrative structures required to effect conservation measures have not yet been established in all Counties. Consequently, the project will assist in the formulation of conservation sections in County Agricultural Bureaux that currently lack them. The project will also provide the basic equipment required in all eight project sites to support conservation and monitoring.

Output 3.2: Training in conservation approaches is provided to staff of local conservation organizations

103. Even where conservation sections have already been established in County Agricultural Bureaux, the staff have rarely received any training in conservation. The project will develop training materials and courses to develop the capacity of both existing conservation sections and the new ones created under Output 3.1.

Output 3.3: Training is provided to staff of agricultural extension services to enable them to take account of the need to conserve wild relatives in providing technical assistance to farmers

104. While well-trained staff in conservation sections are required for conservation, the effectiveness of their work can be compromised if other sections within County Agricultural Bureaux are working in an inconsistent manner. This applies especially to the staff of the extension service (the "variety and technique extension section"), who typically promote intensification of production without regard to impact on conservation. The two sections need to work together effectively, so staff of the extension services will be trained in measures to balance conservation with agricultural development.

Output 3.4: An educational campaign assists farmers in understanding the value of wild relatives and approaches to integrate conservation with production

105. Farmers at most sites currently have little or no understanding of the value of wild relatives, and consequently consider them to be weeds. While the incentive systems developed under Outcome 1 will help to reverse this attitude, an education campaign will raise their awareness, and the awareness of other local stakeholders concerning the importance of conservation.

Output 3.5: An awareness and education campaign increases commitment among government officials at central and local levels

106. Although the impetus for conservation has originated at the central government level, not all officials at central and provincial levels are yet committed to conservation. Technical and experience shortage also impact the effective implementation of the conservation. An awareness and education campaign, trainings overseas and short courses given by foreign experts will increase commitment, thereby strengthening support for conservation activities at the central and local level.

Output 3.6: Inter-sectoral bodies promote coordination in conservation of wild relatives at central and local levels

107. The project will directly support inter-sectoral coordination at the local level through support to inter-agency planning bodies, and by building awareness among local policy makers. A similar process at the national level will be promoted through the project Steering Committee, but the project will also establish close relations with the China Biodiversity Partnership Framework, which seeks to secure cross-sectoral support for conservation at the central level.

Outcome 4: Accurate and timely information concerning the status of wild relatives is available and utilized

108. As noted previously, many populations of wild relatives have been lost, and continue to be lost because there is no systematic approach to monitoring their status. Populations subject to threats such as pollution, and the impacts of agricultural intensification, can only be conserved if there is regular monitoring of their status. Priority setting for conservation activities, including emergency measures such as the construction of physical barriers requires an effective monitoring system.

109. In China, conservation of wild relatives is managed by both the central government and local governments. The central and provincial governments are responsible for planning and management of wild relatives. Therefore, establishing monitoring systems at central, provincial and county levels are very important and facilitating the monitoring systems at different levels is necessary. Establishing an effective monitoring system also requires a level of expertise that could be found at national level and provincial level. Therefore, many of the activities under this Outcome will focus on developing the capacity of central, provincial and county levels. Moreover, the provision of policy advice in terms of priority setting, data production must be the responsibility of local agencies, namely County Agricultural Bureau, so activities will also involve trainings of County staff in data collection and monitoring facilities.

110. Outputs under this Outcome will support the other Outcomes by ensuring that accurate and relevant information supports conservation of wild relatives. The Outcome will therefore address the underlying cause of threats to wild relatives related to the unclear status of populations. Outputs include:

Output 4.1: A central level monitoring system and some provincial level sub-systems are designed and implemented

111. China has a very sophisticated information management system for its ex situ collections of germplasm of cultivated varieties and wild relatives. This system, CGRIS (Chinese Genetic Resources Information System), includes linkage to GIS data, and includes information on agronomic properties of each of the 360,000+ accessions. No other country in the world, including developed countries, has completed characterization of all its gene bank accessions. This system, managed by the CAAS, provides an excellent basis for the development of a national monitoring system. However, the development of a monitoring system will require additional staff training, may require modifications to CGRIS, and the addition of an analytical facility. The project will develop the capacity of a national agency accordingly. In addition, as the initial data entry process will be particularly labour intensive, the project will support and additional 3-5 data entry staff. Once the system is established, updating information of the status of populations is much simpler and can be accommodated with an estimated one additional staff member in the information management team at the selected national agency. Moreover, similar to *ex situ* conservation systems in China, the provincial governments are responsible for monitoring local wild relatives, sub-systems for monitoring are also needed to be established and they must be consistent with the central system.

Output 4.2: The capacity of County Agricultural Bureaux to collect data required to monitor populations of wild relatives is developed.

112. As noted above, although the monitoring system will be managed centrally, data generation and daily management will necessarily be the responsibility of local agencies, and specifically County Agricultural Bureaux. Staff of all participating County Agricultural Bureaux will be trained in participatory data collection methods, and provided with the necessary equipment for data collection and daily management. The farmers on whose land the wild relatives are found will be involved in monitoring. Training courses will be developed by a competent authority, possibly the CEARD, targeting both Agricultural Bureaux staff and farmers, and which will allow training to be easily expanded to additional Counties as the approach pioneered through the project is adopted elsewhere in China.

Output 4.3: Priorities for conservation are identified, based on information generated by the monitoring system

113. The current process of conservation priority setting involves a five-year work programme, developed on the basis of submissions from local government agencies, which are reviewed against fixed criteria. This review is undertaken by a consultation group, who advise the MoA accordingly, and this determines expenditures on conservation. This system does not benefit from data on the actual status of populations of wild relatives, as such data do not currently exist. As data are generated and analyzed through Outputs 4.1 and 4.2, this system of priority setting can be, and needs to be more flexible. Data will be generated and analyzed throughout the year, which may mean that priority actions are identified at any time of the year. This, in turn, requires modifications to the policy provision, priority setting, and budgetary systems, so as to increase flexibility and to be able to respond to new information as it is generated. The project will therefore assist the MoA in designing and implementing the necessary changes

Output 4.4: Opportunities for direct benefits from wild relatives are identified through evaluation of populations of wild relatives

114. Many of the incentive systems developed under Outcome 1 will involve elements of benefit sharing based on access to genetic resources. The generation of benefits requires research in order to identify potential benefits. In some cases, certainly a small minority of cases, it may be possible to identify commercial products that are generated from the wild relatives themselves. Far more likely, the benefits of wild relatives will be derived through incorporation of their genetic resources in breeding programmes for cultivated varieties, as has happened numerous times previously. Consequently, the project will support research to be undertaken within an appropriate national agency on evaluation of the genetic and non-genetic properties of wild relatives. This research needs to be integrated with the monitoring system, both because the research should be directed by conservation priorities, and because the impact on populations of wild relatives of the commercial uses identified through research needs to be monitored.

Outcome 5: Lessons and experiences from target provinces create conditions for replication and expansion of conservation programmes

115. The target sites have been selected on the basis of the size of populations of wild relatives, their representativeness in terms of ecological and socio-economic conditions, and the enthusiasm of local stakeholders in participating in the project. Although, taken together, the eight sites represent a significant amount of genetic diversity of wild relatives of the three crops, it is nevertheless necessary to extend the models developed through the other projects to other sites, and ultimately to other crops. This will not happen spontaneously, or will only rarely happen spontaneously. Therefore, Outputs under this Outcome will support a process to promote replication to additional sites were wild relatives are found.

116. Replication in this context does not imply simple repetition. The project will generate some different models of incentive systems under Outcome 1, and these models may require further adaptation to be applicable in additional areas. Therefore, activities must go beyond simple publication and dissemination, in order to assist additional stakeholders in developing their own locally applicable systems.

Output 5.1: Information exchanged and disseminated among sites and with farmers and Agricultural Bureaux from additional sites, including participatory evaluation of model systems

117. The organization of domestic study tours is a standard method of exchanging information among different locations in China. The project will support exchange visits among the eight project sites so as to provide a mechanism for exchange of ideas and lessons learned, thus contributing to improvement in design of incentive systems in each location. In addition, study tours will be organized for farmers and staff of County Agricultural Bureaux from other locations that express and interest in learning from project experiences. Annual workshops will also be organized in each participating province to promote dissemination of information about and results from the project at the provincial level

Output 5.2: Project results and lessons disseminated widely

118. The use of all relevant approaches, such as print and broadcast media for widespread distribution of information about innovations is another standard practice in China. Consequently, the project will support the preparation and dissemination through appropriate media of results and lessons generated by the project.

Output 5.3: Conservation goals incorporated in policy and operational programmes

119. Other locations in the same province are likely to share many similar ecological socio-economic characteristics with the target sites, so intra-provincial replication is likely to be quite straight-forward, and can be promoted through Outputs 5.1 and 5.2. However, biennial national workshops and other for a will be used to allow lessons generated by the project to be communicated to senior levels of management within the MoA and SEPA, thus contributing to policy change in support of the development of a national system of access and benefit sharing.

Project Indicators, Risks and Assumptions

120. At the level of the project Objective, the indicators are:

1. In all target sites, the area occupied by wild relatives shows no decline at the mid-point and end of the project, compared with the area in 2005
2. At all target sites, at the mid-point and end of the project, no land on which populations of wild relatives occur has been taken out of agricultural production

121. The main assumptions associated with these indicators are:

- No external impacts affect persistence of wild relatives on target sites. The risk of external impacts is assessed to be low to moderate.
- Threats to populations of wild relatives are not so severe that emergency measures needs to be undertaken. The significance of this assumption is that, if it fails, MoA may have to resort to moving farmers off land and building physical barriers, which would impact several Outcomes and therefore the Objective. However, the site selection was based on those sites that are not approaching an emergency situation, so the risk of this assessment, derived from the PDF field surveys, being inaccurate is considered to be low.

122. For each of the Outcomes, the indicators are:

Outcome 1:
1.1. At the end of the project, farmers at the target sites in eight provinces with wild relatives growing on their land, report that they are receiving financial or other benefits for conserving wild relatives
1.2. At the mid-point of the project, the proportion of financial incentives paid to farmers at each site that originates from government or project funds is less than 40%; at the end of the project it is 0%[1/]

123. The assumptions associated with these indicators are:

- Benefits for farmers generated through incentive systems are not diverted to other uses. Diversion of funds was found to have occurred in some locations in the Protection of Sloping Land programme. Lessons from that programme will be applied in this project, meaning that the risk is low to moderate.
- Fully sustainable sources for incentive system can be mobilized over 6 years, even if not possible in initial years. It is possible that effective self-financing incentive systems cannot be developed at one

or more sites, although for the reasons discussed above, this is not considered likely. The risk is moderate.

Outcome 2:
2.1. At the end of the project, all identified legislative shortcomings have been resolved, or the process has been initiated.
2.2. At the end of the project, staff of provincial Departments of Agriculture and County Agricultural Bureaux report no cases where implementation of conservation activities was prevented due to regulatory shortcomings

124. The assumptions associated with these indicators are:

- All administrative organizations are willing to assign priority to removing constraints. As many of the regulatory instruments are the responsibility of the MoA, and good inter-agency cooperation applies in other cases, the risk associated with this assumption is low.
- Legislative modifications can be achieved sufficiently quickly to permit improved enforcement. Modifications to policies, rules can be effected relatively quickly, as they do not need the approval of higher administrative bodies, so the risk is low. For modifications to legislation, which require the involvement of the State Council, the risk is moderate.

Outcome 3:
3.1. At the end of the project, threat reduction assessment at each target site indicates a reduction in threats of at least 80%. At the mid-point of the project, this figure is 30%.
3.2. At the end of the project, 75% of farmers at the project sites are actively conserving wild relatives. At the mid-point of the project, this figure is 40%

125. The assumptions associated with these indicators are:

- Improvements in capacity can be achieved in time to generate measurable reductions in threats. Local capacity building is the key to elimination of threats on each site, so the risk associated with this assumption will be site-specific, related to the nature of the threats. Overall, the risk is low to moderate.
- Increased awareness leads to more effective conservation. Although increased awareness alone will only be a minor contributing factor to effective conservation, previous experience in China indicates that the risk of this assumption failing is low.

Outcome 4:
4.1. Within 2 years of the start of implementation, local and central level policy makers are able to describe the status of populations of wild relatives
4.2. By the end of the project, conservation work plans of the MoA are based on information generated by the information management system

126. The assumptions associated with these indicators are:

- Training of County Agricultural Bureaux staff is effective, and Country Agricultural Bureaux undertake surveys as part of their standard procedures. There are many examples of comparable processes in China, suggesting that the risk of this assumption failing is low.
- Data generation and analysis occurs promptly. The risk is low.

Outcome 5:
5.1. By the end of the project, parallel initiatives have been initiated in at least 50 additional sites.
5.2. By the end of the project, MoA and concerned agencies have integrated lessons from the project into agricultural development policy

127. The assumptions associated with these indicators are:

- Project outcomes are achieved and result in demand from other sites. Overall, the risk associated with this assumption is moderate, although the risk that demand will not emerge from other sites is low.
- Inter-agency coordination is effective. The risk is low.

128. See the Logical Framework of the project for more details.

Expected global, national and local benefits

129. At the global level, the main benefit will be the sustainable conservation of wild relatives of three major crops in one of the most diverse countries in the world in terms of diversity of wild relatives of crops. As the project will establish conditions to allow the approach to be extended and replicated to other crop species, the global benefits will be multiplied accordingly. Additional global benefits include global food security, which will be improved through continued availability of genetic resources adapted to marginal environmental conditions, and therefore of significant value in adapting to global environmental change; and progress towards an international ABS system through experiences in a major source country.

130. At a national level, the project will contribute to reducing the loss of arable land, as the compartmentalization of conservation and production that exists in the baseline scenario will be removed. With losses of arable land so high, this will help to maintain agricultural production and therefore food security in China. Furthermore, the conservation of wild relatives will ensure that a much broader genetic base is maintained from which new varieties can be developed so as to increase agricultural production. As agricultural lands move to more marginal environmental conditions, partly in response to the loss of prime agricultural land through rapid urbanization, and partly due to changes induced by global environmental change, access to genetic resources that may contain genes adapted to such marginal conditions is particularly valuable.

131. At a local level, the establishment of mechanisms to provide poor farmers with financial or other benefits from conservation of wild relatives represents an opportunity for increased income and therefore improved social and economic security. The capacity of local government agencies, especially County Agricultural Bureaux, to provide technical assistance in support of the integration of conservation and production also represents a local benefit.

132. See the Incremental Cost Analysis in Section II, Part 1, for more detail.

Country Ownership : Country Eligibility and Country Drivenness

133. The project strategy is linked to Sustainable Environment and Energy Development Programme Area of the UNDP-China Country Cooperation Framework. The project will contribute to the first strategic area within this Programme Area, namely "environmental governance that emphasizes building national capacity in implementing policy, legal and regulatory measures".

134. China ratified the CBD on 5th January 1993, and is eligible for technical support from UNDP.

135. Since the 1950s, the Chinese government has supported concerted efforts to collect and conserve both cultivated crops and their wild relatives. Two long-term gene banks and 20 mid-term gene banks were constructed to store the collected germplasm. Recent inventories indicate that 355,000 accessions have been safely conserved in the form of seedlots in the gene banks. Moreover, in order to conserve perennial plants and vegetative reproduction plants, 32 ex-situ conservation gardens have been constructed, which now accommodate 32,000 accessions.

136. Only in recent years have these admirable ex situ conservation efforts been supplemented with initiatives to promote in-situ conservation. However, in recent years Chinese central and local governments have invested several millions of RMB to support in-situ conservation of wild rice wild soybean, and other wild relatives of crops.

137. The Ministry of Agriculture developed a strategic plan for conservation of wild relatives of crop species. This strategic plan called, first, for efforts to focus on wild relatives of important food species such as rice, soybean, and wheat.

138. Other significant indicators of country drivenness include:

- The *China Biodiversity Conservation Action Plan*, BCAP, in which Objective 4 is to conserve genetic resources related to crops and domestic livestock, with a focus on in-situ;
- The *China Agriculture Biodiversity Action Plan*, which includes five major objectives, one of which is to strengthen the in-situ conservation of key ecological systems and species and to establish a network of nature reserves and protected sites;
- The *Regulation on the Protection of Wild Plants*, issued by the State Council in 1996, to guide the conservation of and research into wild species, focusing on the wild relatives of productive species. Article V states that the government encourages and supports scientific research on wild plants, and supports *in-situ* and *ex-situ* conservation.
- The *China Agricultural Agenda 21* (1999) identified 20 important in-situ conservation sites for wild relatives of rice, soybean and wheat, located across China, and representing a wide range of climatic, topographic, and socio-economic conditions.

Sustainability

139. As stated above, the long-term vision and goal of the project is "to sustainably conserve wild relatives of crop plants in China. Thus sustainability is an integral aspect of the project. Nevertheless, this broader picture of sustainability will require associated inputs that are beyond the system boundary of the project. In the context of the project Objective, which applies within the system boundary, effective mainstreaming implies that conservation benefits are ecologically and socially sustainable. Modifications and improvements to the legislative framework, to be secured under Outcome 2 are obviously sustainable. Therefore, the two aspects of sustainability that require special attention are:

a) Institutional sustainability. The institutional capacity built through activities leading to Outcome 3 needs to be sustained. The project will, in most cases, build the capacity of existing institutions. The main exception to this is the creation of conservation units within Agricultural Bureaux at the County level, but the establishments of such units would occur anyway under the baseline scenario, with the project simply accelerating the process to ensure that such units are established before more populations of wild relatives are lost. As integral governmental units, future staffing and budgetary

provisions for conservation units are the responsibility of the government, and the government has already made such provisions when it established the policy of creating conservation units. With the exception of senior management positions, staff of County and Prefecture Agricultural Bureaux tend to spend their entire careers in the same location. Therefore, even if individual staff members are promoted, their knowledge and capacity will not be lost to the unit, and new staff members will benefit from the experience of those who have benefited directly through the project.

140. Another aspect of institutional sustainability relates to the monitoring system to be established under the project. In this case, staff of the conservation units of County Agricultural Bureaux will be responsible for data collection, and existing institutions both at the central and provincial levels will be responsible for management and maintenance of the monitoring systems. Again, recurrent funding for monitoring will be the responsibility of the central and provincial governments (see section IV, Part 1, "Other Agreements").

b) Financial sustainability. The key element of financial sustainability (other than institutional budgetary considerations discussed above) is the systems of financial and other incentives established in each of the eight provinces. Although the details of the systems will be developed during the project, one of the main criteria will be financial sustainability. It is anticipated that the mechanisms to be developed in different provinces will incorporate one or more of the following elements:

- Linkage of conservation to provision of technical services. Under this scenario, technical assistance provided to farmers will be provided at reduced or no cost to farmers who conserve wild relatives. The overall cost of the provision of technical services will be born by an equivalent increase in costs to farmers who do not conserve wild relatives
- Commercialization of products. Although the potential for development of commercial products does not, in general appear promising, it is possible that in some cases, commercialization of products may be viable. In such cases, commercialization will be based on thorough market analysis, and production will linked to sustainable management of the resource.
- Use of credit mechanisms. Although farmers in China typically are not as indebted as farmers in many other countries, there may be locations where the possibility of linking conservation to availability of loans, for example, by offering reduced interest rates if wild relatives are conserved, is possible.
- Access and benefit sharing. As the conservers and providers of genetic resources, farmers may enter into agreements with breeders and seed companies regarding access to genetic resources of wild relatives, and sharing of benefits arising from their use. Lessons and experiences from the provinces involved in the project will contribute to the development of a national system for China, thus assuring sustainability.

Replicability

141. The project has been prepared and will be implemented within the context of MoA's Strategy for Conservation of Wild Relatives. This strategy established a structured approach to conservation of wild relatives, classified into four categories. The first category included wild relatives of major staple crops, including rice, soybean and wheat, which is the reason that this project focuses on those crops. Categories 2 – 4 include wild relatives of minor crops, tree crops, and non-food crops, such as tea. As the project is based within this overall strategy, MoA will expand activities to other categories of wild relatives as lessons emerge. As well as being included among category 1 crops, the three crop species included in this project were also selected because they are found in divergent ecological and socio-economic situations. The inclusion of eight provinces, and the project strategy involving the

development of sustainable models of sustainable financing and incentive systems will thus yield lessons that will be widely applicable across China.

142. The development of sustainable financing and incentive systems, especially those based on access and benefit sharing, directly contributes to an obligation under the CBD, so the project will yield experiences and lessons that will allow the expansion of such systems to a national level.

143. Although some project Outcomes (Outcome 1 and Outcome 3 in particular) are focused on actions within the eight target provinces, other Outcomes (Outcome 2 and Outcome 4) are relevant at the central level. Modification and improvement of the legal framework for conservation of wild relatives will obviously benefit conservation action in all provinces and autonomous regions, not only those directly involved in the project. Similarly, the monitoring system to be developed under Outcome 4 will quickly move to a national scale.

144. The project also includes a specific Outcome (Outcome 5) promoting dissemination of lessons learned and supporting adoption in additional provinces. Activities contributing to this Outcome will include training, workshops and study tours, allowing farmers and officials in other locations where conservation of wild relatives is a priority to learn from the experiences of the project.

PART III : Management Arrangements

145. The project will be implemented by the MOA. MOA will appoint a senior official as National Project Director (NPD). A project management office (PMO), under the supervision of the NPD, will be established. A CTA – full time for the first year and then with short term inputs - will support the NPD and PMO (see ToR in Annex 4).

146. A Project Steering Committee, composed of the MOA (Chair), NPD, CPAD (The State Council Leading, Group Office of Poverty Alleviation and Development), NDRC (National Development and Reform Commission), MoF, MoLR (The Ministry of Land and Resources), MoST (The Ministry of Science the Technology, SFA (State Forestry Administration), SEPA (State Environmental Protection Administration), DRC (Development Research Center of the State Council) and UNDP will be established to review progress and recommend future activities, updating work-plan etc. Steering Committee Meetings will be held each year in Beijing (see ToR in Annex 4).

147. The project will also benefit from the short-term inputs of national and international experts. Indicative outline ToR for these consultants is provided in Annex 4. Detailed ToR will be developed in response to needs during project implementation. The short-term consultants will contribute directly to individual project activities, and will undertake their work in China.

148. The project will work closely with the "China Biodiversity Partnership Framework", an UNDP/GEF led programme that seeks to:

- Develop a critical mass of support and activities for successfully addressing the drivers of biodiversity loss in China;
- Provide a strong platform for interactions and communications between international organisations and central government policy-makers and technical experts;
- Provide a vehicle for developing, testing and up-scaling truly innovative approaches;

- Provide a flexible and responsive mechanism, able to recognise and exploit opportunities;
- Encourage coordination and synergies amongst Chinese partners;
- Encourage a progressively large number of biodiversity stakeholders to act within a single, coherent framework;
- Improve communication amongst partners, initially between Chinese and international partners;
- Develop synergies amongst the initial partners;
- Strengthen coordination, harmonisation and synergies across individual projects and activities;

149. Under the CBPF, this project is especially relevant to theme 4: "Protecting and sustainably utilising the biodiversity lying outside of protected areas", and as the CBPF develops, its role in promoting coordination and synergies will be valuable in maximizing the impact of this project.

150. Furthermore, the MoA is already undertaking several projects related to the goal of this project, with funding form the Government of China (see Section II, Part 1, "Incremental Costs Analysis" for more information). Since these projects are managed by MoA, it will be a simple matter to coordinate activities. The managers of other MoA projects will be invited to participate in the Steering Committee of this project.

151. Other projects which are relevant to this proposal, but which have no implications for management arrangements include:

- The UNEP/GEF global project, PLEC, worked in China in Yunnan Province, promoting integration of the management of two nature reserves and surrounding agricultural landscape. PLEC promoted innovations in farming and utilization of natural resources that improved local livelihoods without damaging rich biodiversity, and developed the target villages as model demonstration sites for wide replication. Major outputs focused on agro-forestry, home garden management, fuelwood plantations, community forest management, butterfly farming, and cooking stove improvement. Farmers, especially the Gaoligongshan Farmers' Association for Biodiversity Conservation has taken an increasing role in promoting conservation farming and forest management.

152. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated a bit from the GEF logo if possible as, with non-UN logos, there can be security issues for staff.

PART IV: Monitoring and Evaluation Plan and Budget

153. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The Logical Framework Matrix in Section II, Part 2 provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.

154. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception

Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

MONITORING AND REPORTING

Project Inception Phase

A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.

155. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

156. Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF *expanded team* which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings.

157. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

Monitoring responsibilities and events

158. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

Day to day monitoring of implementation progress will be the responsibility of the Project Coordinator, Director or CTA (depending on the established project structure) based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

159. The Project Coordinator and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit.. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

160. Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop. The measurement, of these will be undertaken through subcontracts or retainers with relevant institutions (e.g. vegetation cover via analysis of satellite imagery, or populations of key species through inventories) or through specific studies that are to form part of the projects activities (e.g. measurement carbon benefits from improved efficiency of ovens or through surveys for capacity building efforts) or periodic sampling such as with sedimentation.

Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

161. UNDP Country Offices and UNDP-GEF RCUs as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon scheduled to be detailed in the project's Inception Report / Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

Annual Monitoring will occur through the ***Tripartite Review (TPR).*** This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.

162. The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

Terminal Tripartite Review (TTR)

163. The terminal tripartite review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO

and LAC-GEF's Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation of formulation.

164. The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

Project Monitoring Reporting

165. The Project Coordinator in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and strictly related to monitoring, while (g) through (h) have a broader function and the frequency and nature is project specific to be defined throughout implementation.

(a) Inception Report (IR)

166. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

167. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.

168. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

(b) ***Annual Project Report (APR)***

169. The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self-assessment report by project management to the CO and provides input to the country office reporting process and the ROAR, as well as

forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

170. The format of the APR is flexible but should include the following:

- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
- The constraints experienced in the progress towards results and the reasons for these
- The three (at most) major constraints to achievement of results
- AWP and other expenditure reports
- Lessons learned
- Clear recommendations for future orientation in addressing key problems in lack of progress

(c) Project Implementation Review (PIR)

171. The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the CO together with the project. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned RC.

172. The individual PIRs are collected, reviewed and analysed by the RCs prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyse the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs play a key role in this consolidating analysis.

173. The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

174. The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP/GEF has prepared a harmonized format for reference.

(d) Quarterly Progress Reports

175. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team. See format attached.

(e) Periodic Thematic Reports

176. As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered.

UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

(f) Project Terminal Report

177. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

INDEPENDENT EVALUATION

178. The project will be subjected to at least two independent external evaluations as follows:-

(i) Mid-term Evaluation

179. An independent Mid-Term Evaluation will be undertaken at the end of the third year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

(ii) Final Evaluation

180. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

AUDIT

181. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

LEARNING AND KNOWLEDGE SHARING

182. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

- The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics.

- The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

183. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on- going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

TABLE: MONITORING AND EVALUATION WORK PLAN AND CORRESPONDING BUDGET

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team Staff time*	Time frame
Inception Workshop	▪ Project Coordinator ▪ UNDP CO ▪ UNDP GEF	US$22,500	Within first three months of project start up
Inception Report	▪ Project Team ▪ UNDP CO	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	▪ Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	To be finalized in Inception Phase and Workshop. Indicative cost US$30,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	▪ Oversight by Project GEF Technical Advisor and Project Coordinator ▪ Measurements by regional field officers and local IAs	To be determined as part of the Annual Work Plan's preparation. Indicative cost US$50,000	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF	None	Annually
TPR and TPR report	▪ Government Counterparts ▪ UNDP CO ▪ Project team ▪ UNDP-GEF Regional Coordinating Unit	None	Every year, upon receipt of APR
Steering Committee Meetings	▪ Project Coordinator ▪ UNDP CO	None	Following Project IW and subsequently at least once a year
Periodic status reports	▪ Project team	US$5,000	To be determined by Project team and UNDP CO
Mid-term External	▪ Project team	US$60,000	At the mid-point of

Evaluation	▪ UNDP- CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team)		project implementation.
Final External Evaluation	▪ Project team, ▪ UNDP-CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team)	US$60,000	At the end of project implementation
Terminal Report	▪ Project team ▪ UNDP-CO ▪ External Consultant	None	At least one month before the end of the project
Lessons learned	▪ Project team ▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc)	US$15,000 (average US$3,000 per year)	Yearly
Audit	▪ UNDP-CO ▪ Project team	US$4,000 (average US$1000 per year)	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	▪ UNDP Country Office ▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives	US$15,000 (average one visit per year)	Yearly
TOTAL INDICATIVE COST *Excluding project team staff time and UNDP staff and travel expenses*		US$ 251,500	

PART V: Legal Context

184. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of China and the United Nations Development Programme. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

185. The UNDP Resident Representative in China is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

a) Revision of, or addition to, any of the annexes to the Project Document;
b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and

d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

SECTION II : STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT

PART I : Incremental Cost Analysis

A. PROJECT BACKGROUND

186. China is one of the megadiverse countries of the world. All main crop species have a large number of cultivars or strains, and most of them have wild forms or relatives that are specific to China and widely distributed all over the country. Rice, wheat, and soybean are the main crops feeding the world, and their wild relatives are important for having rich genetic diversity and providing them with valuable genes to improve their yield, quality, and resistance to pest and disease. If the wild relatives of these crops were extinct, it would be a disaster to the world and bring uncompensated loss to human being. Now wild species in China are in a seriously threatened state because of destruction of habitat, over-exploitation of biodiversity, and pollution. *In-situ* conservation of wild relatives of main crops is a priority and a new field in China at present.

187. Typically, the sites holding wild relatives of food crops are small and often fragmented covering several to hundreds of hectares. They lie close to household farms, farming Co-operatives, wasteland, rural enterprises, forests, villages and communication routes. *In-situ* conservation for them is significantly different from natural reserves and other ecological systems. Besides environmental and ecological elements, social, economic and cultural factors are important and have to be considered during *in-situ* conservation of wild relatives of crops. Farmers' participation and benefit sharing are also crucial to the success of *in-situ* conservation.

188. Biodiversity in China has been recognised to be abundant in ecosystem level, species level and genetic level. Wild relatives of main crops, fruits, vegetables, medicinal plants are widely distributed in China and most of them are significant for sustainable development in both China and the world. The existing resources of finance and techniques are not enough to carry out *in-situ* conservation to them.

189. Therefore, in 1999, *China Agricultural Agenda 21* identified 20 candidate *in-situ* conservation sites with wild relatives of rice, soybean and wheat. The sites are across China and represent most climates, topographies, economies and cultures. Eight of these sites have been selected to be included in the project, and comprehensive in-situ strategies and systems will be formulated as a model for other sites and for conservation of other wild relatives.

190. The objectives of the full project aim at supporting Chinese Government's plans and programmes to conserve wild relatives by mainstreaming conservation into agricultural landscapes with participation from local communities and various stakeholders, so as to secure the wild relatives of soybean, wheat, and rice, including their natural habitats. In this regard, the full project is to bring about best international practices to China for biodiversity conservation and sustainable use.

B. INCREMENTAL COST AS SESSMENT

Baseline

191. Rice, soybean and wheat have wild relatives in China. China is one of the places of origin for rice (*Oryza sativa*). Wheat is cultivated almost all over China, and China is the main

region to sustain its wild relatives in the world. Soybean, *Glycine max*, which has about 20,000 cultivars or strains, originated and is widely distributed in China. In addition, wild soybean (*Glycine soja*) is widely distributed in China. Rice, wheat, and soybean are the main crops feeding the world, and their wild relatives are important for having rich genetic diversity and providing them with valuable genes to improve their yield, quality, and resistance to pest and disease. If the wild relatives of these crops were extinct, it would be a disaster to the world and bring uncompensated loss to human being. Now wild species in China are in a seriously threatened state because of destruction of habitat, over-exploitation of biodiversity, and pollution. Threats these wild relatives are complex, including the loss of land to expanding economic activities and intensification of agricultural systems. However, behind these direct threats lies a range of root causes for why important sites are not protected from threats. These root causes include:

- Local government favours short-term economic development measures.
- Institutional constraints to implementation of conservation regulations
- The agricultural extension system is based on promotion of new cultivars and new techniques
- The status of populations of wild relatives is obscure

192. Since 1950s, Chinese government has been focused on collection and conservation of both cultivated crops and their wild relatives. Two long-term genebanks and 20 mid-term genebanks were constructed to store collected germplasm resources. Until recently, 355,000 accessions of plant seeds have been safely conserved in the genebanks. Moreover, in order to conserve perennial plants and vegetative reproduction plants, 32 *ex-situ* conservation gardens were constructed and conserved 32,000 accessions. However, due to the limited financial resources, *in-situ* conservation has been emphasised only in recent years. Chinese central government and local governments have invested several millions of RMB to do *in-situ* conservation of wild rice and wild soybean. As the development of China's economy, more investments will absolutely be used for *in-situ* conservation.

193. Although the need for mainstreaming conservation into agricultural landscapes and systems has been recognized, a number of barriers have prevented effective mainstreaming to date. These include:

- Commitment to conservation at the central and local level remains incomplete
- Conservation of wild relatives is viewed as a financial cost, with no opportunity for financial gain
- A complex and incomplete legal framework prevents effective enforcement of regulations

Global Environmental Objective

194. The global environmental objective is to sustainably conserve the genetic diversity of wild relatives of major global food crops in China. This will contribute to the first objective of the CBD, namely conservation of biodiversity. However, the project also represents a major contribution to the third objective of the CBD, namely fair and equitable sharing of benefits arising form use of genetic resources. This objective has proven difficult to implement, but lessons and experiences developed through the project, will allow China to develop a national system of access and benefit sharing, which in turn will contribute to the effective implementation of an international system.

Alternative

195. Under the GEF Alternative, conservation of wild relatives will be effectively mainstreamed into agricultural systems and landscapes in China. This will be achieved through a number of Outcomes, some of which address threats, underlying causes, and barriers to mainstreaming at a local level, and others at a national level, combined with measures that the Government of China has already planned or is already implementing. Such measures include:

- Poverty elimination programmes. These programmes, operating in all national poverty areas, provide support for economic development through the provision of subsidies and technical assistance. These have the effect of easing farmers' reliance on low productivity agricultural land, thus reducing pressure to maximise production on stressed agricultural systems.
- Capacity development. The Ministry of Agriculture supports the development of capacity to administer laws and policies at the local level. For example, local level conservation bodies within County and Township Agricultural Bureaux are being created and trained through the efforts of the Ministry.
- Research and development. State and central level research institutions work with Agricultural Bureaux, and especially with extension services to improve the standard of technical support provided to farmers. Such institutions are also involved in breeding programmes, developing improved varieties with higher yields.

196. Supporting these interventions, the Outcomes of the GEF-funded project are:

1. Generation of sustainable financial or other incentives for conservation of wild relatives at the county level in eight provinces

197. This Outcome will work with stakeholders at the Township, County and Provincial level to develop incentive systems that are locally ecologically and socio-economically appropriate. The systems will establish financial or other benefits for farmers who conserve wild relatives, thus integrating conservation with economic development.

2. The policy, legal and regulatory system supports conservation of wild relatives

198. This Outcome applies at the national level, where the existing body of policies, laws and regulations will be reviewed and modifications secured as required to support mainstreaming of conservation of wild relatives.

3. Stakeholders at the central and local level have adequate capacity to conserve wild relatives

199. This Outcome will work with local stakeholders by building their capacity to address threats and their underlying causes directly. Activities under this Outcome will therefore be determined on the basis of the detailed analyses of threats and underlying causes that were undertaken for each site during the project preparatory phase.

4. Accurate and timely information concerning the status of wild relatives is available and utilized

200. This Outcome applies at the national level, and will extend the current capacity of China's national germplasm conservation system to be able to monitor the status of populations of wild relatives as a basis for priority setting. The monitoring system itself will depend on increased capacity of local stakeholders, especially County Agricultural Bureaux, to generate the necessary information for monitoring.

5. Lessons and experiences from target provinces create conditions for replication and expansion of conservation programmes

201. The final Outcome will ensure that lessons and experiences gained through the project, especially in relation to Outcomes 1 and 3, are extended to other locations with populations of wild relatives in China.

Systems Boundary

202. The geographic system boundary includes the whole of China. However, while contributing to increased capacity to conserve wild relatives in all of China, the project will focus interventions over a number of much smaller geographic areas. Eight sites have been selected (see Map 4 in Annex 1) in which many of the project activities will be undertaken. Due to the structure of governance in China, these sites are defined by County boundaries. Within Counties, agricultural development processes in different townships tend to follow common lines, as the County Agricultural Bureau is the government agency having authority over management of agricultural systems. However, provincial-level agencies such as research institutes and seed companies will also be engaged, such that project benefits will also accrues at the provincial level.

203. In terms of the temporal system boundary, the project will run for a period of 6 years, at the end of which time sustainable systems of conservation will have been demonstrated at all sites, and national capacity in terms of modifications to the regulatory framework and establishment of a national monitoring system will have been developed. The Goal of the project will be secured over a longer period, probably requiring an additional 5 years to achieve.

204. Thematically, the project addresses conservation of three major crop species. These species were selected both because of their national and global significance and because of the diversity of ecological and socio-economic conditions they encompass. In this way, the models developed through the project can be easily adapted and extended to a wide range of other crop species.

Summary of Costs

Incremental Cost Matrix

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
Domestic Benefits	• Economic development of poor, remote farming communities constrained by lack of income opportunities • Valuable arable land lost because of conservation approach involving taking land out of production in order to conserve.	• Mechanisms established to provide poor farmers with financial or other benefits from conservation of wild relatives • Additional area of arable land maintained in production, contributing to domestic food security • Experiences allow the development of a national system of access and benefit sharing which allows China to participate effectively in an international system • The potential for future gains in crop productivity is maintained	
Global Benefits	• Loss of globally significant genetic resources in the form of wild relatives of major global food crops, as well as "minor" crops, fruit trees and other domesticated plant species continues. • Efforts to conserve genetic resources by construction of physical barriers limits the areas and amount of genetic resources that can be conserved. • Future global food security in the face of global environmental change is challenged due to loss of potentially valuable genes for maintaining production in more marginal environmental conditions.	• A system for sustainable conservation of globally significant genetic diversity is demonstrated for three major crops, allowing expansion to other crops, and removing barriers to widespread conservation of populations of wild relatives • Future global food security improved through continued availability of genetic resources adapted to marginal environmental conditions, and therefore of significant value in adapting to global environmental change • A system of monitoring for conservation demonstrated	
<u>Costs</u> **Outcome 1:** Generation of sustainable financial and other incentives for	US$100,000 (few cases of incentive systems being developed)	US$9,100,000 (consisting of multi-stakeholder agreements at 8 sites, requiring substantial technical inputs and oversight)	US$9,000,000, of which: GEF: US$4,250,000 (for conservation of agrobiodiversity) MoA: US$1,780,000

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
conservation of wild relatives at the county level in eight provinces			Local government (cash and in kind): US$2,720,000 UNDP: US$250,000
Outcome 2: The policy, legal and regulatory system supports conservation of wild relatives	US$150,000 (consisting of regular MoA programmes to update and improve regulatory instruments, costed at US$25,000/yr)	US$ 1,350,000 (involving a multi-agency concerted effort to address all existing short-comings, and involving participation of the State Council, costed at US$225,000/yr)	US$1,200,000, of which: GEF: US$900,000 (for policy reforms supporting conservation of agrobiodiversity) MoA: US$200,000 UNDP: US$100,000
Outcome 3: Stakeholders at the central and local level have adequate capacity to conserve wild relatives	US$240,000 (consisting of regular MoA training of local staff, costed at US$10,000 per site per year)	US$3,300,000 (involving	US$3,060,000, of which: GEF: US$1,250,000 (for capacity building for conservation of agrobiodiversity) MoA: US$618,000 Local government (in kind): US$1,192,000
Outcome 4: Accurate and timely information concerning the status of wild relatives is available and utilized	US$30,000 (virtually no efforts at monitoring)	US$4,612,000 (involving a nationwide assessment of status, and establishment of monitoring system and associated capacity)	US$4,582,000, of which: GEF: US$270,000 (for monitoring of the status of globally significant agrobiodiversity) MoA: US$2,014,000 Local government (in kind): US$2,298,000
Outcome 5: Lessons and experiences from target provinces create conditions for replication and expansion of conservation programmes	US$60,000 (Only initial efforts to develop a national system)	US$2,910,000 (involving multi-stakeholder and multi-year learning through consultations, site visits, etc.)	US$ 2,850,000, of which: GEF: US$1,180,000 (for dissemination and replication of lessons related to conservation of globally significant agrobiodiversity) MoA: US$1,370,000 UNDP: US$300,000

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
Cost Totals	US$580,000	US$21,272,000	US$20,692,000, of which: GEF: US$7,850,000 MoA: US$5,982,000 Local government: US$6,210,000 UNDP: US$650,000

PART II : Logical Framework Analysis

Table 1: Objectively Verifiable Impact Indicators

Project Strategy	**Objectively verifiable indicators**				
Goal	The Goal of the project is to sustainably conserve wild relatives of crop plants in China				
	Indicator	*Baseline*	*Target*	**Sources of verification**	**Risks and Assumptions**
Objective of the project: To mainstream conservation of wild relatives of crop plants in agricultural production landscapes in eight provinces of China	1. In all target sites, the area occupied by wild relatives shows no decline at the mid-point and end of the project, compared with the area in 2005 2. At all target sites, at the mid-point and end of the project, no land on which populations of wild relatives occur has been taken out of agricultural production	1. Baseline values for each site are provided in Annex 2 2. At all sites no land has been taken out of agricultural production for the purposes of conservation	1. No decline from baseline values 2. At all sites no land has been taken out of agricultural production for the purposes of conservation	1. Annual or biennial field surveys 2. Field surveys, project reports	1. No external impacts affect persistence of wild relatives on target sites 2. Threats to populations of wild relatives are not so severe that emergency measures needs to be undertaken
Outcome 1: Generation of sustainable financial and other incentives for conservation of wild relatives at the county level in eight provinces	1. At the end of the project, farmers at the target sites in eight provinces with wild relatives growing on their land, report that they are receiving financial or other benefits for conserving wild relatives 2. At the mid-point of the project, the proportion of financial incentives paid to farmers at each site that originates from government or project funds is less than 40%; at the end of the project it is 0%[1/]	1. No farmers are receiving financial or other benefits 2. No farmers are receiving financial or other benefits	1. At each site, all farmers with wild relatives are receiving benefits 2. 40% at mid-point; 0% at end of project	1. Surveys and interviews of farmers 2. Project financial reports	1. Funds for farmers generated through incentive systems are not diverted to other uses 2. Fully sustainable sources for incentive system can be mobilized over 6 years, even if not possible in initial years
Outcome 2: The policy, legal and regulatory system supports conservation of wild relatives	1. At the end of the project, all identified legislative shortcomings have been resolved, or the process has been	1. Table x shows identified shortcomings	1. All shortcomings removed	1. Project reports and reports of State Council	1. All administrative organizations are willing to assign priority to removing constraints

	initiated. 2. At the end of the project, staff of provincial Departments of Agriculture and County Agricultural Bureaux report no cases where implementation of conservation activities was prevented due to legal or regulatory shortcomings	2. Staff at all sites report that enforcement of policies and regulations is prevented by legal and regulatory shortcomings	2. No incidents of enforcement of policies and regulations being prevented by legal and regulatory shortcomings are reported	2. Survey of, and interviews with staff of provincial Departments of Agriculture and County Agricultural Bureaux	2. Legal modifications can be achieved sufficiently quickly to permit improved enforcement
Outcome 3: Stakeholders at the central and local level have adequate capacity to conserve wild relatives	1. At the end of the project, threat reduction assessment at each target site indicates a reduction in threats of at least 80%. At the mid-point of the project, this figure is 30%. 2. At the end of the project, 75% of farmers at the project sites are actively conserving wild relatives. At the mid-point of the project, this figure is 40%	1. Initial TRAs to be conducted within the first 6 months of the project will establish baseline value 2. No farmers are actively conserving wild relatives	1. TRA index $\geq$ 80% at each site; mid-term value $\geq$30% 2. 75% of farmers at each site have modified their farming methods to promote conservation	1. Threat reduction assessments 2. Project reports; Surveys of, and interviews with farmers	1. Improvements in capacity can be achieved in time to generate measurable reductions in threats 2. Increased awareness leads to more effective conservation
Outcome 4: Accurate and timely information concerning the status of wild relatives is available and utilized	1. Within 2 years of the start of implementation, local and central level policy makers are able to describe the status of populations of wild relatives 2. By the end of the project, conservation work plans of the MoA are based on information generated by the information management system	1. No information on status of populations of wild relatives is available 2. Conservation work plans of the MoA are based only on requests from County Agricultural Bureaux	1. Information is available for at least 1600 populations 2. All decisions are based on priority setting determined by changes in status of populations of wild relatives	1. Examination of the information management system; project reports 2. MoA reports	1. Training of County Agricultural Bureaux staff is effective, and Country Agricultural Bureaux undertake surveys as part of their standard procedures. 2. Data generation and analysis occurs promptly
Outcome 5: Lessons and	1. By the end of the project,	1. No replication	1. 50 sites	1. MoA reports,	1. Project outcomes are

experiences from target provinces create conditions for replication and expansion of conservation programmes	parallel initiatives have been initiated in at least 50 additional sites. 2. By the end of the project, MoA and concerned agencies have integrated lessons from the project into agricultural development policy	2. Agricultural development policy includes only general principles related to conservation	2. Lessons from the project effect policy changes to provide specific guidance on conservation measures	project reports 2. MoA, SEPA policy papers	achieved and result in demand from other sites 2. Inter-agency coordination is effective

Note: 1/ Other than government funding for which guarantees of recurrent funding have been made

SECTION III : Total Budget and Workplan

1 Award Title: PIMS 2277/BD/FP

Project ID:

Project Title: Full Project/ Conservation and Sustainable Utilization of Wild Relatives of Crops

Executing Agency: NEX

GEF Outcome/Atlas Activity	Responsible Party (Implementing Agent)	Source of Funds	Amount (USD) Year 1	Amount (USD) Year 2	Amount (USD) Year 3	Amount (USD) Year 4	Amount (USD) Year 5	Amount (USD) Year 6	Total (USD)
OUTCOME 1: Generation of sustainable financial and other incentives for conservation of wild relatives at the county level in eight provinces	MOA	GEF	1275000	850,000	637,500	637,500	425,000	425,000	4,250,000
		Gov't	1350000	900,000	675,000	675,000	450,000	450,000	4,500,000
		UNDP	75000	50,000	37,500	37,500	25,000	25,000	250,000
			sub-total	1,800,000	1,350,000	1,350,000	900,000	900,000	9,000,000
OUTCOME 2: The policy, legal and regulatory system supports conservation of wild relatives	MOA	GEF	315000	225,000	135,000	90,000	90,000	45,000	900,000
		Gov't	70000	50,000	30,000	20,000	20,000	10,000	200,000
		UNDP	35000	25,000	15,000	10,000	10,000	5,000	100,000
			sub-total	300,000	180,000	120,000	120,000	60,000	1,200,000
OUTCOME 3: Stakeholders at the central and local level have adequate capacity to conserve wild relatives	MOA	GEF	125000	187,500	187,500	250,000	250,000	250,000	1,250,000
		Gov't	181000	271,500	271,500	362,000	362,000	362,000	1,810,000
		UNDP							
			sub-total	459,000	459,000	612,000	612,000	612,000	3,060,000
OUTCOME 4: Accurate and timely information concerning the status of wild relatives is available and utilized	MOA	GEF	67500	40,500	40,500	40,500	40,500	40,500	270,000
		Gov't	1078000	646,800	646,800	646,800	646,800	646,800	4,312,000
		UNDP							
			sub-total	687,300	687,300	687,300	687,300	687,300	4,582,000
OUTCOME 5: Lessons and experiences from target provinces create conditions for replication and expansion of conservation programmes	MOA	GEF	59000	88,500	295,000	206,500	206,500	324,500	1,180,000
		Gov't	68500	137,000	274,000	274,000	274,000	342,500	1,370,000
		UNDP	15000	30,000	60,000	60,000	60,000	75,000	300,000
			sub-total	255,500	629,000	540,500	540,500	742,000	2,850,000
			TOTAL	3,501,800	3,305,300	3,309,800	2,859,800	3,001,300	20,692,000

Note:

1. The GEF Outcomes should match the logical framework

2. The draft Annual Workplan (AWP) will be generated by the UNDP Country Office upon entry of the Total Budget and Workplan into Atlas and finalized - prior to signature of the project document - after a 5-day no objection review by the GEF Regional Coord

Summary of Funds:		
GEF	$	7,850,000
Gov't Cash	$	7,982,000
UNDP	$	650,000
Gov't In-kind	$	4,210,000

Notes:

1. The Annual WorkPlans (AWP) will be generated by UNDP Country Office (through ATLAS) after project final approval and Delegation of Authority, and prior to Project Document Signature, on the basis of information provided in this table. The AWP will be reviewed and approved at the first Inception Workshop.

SECTION IV : ADDITIONAL INFORMATION

PART I : Other agreements

205. Endorsement letter : *Please see separate file.*

PART II : Terms of References for key project staff and main sub-contracts

[NOTE: To be added before requesting CEO endorsement.

PART III : Stakeholder Involvement Plan

206. Key stakeholders are the following:

1. The Ministry of Agriculture (MOA)

207. The Ministry of Agriculture is responsible for monitoring and administrating the wild relatives of crops except those in forests and precious wild trees all over the country. The Wild Plant Conservation Leading Group and the Wild Plant Examining and Approval Expert Committee were set up by MOA in 2002. Meanwhile, an administrative office was also established to be responsible for the daily work on the conservation of wild relatives of crops.

208. Under MOA, the Research and Monitoring Institute for Environmental Protection has established a monitoring network consisted with a main station at the national level and more than 700 sub-stations all over China for agricultural environment monitoring in different regions. The network also involves part of research in respect of wild relatives conservation.

209. At the provincial level, the Department of Agriculture in each province (Autonomous Region or Cities) has an environmental protection agency at present. At least 23 provinces (autonomous regions or cities) have already set up the relevant wild relatives conservation leading groups and administrative offices whose responsibility is to conserve wild relatives of crops in their own land area. However, their work on the conservation of wild relatives of crops should be accordance with MOA's objectives. Similarly, the Agricultural Bureau in each county also assigns a group of persons or some persons specifically to be responsible for the environmental protection and wild relatives conservation under the guidance from MOA or the provincial agricultural department. At the same time, the sections and responsibilities at provincial level and county level government concerning wild relatives conservation are flexible according to the actual situation of each region.

2. State Forestry Administration (SFA)

210. The State Forestry Administration is responsible for monitoring and management of wild plants in forests and precious wild trees outside the forests. The Forestry Department in each province has the protection division for wild animals and wild plants, which is responsible for the wild relatives conservation in forestry system. The Forestry Bureau in each county generally has one section for wild animals protection and one section for wild plants conservation.

3. State Environmental Protection Administration

211. The State Environmental Protection Administration is responsible for the coordination at the national level for biological diversities and the conservation of all biological resources. It organizes different government agencies to make plans and programs of biodiversity conservation as well as supervise the implement of the plans and legislations.

4. National Development and Reform Commission

212. Responsibilities of the National Development and Reform Commission involves arranging and programming of national funded projects concerning wild relatives conservation, participating in formulating of ecological construction programs along with harmonizing ecological constructions.

5. Ministry of Land and Resources

213. The Ministry of Land and Resources is responsible for programming, managing, protecting and reasonable utilization of the land resources.

6. Ministry of Science and Technology

214. The Ministry of Science and Technology is responsible for examining and approving critical technological projects such as conservation and sustainable utilization of wild crops.

7. National Management Office for Rural Development and Poverty Reduction

215. This management office is supervised directly by the state council. It's main responsibility is to find ways to make rural areas in China develop with the objectives of the central government and reduce the number of poor people. The relevant departments and bureaus are also established in provinces (autonomous regions or cities) and in poor counties. The three levels of management agencies for rural development and poverty reduction also play important roles in the conservation of wild relatives of crops by improving the living standards in rural areas.

8. China Wild Plant Conservation Association (CWPCA)

216. CWPCA is a non-governmental association which liaises with and organizes relevant stakeholders concerning issues such as wild relatives conservation, breeding, etc.

9. Chinese Academy of Sciences (CAS) and Chinese Academy of Agricultural Sciences (CAAS)

217. The CAS and the CAAS are institutions which are doing scientific research on wild relatives conservation and innovative utilization. They are engaged in biodiversity surveys, documentation, inventories, evaluations, conservations and utilizations. They also provide technical supports for local governments and farmers.

10. Farmers' Associations

218. In different rural areas, there are many different associations organized and consisted by farmers. For example, many villages or townships have established Farmers' Technical Associations, which organize their members to learn and exchange techniques from each other.

The following table summarizes the main activities undertaken during the PDF-B that involved consultations with stakeholders

Date	Purpose	Key Stakeholders	Key findings and Conclusions
28 September 2004	Inception workshop	- MoA - UNDP - CAAS - NGO's - GTZ - SEPA - Ministry of Finance - Ministry of Science and Technology - National Development and Reform Commission - IPGRI	• Central level stakeholders informed of project outline and process for project design • Feedback received on issues to be addressed. • Work plan agreed
27 December 2004	First consultation workshop	- GEF China Secretariat - UNDP - Ministry of Agriculture - State Forestry Administration - Provincial Departments of Wild Relatives Conservation - Chinese Academy of Agricultural Sciences	• The proposed work plan is considered to be feasible and logical. • Identified the existing problems/barriers on wild relatives conservation. • Tasks for subcontractor is clarified.
3 March 2005	Revision of the investigation questionnaires	1. - Chinese Academy of Agricultural Sciences - Ministry of Agriculture - China Agricultural University - Agricultural Bank of China	• Confirmed the need for establishment of long-term conservation mechanism. • The questionnaire should be able to reveal farmers' interest in terms of conservation mechanism including financing and compensation. • The questionnaire should be made understandable for farmers.
March – May 2005	Site visits and surveys	- Farmers - Township Councils - County Agricultural Bureaux	• Confirmed status of wild populations and nature of threats • Confirmed willingness of local stakeholders to participate in project • Secured ideas and identified concerns of local stakeholders
26 May 2005	Workshop of possible mechanisms to be set up for the wild relatives conservation	2. - Chinese Academy of Agricultural Sciences - Provincial and local departments of wild relatives conservation	• The conservative awareness of farmers need to be enhanced, thus education and training need to be done. • Wild relatives conservation is unlikely to be realized solely by government funding • Incentive mechanisms are needed.
2 June 2005	Second consultation workshop	- GEF China Secretariat - UNDP - Ministry of Agriculture 3. - Chinese Academy of Agricultural Sciences - Provincial and local departments of wild relatives	• Sufficient analyses need to be made before ABS is committed. • Benefit from ABS mechanism may not be seen in near future. It's time consuming. • ABS could be one of the objectives, but not the only objectives

		conservation	• The monitoring system need to be established • The implementing process cannot be realized without the involvement of legal personnel. • Ways to harmonize conservation and utilization need to be found out.

219. Some stakeholders at the national level will be included into the Central Steering Committee, responsible for making work plans, reviewing progress and supervising the project activities. SEPA will ensure the project activities to be accordance with the national priorities and coordinate among the government agencies; NDRC will make domestic plans related to biodiversity conservation; MOLR will cooperate to resolve the problems of land uses about the wild relatives habitats; MOST will be responsible for establishing research projects to give the project technical supports; The State Council Leading Group Office of Poverty Alleviation and Development will also provide advices from the experiences obtained during the work in rural areas. Some stakeholders such as CAAS, CWPCA etc. will give the project technical supports or participate in the project activities directly. And the other stakeholders at provincial and county level will take part in the project either by providing supports for the project management or carrying out the activities directly or indirectly.

Part IV: Information on the BD2 Tracking Tool

I. Project General Information

1. Project name: Conservation and Sustainable Utilization of Wild Relatives of Crops

2. Country: China

National Project:___X____ Regional Project:_____ Global Project:_____

3. NAME OF REVIEWERS COMPLETING TRACKING TOOL AND COMPLETION DATES:

	Name	Title	Agency
Work Program Inclusion	Mr. Fang Fang	Director, BD Project Development Office	Ministry of Agriculture
Project Mid-term			
Final Evaluation/project completion			

4. Funding information

GEF support:__US$8M (estimated)_
Co-financing:__US$14M (estimated)
Total Funding:_US$22M (estimated)

5. Project duration: ***Planned***___6___ years ***Actual*** _____ years

6. a. GEF Agency: X UNDP UNEP World Bank ADB AfDB IADB EBRD FAO IFAD UNIDO

6. b. Lead Project Executing Agency (ies): Ministry of Agriculture

7. GEF Operational Program:
drylands (OP 1)
coastal, marine, freshwater (OP 2)
forests (OP 3)
mountains (OP 4)
X agro-biodiversity (OP 13)
integrated ecosystem management (OP 12)
sustainable land management (OP 15)

Other Operational Program not listed above:_____

8. Project Summary (one paragraph):
Wild relatives of rice, soybean, and wheat are significant for sustainable development in both China and the world. The *China Agricultural Agenda 21* (1999) identified a large number of

important *in-situ* conservation sites but, because of capacity and financial constraints, threats still exist at most sites. Initial urgent conservation measures have involved non-sustainable approaches, including the construction of physical barriers and removal of land from production. This project will eliminate barriers to the mainstreaming of conservation of wild relatives within the agricultural sector, thus promoting integration of conservation and production, and ensuring that the global environmental benefits secured thereby are sustainable. The project will involve participation from local stakeholders in eight diverse provinces and autonomous regions to secure conservation of wild relatives of soybean, wheat, and rice, in their natural habitats. This will be achieved through a combination of actions aimed at establishing sustainable sources of financial and other incentives for conservation, modification to the legal framework, capacity building and awareness raising.

9. Project Development Objective:
To sustainably conserve wild relatives of crop plants in China

10. Project Purpose/Immediate Objective:
To mainstream conservation of wild relatives of crop plants in agricultural production landscapes in eight provinces of China

11. Expected Outcomes (GEF-related):

Outcome 1: Model systems generating sustainable financial and other incentives for conservation of wild relatives are established in eight provinces
Outcome 2: The policy, legal and regulatory system supports mainstreaming of conservation of wild relatives
Outcome 3: Stakeholders at the central and local level have adequate capacity to conserve wild relatives
Outcome 4: A monitoring system generates accurate and timely information concerning the status of wild relatives
Outcome 5: A process to develop a national ABS system incorporates lessons and experiences from target provinces

12. Production sectors and/or ecosystem services directly targeted by project:

12. a. Please identify the main production sectors involved in the project. Please put "**P**" for sectors that are primarily and directly targeted by the project, and "**S**" for those that are secondary or incidentally affected by the project.

Agriculture__P_____
Fisheries_____
Forestry_____
Tourism_____
Mining_____
Oil_____
Transportation_____
Other (please specify)_____

12. b. For projects that are targeting the conservation or sustainable use of ecosystems goods and services, please specify the goods or services that are being targeted, for example, water, genetic resources, recreational, etc

1. _____
2. _____
3. _____
4. _____

II. Project Landscape/Seascape Coverage

13. a. What is the extent (in hectares) of the landscape or seascape where the project will directly or indirectly contribute to biodiversity conservation or sustainable use of its components?

Targets and Timeframe **Project Coverage**	**Foreseen at project start**	**Achievement at Mid-term Evaluation of Project**	**Achievement at Final Evaluation of Project**
Landscape/seascape area directly covered by the project (ha)	360ha		
Landscape/seascape area indirectly covered by the project (ha)	5000ha		

13. b. Are there Protected Areas within the landscape/seascape covered by the project? If so, names these PAs, their IUCN or national PA category, and their extent in hectares

	Name of Protected Areas	**IUCN and/or national category of PA**	**Extent in hectares of PA**
1.	No official PA's; small areas of wild relatives have been fenced by MoA	N/A	< 20ha

Explanation for indirect coverage numbers

_____
_____
_____
_____
_____

III. Management Practices Applied

14.a. Within the scope and objectives of the project, please identify in the table below the management practices employed by project beneficiaries that integrate biodiversity considerations and the area of coverage of these management practices?

Targets and Timeframe **Specific management practices that integrate BD**	**Area of coverage foreseen at start of project**	**Achievement at Mid-term Evaluation of Project**	**Achievement at Final Evaluation of Project**
1. Farmers avoid agricultural practices that could impact wild relatives negatively	120,000 hectares		
2.			
3…			

14. b. Is the project promoting the conservation and sustainable use of wild species or landraces?
_X_Yes ____ No

If yes, please list the wild species (WS) or landraces (L):

Species (*Genus sp.*, and common name)	Wild Species (please check if this is a wild species)	Landrace (please check if this is a landrace)
1. *Oryza rufipogon*, Red rice	X	
2. *Oryza officinalis*, Wild rice or Red rice	X	
3. *Soya glycine* spp., Soybean	X	
4. *Agropyron mongolicum* Mongolian wheatgrass	X	
5. *Eremopyrum orientale* Oriental false wheatgrass	X	

14. c. For the species identified above, ***or other target species of the project not included in the list above (E.g., domesticated species)***, please list the species, check the boxes as appropriate regarding the application of a certification system, and identify the certification system being used in the project, if any. An example is provided in the table below.

Certification Species	A certification system is being used	A certification system will be used	Name of certification system if being used	A certification system will not be used
1. *Oryza rufipogon*, Red rice				X
2. *Oryza officinalis*, Wild rice or Red rice				X
3. *Soya glycine* spp., Soybean				X
4. *Agropyron mongolicum* Mongolian wheatgrass				X
5. *Eremopyrum orientale* Oriental false wheatgrass				X

14. d. Is carbon sequestration an objective of the project?

- **Yes** **X No**

If yes, the estimated amount of carbon sequestered is: _____

IV. Market Transformation and Mainstreaming Biodiversity

15. a. For those projects that have identified market transformation as a project objective, please describe the project's ability to integrate biodiversity considerations into the mainstream economy by measuring the market changes to which the project contributed.

Name of the market that	**Unit of measure of market impact**	**Market condition**	**Market condition**	**Market condition at**

the project seeks to affect (sector and sub-sector)		**at the start of the project**	**at midterm evaluation of project**	**final evaluation of the project**
N/A				

15. b. Please also note which (if any) market changes were directly caused by the project.

_____
_____
_____

V. Improved Livelihoods

16. For those projects that have identified improving the livelihoods of a beneficiary population based on sustainable use /harvesting as a project objective, please list the targets identified in the logframe and record progress at the mid-term and final evaluation.

Improved Livelihood Measure	**Number of targeted beneficiaries (if known)**	**Please identify local or indigenous communities project is working with**	**Improvement Foreseen at project start**	**Achievement at Mid-term Evaluation of Project**	**Achievement at Final Evaluation of Project**
1.					
2.					
3…					

VI. Project Replication Strategy

17. a . Does the project specify budget, activities, and outputs for implementing the replication strategy? Yes_X__ No___

17. b. Is the replication strategy promoting incentive measures & instruments (e.g. trust funds, payments for environmental services, certification) within and beyond project boundaries? Yes_X__ No___

If yes, please list the incentive measures or instruments being promoted:
A site-specific selection from among:

- Linkage of conservation to provision of technical services.
- Commericialization of products.
- Use of credit mechanisms.
- Access and benefit sharing.

_____

17. c. For all projects, please complete box below. Two examples are provided.

Replication Quantification Measure	Replication Target Foreseen at project start	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
1. Number of Counties seeking to replicate project experiences	50		

VII. Enabling Environment

For those projects that have identified addressing policy, legislation, regulations, and their implementation as project objectives, please complete the following series of questions *:* 18a, 18b, 18c.

An example for a project that focused on the agriculture sector is provided in 18 a, b, and c.

18. a. Please complete this table at **work program inclusion for each sector** that is a primary or a secondary focus of the project.
Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector **Statement: Please answer YES or NO for each sector that is a focus of the project.**	**Agriculture**	**Fisheries**	**Forestry**	**Tourism**	**Other (please specify)**	**Other (please specify)**
Biodiversity considerations are mentioned in sector policy	YES					
Biodiversity considerations are mentioned in sector policy through specific legislation	YES					
Regulations are in place to implement the legislation	NO					
The regulations are under implementation	NO					
The implementation of regulations is enforced	NO					
Enforcement of regulations is monitored	NO					

18. b . Please complete this table at **the project mid-term for each sector** that is a primary or a secondary focus of the project.
Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector **Statement: Please answer YES or NO for each sector that is a focus of the project.**	**Agriculture**	**Fisheries**	**Forestry**	**Tourism**	**Other (please specify)**	**Other (please specify)**
Biodiversity considerations are mentioned in sector policy						
Biodiversity considerations are mentioned in sector policy through specific legislation						
Regulations are in place to implement the legislation						
The regulations are under implementation						
The implementation of regulations is enforced						
Enforcement of regulations is monitored						

18. c. Please complete this table at **project closure for each sector** that is a primary or a secondary focus of the project.
Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector **Statement: Please answer YES or NO for each sector that is a focus of the project.**	**Agriculture**	**Fisheries**	**Forestry**	**Tourism**	**Other (please specify)**	**Other (please specify)**
Biodiversity considerations are mentioned in sector policy						
Biodiversity considerations are mentioned in sector policy through specific legislation						
Regulations are in place to implement the legislation						
The regulations are under implementation						
The implementation of regulations is enforced						
Enforcement of regulations is monitored						

All projects please complete this question at the project mid-term evaluation and at the final evaluation, if relevant:

18. d. Within the scope and objectives of the project, has the private sector undertaken voluntary measures to incorporate biodiversity considerations in production? If yes, please provide brief explanation and specifically mention the sectors involved.

_____
_____
_____
_____
_____

VIII. Mainstreaming biodiversity into the GEF Implementing Agencies' Programs

19. At each time juncture of the project (work program inclusion, mid-term evaluation, and final evaluation), please check the box that depicts the status of mainstreaming biodiversity through the implementation of this project with on-going GEF Implementing Agencies' development assistance, sector, lending, or other technical assistance programs.

Time Frame **Status of Mainstreaming**	**Work Program Inclusion**	**Mid-Term Evaluation**	**Final Evaluation**
The project is not linked to IA development assistance, sector, lending programs, or other technical assistance programs.			
The project is indirectly linked to IAs development assistance, sector, lending programs or other technical assistance programs.	YES		
The project has direct links to IAs development assistance, sector, lending programs or other technical assistance programs.			
The project is demonstrating strong and sustained complementarity with on-going planned programs.			

IX. Other Impacts

20. Please briefly summarize other impacts that the project has had on mainstreaming biodiversity that have not been recorded above.

_____
_____
_____
_____
_____

Part V References & Annexes

Please see separate file

SIGNATURE PAGE

Country: China

UNDAF Outcome(s)/Indicator(s):

- Percentage of ministry officials who know relevant conventions to which China is a signatory
- Per capita food availability according to international nutritional standards
- Percentage of land which is arable by province

Expected Outcome(s)/Indicator (s):
_____
(CP outcomes linked t the SRF/MYFF goal and service line)
_____

Expected Output(s)/Indicator(s):
_____
(CP outcomes linked t the SRF/MYFF goal and service line)
_____

Implementing partner: Ministry of Agriculture

Other Partners: Chinese Academy of Agricultural Sciences

Programme Period: 2006-2010
Programme Component: Sustainable energy and the environment
Project Title: Conservation and Sustainable Utilization of Wild Relatives of Crops
Project ID: _____
Project Duration: 6 years
Management Arrangement: NEX

	USD
Total budget:	**20,898,000**
• UNDP/GEF (proj.)	7,850,000
• UNDP/GEF (PDF-B)	206,000
Sub-total GEF	8,056,000
Co-financing:	
• UNDP	650,000
• Government(MOA)	5,982,000
• Local government (in-kind)	6,210,000
Sub-total Co-financing	12,842,000

Agreed by (Ministry of Finance): _____
Agreed by (Ministry of Agriculture):_____
Agreed by (UNDP):_____