PROJECT BRIEF

1. Identifiers

Project Title:	*In situ* Conservation of Kazakhstan's Mountain Agro-biodiversity
Project PIMS No:	1278
Duration:	6 years
GEF IA:	United Nations Development Programme
Executing Agency:	Ministry of Environmental Protection (MEP) / Forestry, Fishery and Hunting Committee of the Ministry of Agriculture (MA)
Requesting Country:	Republic of Kazakhstan
Eligibility:	CBD ratified - September 1994. Notification of Participation in GEF - March 1998
GEF Focal Areas:	Biodiversity
GEF-OP:	OP 13: Agro-biodiversity

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2. Summary:

The objective of this project is the *in situ* conservation and sustainable use of biological diversity of global importance to agriculture in two sites in Kazakhstan's Tien Shan Mountains. Upon successful completion of the project, stakeholders will be devising innovative and adaptive conservation and ecosystem-based management practices to mitigate and prevent threats to wild apple and other fruit habitats by applying new partnerships, conservation tools, information, and sustainable livelihoods to mitigate persistent threats.

Stretching East-West along the border with Kyrgyzstan and China, Kazakhstan's Tien Shan mountain region is characterized by dramatic elevational gradients and myriad micro-climates and habitat niches, which in turn make the region one of the world's most important centers of crop and plant genetic diversity, and the center of origin for the world's cultivated apples. The project will target Tien Shan mountain fruit forests harboring globally unique apple, apricot, and other wild plant varieties for *in situ* conservation of their genetic diversity. Two priority sites, one in the Zailiyskiy Alatau and one in the Dzhungar Alatau mountainous regions of southeastern Kazakhstan, will be the focus of on-the-ground activities.

GEF support will secure the global benefits of conserving mountain agro-biodiversity of actual and potential value for food and agriculture. Strategic measures at each site include the development of integrated and collaborative management, enhanced technical and institutional capacity for agro-biodiversity conservation, an adequate legal and regulatory framework, and improved awareness at all levels on agro-biodiversity values. Kazakh and international partner co-financing provides the crucial foundation for GEF's incremental investment by enhancing the sustainability of the existing economic development baseline. Co-financing will empower local stakeholders to develop alternatives to existing destructive livelihood practices that involve biodiversity management within the productive sectors of the economy and promote long-term

sustainability by addressing the underlying causes of biodiversity loss and enhancing ecosystem structure and function.

Maintaining wild mountain agrobiodiversity germplasm *in situ* is more cost-effective than *ex situ* conservation and will allow for the continued evolution of resistances and adaptations. Global environmental benefits include significant option and insurance values, existence values, and direct-use values. For global agriculture, this genetic diversity preserves options to rebuild, preserve, or augment the genetic vitality of domestic varieties. It also serves as a global insurance policy against catastrophic disease by providing the genetic potential to thrive in future environments. With this safety net in place, managers and policymakers have additional time to uncover as yet unknown global benefits in a manner that is consistent with the precautionary principle.

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3. Costs and Financing (US$):

GEF:	
Project	$2,770,000
PDF A	22,000
PDF B	$230,967
Sub-total GEF:	**$3,022,967**
Co-financing:	
Government of Kazakhstan - MNREP	$2,487,000
Almaty Oblast Akhimat	$300,000
Baldyrgan	$960,000
Jibek Joly	$800,000
Agroinprof-service	$108,000
Kazakhstan Community Loan Fund	$70,000
Green Salvation	$18,000
Farmer of Kazakhstan	$16,200
ACDI/VOCA Farmer to Farmer	$30,000
Sub-total co-financing:	**$4,789,200**
Total Project Cost:	**$7,812,167**

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4. Associated (Baseline) Financing: $1,575,435
GEF Alternative Total (including PDF-A,B): $9,387,602

5. Operational Focal Point Endorsement (see Annex XIII):
Aitkul Samakova, Minister, Ministry of Environmental Protection
Date of endorsement: 28 Feb 2003.

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Full Project Brief Acronyms

ABD	Agro-biodiversity
ALRM	Agency on Land Resources Management
ASNR	Almaty State Nature Reserve
CBD	Convention on Biological Diversity
CITES	Convention on International Trade of Endangered Species
CIDA	Canadian International Development Agency
EBRD	European Bank for Reconstruction and Development
FFHC	Forestry, Fishery, and Hunting Committee of the Ministry of Agriculture
GEF	Global Environment Facility
GoK	Government of Kazakhstan
IANNP	Ile-Alatau National Natural Park
IPGRI	International Plant Genetic Resources Institute
IUCN	International Union for the Conservation of Nature
KAS	Kazakhstan Academy of Sciences
KCAZS	Kazakhstan Central Asian Zoological Society
KCNP	Kazakhstan Society of Nature Protection
KHFU	Kazakh Hunters and Fishers Union
LEP	Law on Environmental Protection
MABD	Mountain Agro-biodiversity
MES	Ministry of Education and Science
MoA	Ministry of Agriculture
MEP	Ministry of Environmental Protection
NGOs	Non-governmental Organization
NPs	National Parks
NPAEP	National Plan of Action on Environmental Protection
NPC	National Project Coordinator
NPM	National Project Manager
NPSC	National Project Steering Committee
NSAPCSUBD	National Strategy & Action Plan on Conservation & Sustainable Use of Biodiversity
PDF-B	Project Development Facility, Block B (GEF project development grant)
PIU	Project Implementation Unit
RK	Republic of Kazakhstan
SEG	Site Expert Group
SMC	Site Management Committee
SPA	Specially Protected Area
SPNT	System of Protected Natural Territories
SPSS	Specially Protected Seed Sites
TACIS	Technical Assistance for CIS (program of European Union)
UNDP	United Nations Development Programme

PROJECT BACKGROUND AND CONTEXT

Environmental Context

The Republic of Kazakhstan is situated in Central Asia and covers 2.72 million km^2, making it the ninth largest country in the world by area. It borders Russia to the north, China to the east, and Kyrgyzstan, Turkmenistan and Uzbekistan to the south. Approximately 10% of Kazakhstan consists of mountains. These include part of the Altai mountain system in the northeast, and the Karatau, Northern and Western Tien-Shan, Zailiyskiy and Dzhungar Alatau, Tarbagatai, and Saur mountain ranges situated in the south and southeast.

Famed Russian researcher and geneticist N. Vavilov identified nine basic centers of origin for cultivated plants worldwide, among them Central Asia. Kazakhstan's diverse landscape, with a variety of soils, climate and bio-geographical diversity, has made the country a globally important locale of agro-biodiversity (ABD), and especially mountain agro-biodiversity (MABD). The mountains of southern Kazakhstan are characterized by highly diverse climatic belts, which support a wide range of species and forms of mountain agro-biodiversity. As a result, they are the most important center of this diversity, and harbor the genetic base for numerous traditional fruit crops, including all cultivated varieties of apples and apricots. At least 148 different plant species related to 24 agricultural varieties are concentrated in these mountains, constituting more than 75% of Kazakhstan's total agro-biodiversity.

Effective *in situ* conservation is a critical component to the long-term conservation of ABD resources in Kazakhstan. Many diverse genotypes can be conserved at a much lower cost than is possible in *ex situ* conservation programs. In addition, maintaining wild germplasm *in situ* allows for continued natural genetic recombination and the ongoing evolution of resistances and adaptations to climatic conditions, pests, diseases, and other environmental factors.

Kazakhstan is the world's center of wild apple biodiversity, fitting for a nation whose largest city, Almaty, signifies "place of the apples". It is believed by scientists that the cultivated apple (*Malus domestica*) arose in the Tien Shan mountains of Kazakhstan and China from the wild apple (*Malus sieversii*), which has many of the characteristics (size, color, sweetness) valued by growers. Environmental conditions in the region are so favorable that whole valleys are forested with apple trees, while varied microclimates and ecological niches allow for intense diversification of wild varieties. In addition, one theory postulates that selection and distribution of the largest and sweetest fruits by bears was a key factor in producing desirable apple varieties (highlighting the importance of integrated ecosystem functioning and conservation). Eventually, human influence became an important factor, and it is believed that travelers along the famous Silk Road carried apple seeds westward to spread throughout the Middle East, Europe, and beyond, where new varieties adapted to local environments. Nevertheless, rare genes and genotypes, and the continued origination and diversification of new apple varieties in nature, remain concentrated in the remnant wild fruit forests of Central Asia.

Project Site Selection: The project sites were selected at a seminar held in Almaty in November 2000 attended by relevant governmental agencies, forestry departments and SPA staff, and scientific and public organizations. The project focuses on two sites in southern Kazakhstan selected on the basis of the following criteria:

a) high concentrations of mountain agro-biodiversity (apple, apricot, others);
b) degree of threats and probability of success in addressing them; and
c) maximum demonstration value of project results in addressing the range of threats to ABD

Using these criteria, project proponents found that two sites, the Zailiyskiy and Dzhungar Alatau mountain ranges in southeast Kazakhstan, were the most important of Kazakhstan's mountain areas for the conservation of agro-biodiversity (see Annex IV – Map of Central Asia and Map of Southeast Kazakhstan). In both areas, apple-dominated forests support a wide range of species and forms of mountain agro-biodiversity. The project sites selected within these two regions together harbor 87 varieties of plants that constitute 43% of the identified native agro-biodiversity of Kazakhstan (see Annex IX). Areas of high mountain agro-biodiversity in both regions are located within existing protected areas and are surrounded by natural forests.

In both the Zailiyskiy and Dzhungar Alatau areas, significant areas of wild fruit forests were allocated in the past to collective farms. These farms harvested the forests intensively, and gave insufficient attention to protection, balanced use, or reforestation efforts. As a result, natural forest areas diminished in size and forest conditions generally deteriorated. After the decline of the collective farm system in the early 1990s, many of the wild fruit forests were transferred over to state forestry reserves, while other areas were assigned to national parks. In all cases, a lack of resources prevented restoration and improvement activities. In addition, some wild fruit forests remain on private farms, while others are found on the properties of sanatoriums, tourism lodges, sports complexes, and dachas, where they receive no protection and are subject to often intense human impacts.

In both project areas, project activities will concentrate primarily on wild fruit forests located in a continuous band (1,300 hectares in Zailiskiy Alatau, 3,800 hectares in Dzhungar Alatau) within established protected areas (national parks and state forestry reserves). In addition, however, conservation and protection activities will also take place in surrounding forests and agricultural lands within protected areas, as well as on private agricultural lands. Establishment of buffer zones around the wild fruit forests will play a key ecological role in preventing genetic drift from domestic fruit trees to wild cultivars and in limiting the threat of anthropogenic fire. Large intact forest ecosystems that extend beyond the boundaries of the wild fruit forests are also critical as habitat for animal species that interact with ABD resources.

Zailiyskiy Alatau Project Area: In the Zailiyskiy Alatau Mountains, the project will focus on the apple-apricot forests situated in the eastern part of the Ile-Alatau National Natural Park (IANNP). Established in 1996, the IANNP stretches for 120 km along the mountain range located just south of Almaty. The park encompasses five major vegetation zones including: grassland steppe, deciduous forest, coniferous forest, alpine, and glacial. The highest mountains within the park reach 4500-5000 meters, but the principal focus of the project, and a distinctive feature of Ile Alatau, is the belt of foothills that forms two plateaus (between 1000-1300 m and 1500-2000 m) where most of the 1,300 hectares of wild fruit forests found in the region are concentrated.

Within the IANNP, the project will operate in the Talgar and Turgen regions, two of the four administrative areas of the park that cover 934 sq. km. of the park's total area of 1,645 sq. km. (see Annex IV, Map of Zailiyskiy Site). These areas of the park have been less impacted by development activities, and harbor the most important remaining wild fruit forests and protected seed sites (see Annex IV, Map of Zailiyskiy Forests). Because effective conservation of wild fruit forests requires protection of the surrounding landscape, project interventions will take place throughout these areas of the IANNP, as well as within the 75 sq. km. of the Almaty State Nature Reserve, which is surrounded on three sides by IANNP, and in 371 km^2 of adjacent productive landscape. Thus, the project will address management of this whole area, but with particular focus on priority sites for ABD both within and adjacent to the NP.

Dzhungar Alatau Project Area: In the Dzhungar Alatau Mountains, the project will operate in the Lepsinsk (Alakol district) and Topolyovsk (Sarkandsk district) apple forests located on the north-facing slopes of the range. The Dzhungar Alatau represents an important transitional zone between the Altai and Tien Shan ecosystems (for example, the southern border of the Siberian fir (*Abias sibirica*) passes through the northern slope of the area, while the northern border of *Celtis caucasica* passes through the southern slopes). A high level of solar insulation, sharp and frequent temperature fluctuations, and heavy snowfall in the mountain areas characterize the climate of the area. The agro-biodiversity in Dzhungar Alatau is mainly centered in the forest-meadow-steppe zone, an area of low mountain landscapes with gently rising slopes with approximately 3,800 hectares of wild apple forests.

Currently, this area is formally protected by two forestry reserves (Lepsinskiy and Sarkandskiy), both of which allow a wide range of potentially exploitative and destructive practices. In 2000, GoK conservation agencies, with the support of the Almaty Regional Akhimat, made a decision to design and establish the "Dzhungar National Park" covering 200,000 hectares. In 2001, a feasibility study for the park was initiated, and the GoK has committed itself to the actual establishment of the national park in 2003, predicated on leveraging GEF assistance through the proposed project. When established, the park will encompass the majority of the wild fruit forests and all of the specially protected seed sites in the region (see Annex IV - Map of Dzhungar Forests). The proposed project interventions will focus on these critical areas, but will also encompass management of the newly established park and remaining forest reserves (totaling 510 km^2), as well as 730 km^2 in adjacent productive land (see Annex IV, Map of Dzhungar Site).

Specially Protected Seed Sites: Within the two project areas, 11 specially protected seed sites together encompass some of the most important genetic repositories of wild apple and apricot varieties. These areas are managed and protected by the FFHC and utilized by research institutes, both as repositories of genetically pure wild seeds (protected from cultivated apple orchards), and as the source of new varieties for testing as agricultural crops. Seven of these sites are located in Ile-Alatau National Park, and together cover a total of 1,037 hectares (see Annex IV, Map of Zailiyskiy Forests). There are also four seed sites totaling 609 hectares in Dzhungar Alatau (see Annex IV - Map of Dzhungar Forests). In each of these sites, large enough areas of forest remain for genetic viability and forest regeneration, but increased protection measures and scientific research are needed.

Biodiversity: Together, the wild fruit forests of the Zailiyskiy and Dzhungar mountains harbor a full range of wild apple morphological variation, thought to be the greatest apple diversity globally. At least 95 varieties exist in these forests, and apple trees up to 300 years old have been identified. Research on wild apple varieties in the project sites has identified diversity for disease resistance, ability to withstand cold, and commercial attributes such as sweetness and size, all valuable characteristics for apple farmers globally. This diversity stands in stark contrast to commercial apple varieties, which have declined from at least 7,000 local/regional types of commercial cultivars early in the last century to a situation today where most of the world's commercial apple production is based on just two cultivars.

In addition to the unique apple diversity found in Kazakhstan, other species of globally significant agro-biodiversity occur in the same mountain forest ecosystems. Approximately 50 varieties of apricot (*Armeniaca vulgaris*) are found in scattered and threatened populations in the mountains of Kazakhstan, with 44 varieties found in the Zailiskiy Alatau Mountains alone.[1] Wild relatives of domesticated plants found here include gooseberry (1 species), sallow-thorn (1 species), grape (1 species), currant (6 species), onion and garlic (more than 40 species), lucerne (7 species) and hops (1 species), as do 15 cultivated

[1] Analysis of genetic threat and development of actions on stabilization of agrobiodiversity populations in Zailiyskiy and Dzhungar Alatau, Genofund of plants, Institute of Botany and Phytointroduction, Almaty, 2000.

varieties of buckthorn (*Hippophae rhamnoides*), including some rare varieties without thorns. Wild relatives of domestic tulip, the basis for most cultivated species of tulip, including the famous Dutch collections, are represented by over 32 species, 10 of which are endemic. Despite the global importance of the mountain agro-biodiversity of Kazakhstan, its agricultural varieties have not been well studied, and none have yet been included on any internationally recognized lists of threatened or endangered biodiversity (e.g. IUCN or CITES). As a result of this lack of international attention and support, and Kazakhstan's own limited resources, it is highly likely that other wild varieties of cultivated plant species exist in Kazakhstan's mountains, but remain unknown to modern science.

Apart from agro-biodiversity, the two project sites also harbor other globally significant biodiversity. The project site in Zailiyskiy Alatau contains habitat for an extremely diverse flora and fauna, with approximately 1000 plant species (including 22-25 endemic species) and over 230 vertebrate animals. In Dzhungar Alatau, 2,168 species of native flora have been identified overall, and over 1,500 species within the proposed project areas. Between the two areas, approximately 36 plant species are under threat (1981 Red Book of Kazakhstan), including several species of mountain agro-biodiversity value: apple (*Malus sieversii*), apricot (*Armeniaca vulgaris*), Janczevskii currant (*Ribes janczevskii*), Kolpakovskii tulip, Ostrovskii tulip and late tulip (*Tulipa kolpakovskiana, T. Ostrovskiana* and *T. tada),* and onion *(Allium galantum)* (see Annex 9, Table 2). In addition, the area is home to rare mammals such as wild boar, roe deer, Siberian Ibex, moufflon sheep, mountain goats, and wolves, unusual birds such as bearded ptarmigan, black grouse, chukar partridge, and the bearded vulture, and an estimated 15 endangered animal species (1996 Red Book of Kazakhstan – Fauna only), including the Snow Leopard (See Annex IX, Table III).

For a more detailed description of the protected area system of Kazakhstan, please see Annex XVII: Overview of Protected Areas System in Kazakhstan.

Socio-Economic Context

Despite its large size, Kazakhstan has a population of only 15 million, the lowest population density (6.2 people/sq. km) in Central Asia. Kazakhstan's economy is based primarily on its natural resources, particularly oil, natural gas, and mineral resources. The country remains in transition from a centralized socialist system to a free-market system, although privatization has occurred throughout the economy, including the agrarian and agro-industrial sectors. Since 1997-1998, after years of steep declines in the economic, financial, and social sectors, human development indicators are improving.

Both the Zailiyskiy and Dzhungar Alatau areas are within the Almaty Oblast (region), which also includes the Almaty metropolitan area, Kazakhstan's largest urban center. The regional economy is based on manufacturing, financial services, and some agriculture, but local economies in the immediate areas of the project sites are dominated by agriculture, primarily vegetables, cereals, fruit and wine, and livestock. A small industrial base for food processing (fruit juices/purees, wine, cheese/butter), is present in each area, but these industries have been in steady decline since the transition from a socialist economy.

The Government of Kazakhstan's economic strategies for the resources of mountain wild fruit forests have changed focus several times over the last 50 years. From the 1940s through the 1960s, cultivated orchards and a fruit processing industry were developed, particularly in the Zailiyskiy Alatau Mountains, resulting in the clearance of natural fruit forests in favor of cultivated orchards. Numerous collective farms focused on fruit production, and the centrally planned system allowed a large fruit production industry to develop to support them. In addition, the demand created for fruit product promoted uncontrolled gathering of wild fruits, with frequent damage to wild fruit forests. A shift of focus in agricultural policy in the 1960s towards the production of tobacco, rice and corn resulted in the withdrawal of political support and

government funding for fruit cultivation, and an anti-alcohol campaign in the 1980s and early 1990s further reduced fruit cultivation, particularly for the local wine industry. Nevertheless, even at the time of independence, many of the areas now adjacent to SPAs belonged to large collective farms involved in fruit production, covering extensive areas and employing thousands of people.

Since independence, government policy has once again promoted the economic use of Kazakhstan's unique fruit resources in order to relieve the difficult socio-economic conditions of rural populations and to build a basis for long-term livelihoods. Kazakhstan's privatization program has promoted small business development in rural areas, the expansion of private farm holdings, and the development of fruit processing and other food-processing enterprises. However, these efforts have largely failed in mountain areas, and farms and businesses based on fruit and wine cultivation and processing have been in steady decline. Even today, the vast majority of Almaty's residents drink apple juice from concentrate imported from Turkey, while orchards surrounding the city are abandoned for lack of processing facilities for their products.

In both project areas, local economies rely heavily on the wild apple forest areas. These forests are the source of wood for local populations, and act as pasture areas for cattle. The meadow areas are highly productive hayfields and are used as summer pastures. The rich vegetation of both meadows and forests is a good basis for apiculture. Finally, farmer's fields at lower elevations are protected by the forests, which limit erosion and excessive evaporation of soil moisture.

In the Zailiyskiy Alatau area, local inhabitants are dependent on natural resources for personal consumption and economic activity. Fruit production from orchards and gardens, animal grazing, fuel wood, hay production, and gathering of wild berries, fruits, mushrooms and medicinal plants form an important part of the local economy. The total population within the project site, including farming communities adjacent to the IANNP, is estimated at 41,200, with an average yearly income of 137,000 tenge (US$895) per capita.

The area is also significantly impacted by its close proximity to Almaty, a city of 1.2 million people. Tourism and recreation is widespread in the park, with approximately 150,000 visitors annually, primarily on day trips from Almaty. During the years prior to the park's formal establishment, a large number of facilities were constructed within its boundaries, including two ski areas, a skating/recreation complex, lodges and restaurants, children's camps, power lines, and pipeline corridors. In addition, many city dwellers have built dachas (vacation homes) nearby and within the IANNP, and also gather local fruits, mushrooms and medicinal plants.

The Dzhungar Alatau area is much more remote, with a total population of 12,300 and no large urban areas in close proximity. The primary economic activity is also agriculture-based, and includes cattle and dairy farming, apple orchards, apiculture, and production of cereals, sugar beet, fodder crops, and medicinal plants. Despite a rich resource in the region, industry is generally very weak due to the long distances to any significant markets. However, several small natural resources processing facilities continue to operate, including a winery, a cheese manufacturing plant, a butter manufacturing plant, and a medicinal plants enterprise. Overall, this is a poor and underdeveloped region within the Almaty Oblast, with an average per capita income of only 108,000 tenge (US$709) per capita.

Institutional, Legislative and Policy Context

Kazakhstan's National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity (NSAPCSUBD) and National Environmental Action Plan (NEAP) both highlight the importance of

sustainable use of biodiversity resources, and the NBAP specifically prioritizes Kazakhstan's mountain agro-biodiversity and the *in situ* conservation of mountain wild fruit forests. In addition, various other government decrees and strategy documents of relevance to ABD have been developed[2].

Natural resources in Kazakhstan are managed by the Ministry of Environmental Protection (MEP), Ministry of Agriculture, the Agency on Land Resources Management (ALRM), and the Ministry for Energy and Mineral Resources. MEP is responsible for implementing Kazakhstan's environmental policy, for enforcing environmental conservation laws, for the country's protected areas, and for coordination of biodiversity conservation activities. MEP has the right to issue decisions in the field on environmental protection and use, to issue certain types of legal standards and decrees, to carry out ecological analysis of proposed projects and economic activity, and to coordinate the development and implementation of ecological projects. MEP is staffed by experts in various areas of conservation and natural resources management, and its Environmental Policy Department coordinates environmental projects preparation and monitors their activities.

Within the Ministry of Agriculture, the Forestry, Fishing, and Hunting Committee (FFHC) is responsible for all biodiversity management issues. In addition, the FFHC's Department of Protected Areas manages the system of specially protected areas (SPAs), which is organized under eleven different management designations, each emphasizing different management regimes depending upon purpose, level of protection, and other factors. The current protected areas system in Kazakhstan includes seven national parks, nine zapovedniki (strictly protected research reserves), 57 zakazniki (seasonal reserves/wildlife refuges), 26 natural monuments, five natural-reserve zones, three zoological parks, and seven botanical gardens.

Management of agro-biodiversity resources in general is the responsibility of the FFHC, with most activities concerning ABD resources within the SPA system. However, although conservation and management of ABD resources is regulated by the FFHC, even within SPAs local authorities have the right to grant permits for some economic activities and uses of natural resources, such as cattle grazing and hay harvesting. Thus, SPA administrative authorities must share control and regulation of human economic activities with regional and local-level akhimats (mayors), often with negative results for wild fruit forests and other ABD resources.

Kazakhstan's *ex situ* conservation programs include several GoK supported botanical gardens and seed banks. However, these institutions receive very little government funding and currently play only a minimal role in research or management activities. The Zhetysu Ormany and Karatal Ormany State Enterprises were established to protect and rehabilitate the wild fruit forests that were the sources of ABD resources, and to collect and process some agro-biodiversity resources (fruits, medicinal plants). Processing plants belonging to these enterprises have fallen into decline in the past 10 years, and no longer effectively operate. Recently these enterprises have been handed over from FFHC management to local executing bodies.

The Law of Kazakhstan on Environmental Protection is Kazakhstan's basic law on nature protection. It establishes general guidelines and management and control procedures for nature protection and the use of natural resources, including payments for natural resource use and the funding of nature protection

[2] A *Long-term Development Strategy to 2030 on the Increase of Forest Areas*; *Scientific Provision of Production, Processing and Storage of Agricultural Production within the regions of Kazakhstan for 2001–2005; Conservation, Development and Use of Genetic Fund of Agricultural Plants, Animals and Micro-organisms for 2001–2005; and Concept Paper of Development and Allocation of Specially Protected Natural Territories of Kazakhstan to 2030.*

activities. The Forest Code of Kazakhstan (1993), currently under revision, is a set of legislative provisions dealing with management, protection, rehabilitation and sustainable use of forest resources, all of which are under the ownership of the state. Under this code, mountain wild fruit forests are defined as a special protected category and measures are outlined for their special protection and use. The Law of Kazakhstan on Specially Protected Natural Territories (1997) establishes categories and types of specially protected natural territories, defines the general requirements to protect and use Specially Protected Areas (SPA), stipulates funding procedures, and addresses other issues.

Agricultural activities in Kazakhstan are governed by The Law of Kazakhstan on Land (2001), which defines land ownership and procedures for management, protection and use of land resources. This law also defines procedures for use of forestlands and specially protected natural territories for agricultural purposes. The Law of Kazakhstan on Farming (1998) sets out the procedures for establishing farms, rights of land-use, and guidelines on activities, rights and obligations. The Law of Kazakhstan on Taxes and Other Mandatory Payments to the Budget (2001) sets procedures for paying land taxes for the use of agricultural lands, state forestry lands, and specially protected natural territories, and defines procedures for tax calculation.

Threats to mountain agro-biodiversity and their root causes

Kazakhstan's mountain agro-biodiversity is concentrated in wild apple forests that are under severe threat. In the Zailiyskiy Alatau region, these forests have declined in area by 70% since 1960. Even the more remote Dzhungar Alatau forests have declined by 50% during the same period. The nature of these threats to mountain agro-biodiversity, and their underlying root causes, are outlined below.

Mountain agro-biodiversity habitat destruction: The most significant direct causes of ABD habitat destruction are all anthropogenic in origin. **Intensive cattle and goat grazing** within the forests destroys seedlings and impacts soil quality, reducing the ability of the forests to regenerate. **Fires** set by farmers to clear land and by livestock herders to promote the growth of grasses often go out of control and burn areas of the forests. **Forest clearance**, for the building of dachas and other infrastructure development (roads, lodges, camps), has decimated large areas of wild fruit forests, even within the IAANP and other SPAs. In the Zailiyskiy Alatau area, a **high number of human visitors** results in damage to forest plants and soils through off-road vehicle use, harvesting of local flora, and heavy foot traffic and garbage in popular visitor areas.

Over-harvesting: The decline in rural economies in Kazakhstan has increased the reliance of rural populations on natural resources, to the detriment of agro-biodiversity conservation goals. A majority of local residents surveyed during the PDF-B said that difficult economic conditions force them to **harvest** berries, fruits, mushrooms and herbs, for their own use and in some cases for cash income (wild apples are used in apple vinegar production, and medicinal plants are sold both locally and for export). These individuals also admitted to **cutting down trees** (including wild fruit trees) for home heating and construction uses, prompted in part by the increased price and unstable supply of natural gas.

Pest and disease: In addition to direct human impacts, wild fruit forests have been badly damaged by insect and disease infestations that weaken the ability of trees to recover from ordinary stresses. Natural cycles of infestation have always occurred in these forests, but these have been exacerbated in recent decades by several factors. **Habitat ideal for both insect breeding and disease development has increased greatly** in the form of monoculture apple orchards/gardens and areas of new forest growth caused by forest fires. The many private land users in areas adjacent to the SPAs have been unwitting transmitters of dangerous

diseases and harmful pests to natural ecosystems, for example an infestation of moths that damaged hawthorn, cherry and wild apple trees in the Dzhungar Alatau in 1998-99. Compounding this problem, management measures to eradicate insect breeding areas and combat actual infestations and disease outbreaks, as well as fire fighting activities, have all but ceased in the past decade due to funding constraints. As a result, areas of wild fruit forests severely infected by disease and insects have grown to approximately 8,000 hectares at the Dzhungar site and 2,000 hectares at the Ile Alatau site.

MABD genetic erosion and ecological competition from introduced species: Of all MABD species, the apple is most vulnerable to the threat of genetic erosion (although apricot is also vulnerable). A decline in the number of native varieties of wild apples is already under way, caused by the **consistent pollination of native trees by cultivated varieties** and the subsequent accumulation of cultivated genes within the wild varieties. This process reduces the resistance of native varieties to prevailing natural conditions and to the impact of pests and diseases, and reduces the ability of wild varieties to naturally regenerate. In Zailiyskiy and Dzhungarskiy Alatau, many local farms and dacha lands are located in territories adjacent to the SPAs, and buffer zones around natural apple tree populations where apple cultivation would be excluded do not exist. In addition, economic problems have prompted local residents and even some city dwellers to plant garden plots within and near wild fruit forests (including within SPAs) to grow basic food to supplement their diets. Cross-pollination from domestic varieties to wild varieties caused by this close proximity between farms/gardens and natural apple forests is one of the most important factors destabilizing agro-biodiversity ecosystems, leading to changes in the genetic structure of wild populations.

The process of genetic erosion of native apple varieties has been ongoing since the 1930s, when mountain orchards in the Zailiyskiy and Dzhungar Alataus were extensively developed, accompanied by the cutting of wild fruit forests. During the intervening decades, increases in the area of apple orchards and of dacha gardens with many cultivated varieties of apple trees in close proximity to native apple forests meant further genetic erosion of native varieties. In addition, the grafting of cultivated varieties onto native trees, and reforestation measures in wild apple forests that included the use of cultivated species from nurseries, have further threatened wild apple forests. Today, orchards and dacha gardens are located throughout both project areas and wild fruit forests have become limited to small and dispersed patches.

In addition, various **non-native species** (e.g. drupaceous berries) commonly found at dachas and commercial gardens spontaneously spread to adjacent forest territories and successfully crowd out native species. This problem is exacerbated by the fact that many old dachas and gardens have been abandoned in recent years, furthering the uncontrolled spread of non-native species. As a result, areas of non-native species, including gardens, now cover approximately 1,400 ha within the project area, primarily in the Zailiyskiy Alatau.

Underlying the direct threats to mountain agro-biodiversity is the **steady decline in socio-economic conditions in rural Kazakhstan** for over a decade. Rural inhabitants have little knowledge of how to take advantage of opportunities, or even protect their own interests, within the “free market” system that is emerging in Kazakhstan. Even many farmers with productive operations are unable to translate these into commercial successes by marketing and selling their product profitably. As a result, small local manufacturing and processing entities have shut down, and development activities in these regions have all but ceased. Today, rural communities largely rely on exploitation of local natural resources to meet their own consumption needs and to produce some earnings in the cash economy. These communities have intensified their use of traditional agricultural resources, and also have increased their use of resources in previously inaccessible areas (i.e. wild fruit forests). Local inhabitants see little reason not to exploit these “free” resources, particularly as neither they, nor the resource management agencies tasked with protecting wild fruit forests, have a good understanding of MABD values and their potential sustainable economic

uses, or of some of the types of damage being inflicted on MABD by human activity (e.g. genetic erosion from agricultural activity).

Compounding the problem of increased demand for wild fruit forest resources is an **inadequate and uncoordinated conservation and management system** for the conservation of these areas. Though some form of specially protected status -- in national parks, forest reserves and other such areas -- covers significant areas of mountain wild apple forests, there is no integrated and unified approach to their conservation and management. A large number of agencies, enterprises and communities have varying levels of responsibilities or interests in mountain agro-biodiversity resources, including the FFHC, local governments, the Ministry of Agriculture, Agency for Tourism and Sport, local fruit farmers and processors, dacha owners, and others. Many of these groups have conflicting objectives and needs, and even those with potentially mutual objectives may, through poor communication and coordination, cause damage to MABD.

In addition, though new approaches to conservation have been introduced, exemplified by the establishment since independence of "National Parks" designed along international lines, they have been accompanied by **inadequate legislative or managerial reform**. Many of the practices currently allowed within NPs, such as widespread "dacha" construction and orchard planting, are completely incompatible with the objectives of the NPs. Though framework legislation exists, it has significant gaps and "gray" areas. Most crucially, there is a lack of clear mechanisms and definition of liabilities and responsibilities at the NP level necessary to effectively apply national legislation to the specific field situation. Accompanying this is the **absence of adequate experience among decision makers and managers** on how to apply the NP concept in the specific context of modern Kazakhstan, and a lack of adequate technical or managerial capacity to make critical shifts from existing Soviet-derived approaches to those which can meet its conservation objectives. One result of this lack of conservation management experience is a continued failure to orient research and monitoring towards conservation of MABD.

As a further complication to these institutional and technical challenges, Kazakhstan's economic and financial problems of the past decade have resulted in **insufficient state financial support** to NPs and forestry management/research institutions. In addition, the **absence of mechanisms for generating revenue** from existing uses of the NPs and reserves, and disruptions caused by the transition to a post-soviet system, have also affected conservation and land use management. As a result, government agencies tasked with forest protection lack basic technical and logistical equipment, and the capacity to undertake forest restoration activities.

BASELINE COURSE OF ACTION

Policy, Institutional, and Legal/Regulatory Framework for Agro-biodiversity Management in Kazakhstan. Unlike many GEF-eligible countries, Kazakhstan has significant scientific and technical expertise for natural resources management, and many of the institutions needed to conserve agro-biodiversity already exist. However, most of these institutions, and the policies, programs, and legal frameworks which support them, remain overly focused on economic goals for resource use and have insufficient experience with or focus on current conservation strategies and techniques. Kazakhstan lacks any national policies or programs that focus specifically on agro-biodiversity conservation, there is no coordinating mechanism where agencies can meet and exchange information, and laws and policies remain fragmented and non-integrated. A lack of funding constrains most resource conservation and management agencies in Kazakhstan, and is often cited by these agencies as the primary reason that they are unable to meet their objectives. Though increasing numbers of farmers, resource managers, and policymakers

recognize the importance of conserving agro-biodiversity, their good intentions have little coordinated direction or support.

The conservation of wild crop relatives in protected areas: Currently, two SPAs within the Zailiyskiy Alatau region, the Ile Alatau National Natural Park and the Almaty State Nature Reserve, and two SPAs within the Dzhungar Alatau region, the Lepsinskiy and Sarkandskiy forestry reserves (to be incorporated into the new Dzhungar Alatau National Park), contain significant areas of wild fruit forests. In all cases, these areas face many constraints that limit their efforts to conserve ABD resources. There is no indication in the existing baseline scenario that this situation will change, as the knowledge, experience and resources needed to undertake the necessary management, technical, and institutional changes required are not available.

The most high profile attempt to strengthen Kazakhstan's system of protected areas, and to apply new strategies for conservation of ABD resources, is the Ile Alatau National Natural Park. Established in 1997 as the country's third national park, the IANNP marked a change in direction for Kazakhstan's protected areas system, representing a move from the Soviet era system of strictly protected, zero-use reserves and temporary/seasonal reserves towards a more integrated multiple-use conservation management model. The IANNP is the first and only SPA in Kazakhstan to develop a working partnership among park management, local NGOs, and the international community. However, the development of the IANNP has been troubled due to the economic and organizational upheavals of Kazakhstan's transition period, and a complete lack of experience in developing integrated approaches to conservation management. Among the most important problems facing the IANNP and SPAs generally are: inadequate devolution to the park administration of the legislative authority needed to effectively manage the park; a lack of management or policy changes to accompany the transformation of the area from a forestry reserve to an international-level NP; insufficient budget allocations to meet basic management needs; and no clear, comprehensive or consistent legal authority to collect user fees from businesses, facility operators, recreational providers and users (a detailed description of the problems and issues facing the IANNP, based on an assessment[3] carried out during the PDF-B process, is described in Annex X).

Those managing the IANNP and other SPAs in Kazakhstan must now pioneer ways to implement a multi-use protected area concept. Currently there is little collaborative and preventive work with local people by the staff of NPs and SPAs generally, a particular concern in the case of the IANNP, where the proximity of a large urban population to the park boundary presents serious challenges to the dual goals of resource preservation and human visitation management. SPAs in Kazakhstan have no funds for information and training activities, and programs of school-based forestry management, collection of local traditions and best practices, and volunteer green patrols and "forest friends" programs have all but disappeared.

With regard to ABD resources, SPAs in Kazakhstan have undertaken some research and basic management plans, but even these have not been implemented. While SPA managers recognize the importance of the ABD resources within their borders, a lack of financial resources has prevented the development of significant programs, and even basic protection activities such as fire and disease prevention are no longer carried out.

Agro-biodiversity Research: Until funding disappeared in the 1990s, Kazakhstan had a strong program of research on agro-biodiversity conservation and management. Both the National Academy of Sciences and

[3] Ile-Alatau National Natural Park - Challenges & Opportunities: A Report to Ile-Alatau National Natural Park and ACDI/VOCA Kazakhstan Authors: David A. Koehler, PhD, Raymond R. Hoem, Harold H. Hagemann, Jr. September, 1997

the Institute of Botany and Phytointroduction carried out long-term research, with the latter institution particularly active in wild fruit forest research including analysis and description of the genetic diversity of wild species and research on improved hybridized varieties of fruits. Various research institutes within the FFHC also have carried out forest biodiversity inventories in the Zailiyskiy and Dzhungarskiy Alatau, and the Kazakhstan Forestry Enterprise institute has carried out periodic inventories in protected forest areas. Finally, the Kazakh Research Institute of Fruit Growing and Viticulture researches on-farm wild fruit agro-biodiversity and the education of local farmers on the use of improved fruit management techniques.

Over many decades, Kazakh experts have developed advanced methodologies for researching the conservation and management of wild fruit forest ABD resources. Researchers have identified wild clone and seed materials for restoring wild fruit agro-biodiversity, and specifically sub-species polymorphism, in more degraded areas. They have also completed inventories of wild forest agro-biodiversity species and sub-species, and have earmarked the most economically valuable varieties for conservation in the wild and in cultivation. These efforts in wild fruit forest research are recognized as a model for Central Asia by the International Plant Genetic Resources Institute, and form a valuable basis for the rehabilitation of populations of apple, apricot and other ABD varieties in the wild.

Over the past decade, the ability of research institutes and resource management agencies to execute their research programs has diminished severely due to funding constraints. During this period, researchers from Cornell University made three visits to the region to collect the germplasm of wild *Malus* for storage at the U.S. Department of Agriculture Plant Genetic Resource Unit, the world's largest ex situ repository of apple diversity. Also during this same period, the US National Geographic Society sponsored several studies of wild fruit relatives in Kazakhstan. However, agreements and cooperative ventures with international institutions have since lapsed, and currently there is some monitoring of ABD resources in wild fruit forests, but little new research. On the ground, replanting and restoration of wild fruit forests by researchers has ended, and the decline in agro-biodiversity education and research has resulted in a lack of knowledge among local farmers about the damage caused by their actions.

At this time, the GoK is planning to undertake actions under two new programs that will have some limited impact in the project sites, but both programs have very small budgets. One program is the Scientific Provision of Manufacture, Processing and Storage of Agricultural Products for 2001-2005, which provides for the development of forest management strategies, research on effective forest protection strategies against insects and diseases, advanced methods of duplication of rare and endangered plants, and technologies for the manufacture and processing of natural fruit products. The second program is for the Conservation, Development and Use of Genetic Resources of Agricultural Plants, Animal Species and Microorganisms for 2001-2005. Although these programs reflect the GoK's continued commitment to agro-biodiversity conservation, the baseline scenario for agro-biodiversity research in Kazakhstan is for a continuation of very limited funding levels and the continued decline of a once strong research infrastructure.

Tourism Development in Protected Areas: While tourism exists in both protected areas, and the IANNP in particular draws many visitors, tourism as it exists today provides few benefits for conservation as few tourism dollars are directed towards SPA administrations or local communities. In fact, most tourism today presents an additional threat to local ecosystems and agro-biodiversity, as visitors are unaware of or disregard conservation and protection measures, and most local resort and hotel owners operating on leased land within the SPAs have limited coordination with park staff and ignore many basic conservation practices. Tourism does have the potential to contribute to conservation, and to become an additional source of economic support for local populations and for SPA management activities. Local tourism operators are eager to promote the rich history of the Almaty Oblast region relating to wild fruit forests,

for example by organizing annual apple festivals and other events to attract visitors, and to expand their international client base with a focus on eco-tourism. A local tourism council has been established and the regional government has recently approved a strategy on tourism development. However, there is no coordination or funding to support these activities, and tourism development in these mountain areas is constrained by poor hiking and camping facilities, a lack of experience and coordination among SPA staff, and a complete lack of conservation and public education programs.

Conservation and management of traditional crop varieties on private lands adjacent to SPAs: Many rural inhabitants in the areas of the two project sites live in close proximity to the SPAs. As noted in the threats section, buffer zones around wild fruit forests do not exist, and problems relating to genetic erosion, pest and disease outbreaks, and local dependence on wild fruit forest resources are significant. However, these problems also represent an opportunity. The close proximity of farms and gardens to wild varieties means that on-farm management and conservation of wild varieties could benefit the conservation of agro-biodiversity inside the SPAs, if private farmers are involved as partners in agro-biodiversity conservation. Currently, there is very little interaction among SPA managers and local farmers and gardeners, nor are there any education or outreach programs that transfer information and technology to these groups. The former Soviet system provided a link between farmers, scientists and government, but this network has weakened considerably during the past decade.

Recently, local NGOs have developed to try and fill this gap, with a lead role being taken by the Kazakh National Farmers Association (KazAgro) and the Farmers of Kazakhstan, volunteer organizations that represent many local farmers. These organizations have developed education programs and information exchanges among farmers, and even some pilot micro-credit programs, but they have had only limited success and currently lack the resources, funding, and management skills to be an effective forum for the exchange of information and resources. As a result, the exchange of information on issues such as agro-biodiversity conservation is largely absent, and farmers already struggling with weak business and management skills in the new market economy see no reason not to engage in unsustainable resource extraction activities.

Institutional Framework for Agro-biodiversity Conservation: Despite the government's recognition of the significance of biodiversity and the key role of protected areas in its conservation, the FFHC has struggled to ensure effective management of SPAs, even high-profile areas such as the IANNP. Investments in the network of protected areas, significant in the 1970s and 1980s, dropped dramatically in the 1990s and remain low to this day. Funding for research institutions and forestry management areas have experienced similar problems, so that the entire array of institutions responsible for ABD conservation and management in Kazakhstan are working with the bare minimum of resources. The entire national budget for forest management activities is approximately US$ 9 million, which is used almost entirely to cover salaries (low paying) and some limited forest protection activities (e.g. fire fighting and prevention). Specific budget line items for agro-biodiversity resource management form only a part of that total, while the research budget for agro-biodiversity is less than US$20,000/year.

Fortunately, despite minimal financial resources, significant human and technical resources for ABD conservation remain in Kazakhstan, and the GoK maintains a commitment to biodiversity conservation at the policy level. The establishment of the IANNP, plans to establish the Dzhungar NP, and continuing state support for annual budgets and staff all demonstrate a commitment by the GoK to maintaining and improving protected areas important for ABD. Nevertheless, the current baseline scenario is likely only to support an institutional framework for ABD conservation and management that is poorly integrated, poorly funded and at best only effective at stemming further losses rather than making tangible improvements.

Legislative Framework for Agro-biodiversity Conservation: At the national level, the GoK has made concrete efforts to strengthen the legal framework in the field of environment and natural resources in recent years, including a new Law on Environmental Protection and a new version of the tax code that provides specific provisions in regard to nature protection and taxation. Specific laws on biodiversity conservation and agro-biodiversity resources do not exist. Regarding the management of SPAs, and their ability to protect ABD resources, legislation is being considered that would allow protected areas to enact regulations on the economic activities within their borders. In addition, SPA administrations might be given some legal authority to restrict activities on private lands adjoining critical SPA territories (e.g. wild fruit forests). On the negative side, recently enacted legislation restricts the right to develop economic activities (e.g. tourism lodges) within SPAs to private operators (as opposed to SPA administrations themselves), and directs that visitor and user fees be paid directly to local and national government authorities.

Training and Capacity Building: Kazakhstan, like other former Soviet republics, has a strong corps of protected areas managers, foresters, research scientists, and other conservation professionals. However, while very strong in areas such as forestry science and resource protection, there is a complete lack of professional experience in the country for managing multi-use protected areas with complex interactions with local populations, high numbers of visitors, and competing institutional authorities and mandates. Even today, protected areas managers have very little knowledge in education and outreach to visitors, and virtually no experience in integrating their activities with those of local populations. For example, the orientation of protected areas managers in Kazakhstan is often still based on theories of closed, self-regulated ecological systems that imply the idea that protected areas are not impacted by their surrounding territories. This theoretical framework, developed during the Soviet era, encouraged a system where managers would "close" areas off from the outside world, and was the foundation of the zapovedniki system. While the establishment of the IANNP signals that the SPA system in Kazakhstan is now moving away from this model, and managers of protected areas that harbor wild fruit forests recognize that activities in adjacent areas impact their territories, there is still great resistance among managers to controlling the presence of domestic fruit trees in areas outside the protected areas.

Long-Term Financing of Agro-biodiversity Conservation: During the past decade, funding for ABD research has dropped to almost nothing, while funding for SPAs which contain ABD resources has been reduced to a point where no specific activities for ABD conservation are undertaken. Instead, even funding for basic forest protection activities such as fire fighting and pest/disease control has disappeared, greatly increasing threats to remaining wild fruit forests. Stronger commitments from the GoK and local/regional authorities are unlikely to materialize without the presence of international support activities or concentrated education and outreach to decision-makers.

Socio-Economic Conditions and Livelihood Development. The GoK and regional/local authorities currently focus most of their financial resources on basic social services and improving basic infrastructure necessary for economic development. Most of the formerly state-supported rural economic entities (collective farms, fruit processing enterprises) in the project areas have collapsed in the past decade, leaving many people to rely heavily on local natural resources for subsistence and income. In a "business as usual" scenario, very little support for new livelihoods in these mountain areas would be forthcoming and most people who live in the two project areas would continue to live a largely self-supporting, subsistence lifestyle that relies heavily upon resources on their own lands and within neighboring SPAs. No special programs would be implemented to enable local communities to develop new and alternative livelihoods. Small businesses based on extraction of natural resources (bee-keeping, wild fruits, medicinal plants) are likely to grow slowly (if at all), and without guidelines or regulations on sustainability. There is a developing ecotourism business in both areas, but few benefits accrue to local populations, and the industry will continue to grow slowly, hindered by a lack of investment capital, supportive laws and policies,

tourism expertise, and sufficient infrastructure. In the absence of this project, local populations will continue to struggle to survive in an unfamiliar market economy with very little support and assistance.

State Economic Programs: The GoK has undertaken several programs to generally support small and medium size businesses in rural areas. A nationwide Program of Development and Support for Small Business aims to support the creation of more than 200,000 new workplaces and increase the contributions of small business to 22% of GDP. The GoK is also supporting measures for economic development in 2001-2003 that include a pilot project of post-privatization support for agricultural processing industries. In Almaty oblast, small business support programs have been adopted that include the development of infrastructure to support small business, improvement in the legal framework for small business development, and increased information and knowledge building for small business development. In addition, preferential tax treatment has been developed for small businesses and farms in rural areas, and micro-credit initiatives have been approved (though not yet implemented).

Regarding the fruit and wine industries specifically, the GoK is developing a Program of Rehabilitation and Development of Wine Production and Fruit Breeding for southern Kazakhstan, whose aim is to increase vineyard and fruit orchard production through technological and marketing support. Also, the Almaty Oblast has made fruit orchard and vineyard development a priority activity for the period 2002-06, and has identified 740 hectares of apple orchards and 210 hectares of vineyards in the Zailiyskiy region for development (although no funding has yet been allocated).

The Government Agro-production Programme for 2003-2005, approved by Presidential Decree #889 on 5 June 2002, is designed to ensure food production security by creating effective and market-compatible systems of agricultural production. Three main strategic directions were identified: 1) a national strategy of agriculture development; 2) a strategy of social policy and infrastructure development in rural areas; and 3) a strategy to integrate government efforts with those of rural communities. The last two components of the national program will use the following mechanisms, which support the activities of the project: 1) increased financial support from the state budget; 2) introduction of private ownership for agricultural lands; 3) introduction of new agricultural management practices in accordance with climate zones and relocation of agricultural production accordingly; and 4) cooperation of local farmers and agricultural producers with relevant organizations and financial institutions.

Implementation of the above programs and projects will have a positive impact on social and economic development of the areas around the Dzhungar and Ile Alataus. An increase in successful local businesses associated with fruit production and other agricultural activities would enhance public interest in agro-biodiversity conservation, and business owners would have a strong economic incentive to conserve wild fruit trees. However, existing state programs lack any focus on encouraging the conservation and sustainable use of ABD, and their impact in this respect may be minimal or even negative unless focused attention is given to integrating agro-biodiversity conservation and environmental protection issues into these larger programs.

Local Businesses and Alternative Livelihoods: Despite the difficult economic conditions in rural areas of Kazakhstan, a limited number of enterprises in the fruit production industry and other natural resource businesses continue to operate (for an in-depth assessment of alternative livelihoods, see Annex XI)[4]. Sustainable natural resource production is a potential growth area both generally and within the project sites, particularly in the Zailiskiy Alatau region that is adjacent to 1.2 million inhabitants of Almaty, but will require a coordinated program of education and technology transfer to local business people and farmers if

[4] "Alternative Livelihoods Development Study" by E2 Environment Alliance Inc./CIDA, September 2000

it is to significantly impact local socio-economic conditions. Some examples of small-scale agricultural business and alternative livelihood programs that have survived and which could benefit from the support of the project include:

- Local Fruit Processors: Currently, even most local fruit juice producers rely on imported concentrate to make juice for the local market. However, at least one local apple vinegar producer relies on wild fruit varieties (supported by the GEF SGP project "Agro-biodiversity of Alatau and conservation and restoration of wild apple forests in the Zailiskiy Alatau's foothills"), and several farms grow highly productive apple varieties on the stock of wild apple trees, giving them high resistance to local insects and diseases (with no chemical pest/disease control) and the ability to survive extreme local weather conditions. These and other producers are poised to act as partners for agricultural outreach and for agro-biodiversity research on native and cultivated varieties. They are also potential micro-credit recipients, for example to increase their storage and production capacity, as are companies that currently import concentrate because they cannot afford the processing equipment to process local fruit.

- Bee-Breeders: The Almaty Oblast Society of Bee-Breeders is an association of local community honey producers in the Zailiyskiy Alatau that have successfully produced high quality honey for the commercial market. The group is seeking support to secure governmental financing to implement recently enacted legislation that supports bee breeding, and for micro-credit support for existing producers to expand their operations. This group could provide outreach and training services to new honey producers and act as a model for a similar society in the Dzhungar region. This effort will build on the GEF SGP project "Conservation and restoration of bee abundance in the foothills and the lower mountain belt of Zailiyskiy Alatau mountain range", carried out from 1998-2000.

- Medicinal Plants Producers: Several very active private businesses operate in and around SPAs in both project areas marketing varieties of goldenroot, valerian, sweetbrier, *hippohoe* and other wild herb and fruit plants for food, teas, and medicinal products, many of which are exported to China and Russia. In some cases, companies harvest all of these plants from the wild, while others primarily grow native varieties in nurseries. Studies have shown that wild harvesting threatens native populations (including some Red Book listed species), but restrictions on such activities are not enforced. However, most local producers would rather make the transition to the more profitable and sustainable nursery/plantation model, as well as increase processing capacity and conduct research on additional varieties of ABD for commercialization. In the current situation, however, these small companies do not have the technical know-how, linkages to research organizations, or access to credit necessary to achieve these goals.

While local sustainable natural resource enterprises will continue to operate in the project areas, they will remain small and isolated without an organized intervention strategy. There are several state research institutes, nurseries and arboretums in the Zailiyskiy Alatau region that grow native fruits, herbs, trees and planting materials whose scientific and agricultural expertise and stores of native varieties could be of great use to local farmers and fruit and medicinal plant producers - but currently these institutions have few links with local producers.

In addition, access to credit in these rural regions is virtually non-existent for small and even medium sized businesses, further limiting local development. Although a number of micro-credit programs have developed in recent years in Kazakhstan, policy, legal, socio-economic, and financial constraints have limited their expansion. Several policy programs supporting micro-credit are just now getting under way,

and a proposed Law on Micro-credit Organizations that would simplify micro-credit programs has yet to be enacted. Poor economic conditions, particularly in rural areas, and continuing unfamiliarity with market-based practices and principles, also play a significant role (see Annex XII for more details).

Public awareness and education on the conservation and sustainable use of agro-biodiversity. In the final years of the Soviet era, environmental awareness and activism grew rapidly in Kazakhstan, spurred by high profile and wide reaching environmental disasters such as the legacy of nuclear testing in Semipalatinsk and the Aral Sea crisis. Although environmental awareness has grown significantly, understanding of the fundamental issues and processes involved is still largely lacking. Decision makers and resource managers alike are limited in their ability or inclination to evaluate and integrate environmental issues in the development process, while the general population demonstrates little understanding of the linkages between their own activities and environmental degradation. An increase in environmental knowledge, and its practical application in all aspects of development, is an important task for the country at all levels.

Of particular relevance for the proposed Project, understanding of the local and global significance of ABD in Kazakhstan has not been given sufficient attention or widespread dissemination. Management of ABD resources has traditionally been the province of a very narrow circle of experts, scientists, and policy makers. People at all levels, including decision makers, local authorities, the general public and even SPA staff, have only a limited grasp of the globally unique character of wild fruit forests and other agro-biodiversity in Kazakhstan, or of its potential for sustainable economic use. In addition, SPA staff and visitors alike need to be educated on guidelines for recreational uses of wild areas that take into account conservation and sustainable use factors.

Most important of all, local farmers, herders, and other natural resource users in areas harboring ABD resources need to receive targeted education on the benefits of agro-biodiversity and the carrying capacities of relevant ecosystems (e.g. wild fruit forests). These stakeholders constitute the group that has the single largest impact on ABD resources and that benefits the most from the use of wild fruit forests, but currently does almost nothing to contribute to their conservation. Many local users simply do not see the connections between grazing and forest health, or exotic species in orchards and wild fruit trees, or ABD resources and livelihood opportunities in fruit and medicinal products and tourism. These groups are not ignorant of their surroundings – many know the useful properties of native plants and animals – but they also receive absolutely no outreach or education on local conservation issues.

Surveys during the PDF-B process showed that half of the local respondents had never seen reference to conservation of natural resources in media sources or at schools. In addition, a third of respondents said that they were unaware of any conservation programs in their region, while of those aware of such activities, many complained that local authorities routinely undertake conservation measures without any local consultation. Even so, despite a strong belief among local inhabitants that they should have use of natural resources, a majority agreed that stricter and more sustainable regulations on the use of these resources need to be developed.

Currently, MEP and other government agencies disseminate information on environmental issues through various media, including an annual report on Kazakhstan's environment, ecological bulletins, television and radio programs, and posters and booklets. However, individual SPAs, including the IANNP, have almost no environmental education program at this time. Environmental NGOs in Kazakhstan have acted as partners to some government efforts, and have developed outreach and education programs of their own. For example, the Environmental Press Center project was created in 1999 and has since developed a popular Internet site "Kazakhstan EcoPravda" and produced 200 press releases. "EcoImage", an

environmental bulletin targeting young people, has produced 15 issues to date. Environmental activists and NGOs have some of the best e-mail networks of any civil society groups in Central Asia.

Despite the mechanisms for environmental information sharing noted above, the current system of education and information sharing is not effective in reaching many sectors of Kazakh society. In particular, the poverty and limited access to media sources of most rural communities, combined with an insufficiently developed network of environmental NGOs in rural areas, means that these key stakeholders are exposed to very little information on environmental matters, including knowledge or appreciation of Kazakhstan's unique mountain wild fruit forests. There is little reason to believe that this situation will change without specific programs and support, in particular for education and training specifically targeting agro-biodiversity conservation.

RATIONALE AND OBJECTIVES (GEF ALTERNATIVE STRATEGY)

As noted above in the description of the baseline situation, Kazakhstan is undertaking various efforts and activities to conserve and sustainably utilize its mountain agro-biodiversity resources, ranging from policy and legislative reforms, to new SPA developments (National Parks), basic research, and rural socio-economic initiatives. These efforts may succeed, to a greater or less extent, in meeting the national interest in conserving natural resources and building a basis for sustainable rural livelihoods. However, it is unlikely that current and planned efforts and initiatives will be sufficient to effectively conserve globally important mountain agro-biodiversity for the following reasons: 1) a lack of focus within these efforts on agro-biodiversity specific issues; 2) insufficient national experience in developing the kind of integrated multi-stakeholder management of ABD areas, supported by an appropriate legal and institutional framework, which will be necessary to achieve ABD conservation and sustainable use; 3) insufficient financial resources for SPAs, forestry reserves, and research and monitoring to allow anything but very basic management; 4) agricultural and socio-economic initiatives and developments that, unless systematically oriented towards the conservation of ABD, will not reduce resource use threats and may even increase them; and 5) current levels of awareness raising and education that are insufficient to gain the understanding and cooperation of local stakeholders, the greater commitment of decision makers, or the necessary changes in attitude and behavior of the general public.

The GEF supported alternative project will undertake the additional activities necessary to overcome current legal, planning, institutional and capacity barriers and gaps within baseline activities in order to demonstrate viable approaches to MABD conservation, and provide a model for other areas in Kazakhstan and the region. In this way, the project will ensure that global agro-biodiversity conservation interests as well as national sustainable development goals are achieved. The project will do this by building on and reorienting existing baseline activities and development trends within the two selected project sites. More specifically, the project will seek to establish an integrated and sustainable framework for mountain agro-biodiversity conservation and sustainable use by: *a)* assisting in the development and pilot implementation of multi-stakeholder management planning; *b)* developing and operationalizing an appropriate legislative, institutional and capacity environment for implementing the management plans; *c)* nurturing the development of a positive land use and socio-economic environment for *in situ* conservation of MABD in productive landscapes within the project sites; and *d)* raising awareness among all stakeholder groups to ensure adequate understanding, support and real commitment to MABD conservation and sustainable use. In this way, the GEF-supported alternative will assist Kazakhstan in grasping the opportunity presented at this unique point in its development to combine ABD *in situ* conservation with sustainable development at the two project sites.

Global Benefits

The global benefits resulting from the project activities will be the conservation of species diversity of Kazakhstan's mountain fruit agro-biodiversity including apple, apricot, and a variety of other globally important agricultural species. As noted, global apple production is based almost entirely on two apple cultivars, making apple production highly vulnerable to new pests and diseases and limited in its ability to adapt to different environmental conditions. For world agriculture, the genetic diversity protected by this project will preserve options to rebuild, preserve, or augment the genetic vitality of domestic apple varieties, and serve as a global insurance policy against disease and other potential problems for the domestic apple industry. In addition, valuable seedlings, germplasm, and information on variety-specific agricultural techniques and habitat needs will be conserved for potential use by agricultural research institutes, governments, and farmers worldwide. Additional global benefits will be accrued through improved overall biodiversity conservation in the Zailiyskiy Alatau and Dzhungar Alatau mountains of Kazakhstan, which are habitat for a significant number of globally rare or endangered species including a total of 74 plant and 22 animal Red Book species. Finally, both project sites were selected in part for their appropriateness as model areas where new strategies and methods for ABD conservation management could be easily assessed and replicated in other areas within Kazakhstan and internationally (see Annex I for further information on global benefits).

PROJECT COMPONENTS AND EXPECTED OUTCOMES

Project Development Objective: The conservation of key habitats and ecosystems of globally significant mountain agro-biodiversity in Kazakhstan

Project Immediate Objective: Stakeholders conserve agro-biodiversity in two priority sites within Kazakhstan's Tien Shan Mountains by developing and applying new methods and tools for conservation, including partnerships among conservation and land-use agencies, SPAs, local governments, local communities and the private sector.

The above immediate objective will be achieved through the implementation of strongly inter-related and mutually supportive project activities to reach five outcomes, namely: 1) sound integrated management planning for the project sites with full stakeholder involvement; 2) institutions and personnel with adequate organizational, technical, managerial and financial capacity and experience to implement management plans; 3) an appropriate legal environment for implementing the management plans as required; 4) a positive socio-economic and land use environment for ABD maintenance and conservation in the productive landscape within the project sites; and 5) adequate awareness and knowledge at all levels to ensure support and commitment to ABD conservation.

Outcome 1: Ecosystem-based conservation and management of wild crop relatives at two project sites (GEF US$ 1,415,000; Co-Financing – US 1,828,000; Total – US$ 3,243,000)

A fundamental problem for the conservation and sustainable use of ABD in Kazakhstan is a sectorally narrow and geographically limited management approach that lacks integrated planning instruments or

mechanisms for ensuring effective stakeholder participation. Thus, the first outcome of the project will be on-the-ground integrated and adaptive management planning at each project site, based on clearly agreed conservation and sustainable development goals. The project will work immediately to establish new SPAs at the project sites, including a national park in the Dzhungar region that encompasses all of the significant wild fruit forests in that area. The project will also take action to secure the long-term status of other SPAs such as Almaty State Nature Reserve and the Almaty and Lepsinsk forest management territories. In addition, ABD hotspots currently with insufficient or no legal protection status will be identified and earmarked for inclusion into the SPA system (e.g. as Specially Protected Seed Sites). Officially designated buffer zones in areas adjacent to SPAs that are in proximity to wild fruit forests, with regulations on land use and human activity (setting of fires, cultivation of exotic species), will be developed and enforced to ensure protection for ABD resources.

Several public participation mechanisms will be created to support public participation in conservation, management, and development activities related to ABD conservation during and after the project timeframe. Public Committees on NP Management will be organized to facilitate general public participation in the management of the national park at each site, and Land User Associations will serve a similar function in areas of private lands adjacent to SPAs (the composition and role of these different mechanisms is discussed in more detail under Implementation and Execution Arrangements). Reinforcing local involvement, strategies for ABD Conservation on adjacent private lands will be developed that will reduce or eliminate activities in adjacent areas that are harmful to ABD within the SPAs. Baseline information on current farm and garden activities, building on information gathered during the PDF-B phase, will be clarified, as well as mechanisms for continued interaction between local inhabitants and researchers and educational outreach to farmers and orchard managers. Agricultural outreach programs, demonstration activities, and training on growing native crop varieties and selective relocation/siting of exotic varieties (e.g. exotic apples) away from wild fruit forests will be implemented.

Within the overall site management strategies, specific strategies and programs will be developed for priority thematic areas. A Scientific Research and Monitoring Program will be designed and implemented to address the lack of up-to-date and management-oriented scientific research work on ABD, which is a significant barrier to effective management decision making for areas of ABD importance. Programs for Pest and Disease Control, and expanded Fire Prevention and Control programs, will be created to eradicate insect breeding areas, combat actual infestations and disease outbreaks, and improve firefighting activities. Ecological Restoration Plans for wild fruit forests will be pursued utilizing existing “parent communities”, including the eleven Specially Protected Seed Sites (identified during the PDF-B phase), from which cuttings, seedlings, and other propagation material can be taken to establish clusters of plantings outside the current boundaries of existing habitats. As these clusters establish and close, they will interact biologically with remaining habitats to exchange secondary species and genes. Such work at several demonstration sites will create the operational capacity for long-term implementation on a wider scale, without requiring sophisticated technology, extravagant budgets, or highly trained personnel. Tourism Regulation and Development planning will be designed to improve past tourism development at the project sites (mostly Ile Alatau), which has been largely unplanned, poorly regulated and mainly negative in its impacts. The project, in collaboration with the relevant stakeholders, will develop long-term sustainable tourism plans for each site aimed at maximizing local benefits while minimizing impacts on the quality of natural resources and ABD.

Overall management plans will be developed that encompass all land use categories, including specially protected areas and adjacent productive landscapes, as well as development strategies for these areas. These management plans will be developed in part by using baseline information gathered during the PDF-

B phase on the location of critically endangered forest areas, and on the impacts of fires, pests, land clearance, and unsustainable resource use by local inhabitants (e.g. overgrazing, burning of the previous year's vegetation in order to increase productivity of pastures, illegal cutting of trees, and growing of fruit gardens in areas close to wild fruit forests, which facilitates genetic erosion of the wild trees). The plans will include: a description of the key management objectives and institutional structures for each site (both overall and at individual land-use category levels); monitoring and evaluation mechanisms; coordination mechanisms and operational procedures and approaches; human and material resource requirements; short and medium-term budgeting and work-plans; and financing plans. The project will implement pilot phases of the new management plans at each site and work with the various institutions and stakeholders involved to improve and refine the plans based on the experience gained. In particular, pilot implementation will provide a critical period of supported evolution for the institutional structures established by the project and ensure that they have the experience and capacity to efficiently continue the implementation of management plans *post*-project. The pilot phase implementation also will allow the field-testing and further refinement of various management mechanisms, including enhanced support of existing GoK activities such as the establishment of the Dzhungar NP; aerial photo surveys of the project sites; and other activities.

Activities & Specific Tasks

1.1: Baseline description of project sites and specific land use categories within each site

- Collection and analysis of ecological, socio-economic, and cultural baseline information (building on data collected during PDF-B phase) relevant to the two project sites, and identification of cost effective methodologies for systematic collection of key data
- Detailed survey and assessment of current state of land and agro-biodiversity use of the project sites
- Survey of wild fruit forest genetics and conservation strategies, including ABD inventories, dynamics of ABD ecosystems, age structure dynamics of globally significant ABD, and forest densities
- Definition of verifiable indicators for determining project impact on species diversity and genetic variability of ABD (e.g. species to be assessed, methods to be used, sample plots to be identified)
- Clarify and update cartographic materials and electronic database for each site

1.2: Establish Dzhungar Alatau National Park and Specially Protected Seed Sites

- Define boundaries, land-use categories, infrastructure needs for Dzhungar Alatau NP based on information gathered in baselines surveys
- Implement policy and legal processes to officially establish Dzhungar Alatau NP
- Hire new park management and staff and integrate existing staff of forest protected areas in region
- Establishment of new specially protected seed sites within NPs on the basis of conservation priorities identified in the baseline surveys

1.3: Build partnerships with local communities for ABD Conservation on adjacent private lands

- Under the supervision of the overall site-based Project Support Councils, establish local advisory and consultative committees (Land User Associations) for conservation, land use and economic development issues on private lands
- Work with Land User Associations to identify and demarcate buffer zones and to agree on land use regulations within buffer zones
- Develop ABD conservation plans for private lands and establish mechanisms for cooperation between local inhabitants, researchers, and SPA managers.

1.4: Sector specific sub-planning (Scientific Research and Monitoring, Ecological Protection and Restoration, Tourism Regulation and Development)

- Develop research and monitoring programs for the two sites, including information management system for applied research and management decision-making purposes, and identification of long term partnerships and collaborative research possibilities with national and international institutions

- Develop ecological restoration strategies for wild fruit forest ecosystems and establish mechanisms for scientific cooperation and supply of restoration materials (e.g. tree seedlings)
- Develop strategies to expand fire fighting efforts, eradicate insect breeding areas, and combat infestations and disease outbreaks
- Develop tourism and recreation master plans for each site to promote tourism that maximizes benefits for local people and minimizes impacts on ABD resources
- Establish consultation mechanism with related parties to ensure support of the management plan and sub-plans at all levels
- Formulate specific sub-plans, identify key partners and executives based on the proposals from related parties, finalize schedules of implementation

1.5: Identification and analysis of key management objectives and components for project sites

- Under the supervision of the overall site-based Project Support Councils, establish local advisory and consultative committees (Public Committees on NP Management) for conservation and land use issues within SPAs
- Collect expert analysis and stakeholder input to identify management gaps and ABD conservation problems for each site
- Identify needs of SPA staff and land users in institutional and technical support
- Assessment and recommendations to clarify necessary institutional structures, mandates and responsibilities; coordination mechanisms; and material, human and financial resources needs
- Prepare recommendations for key management activities on the basis of detailed site surveys
- Estimation of overall management plan budgeting for short and medium term and implementation scheduling

1.6: Final management plans assembly, participatory review and agreement

- Finalize integrated management plans and sub-plans for each project site on the basis of approved and agreed components, timing and financial provisions
- Secure agreement and approval of the plans from all relevant stakeholders

1.7: Pilot phase implementation of management plan and sub-plans and periodic adaptation to incorporate lessons learned

- Support and assist in the operation of the management plans, particularly in regard to ensuring the management, interaction and functionality of new institutional structures established
- Equipment, infrastructure and boundary demarcation (limited initial investments in equipment, infrastructure and boundary survey and demarcation will be required to "kick-start" management plan implementation)
- Evaluation of management plans operation at 2-year period, and on basis of lessons learned, improve and adapt plans and related legal and institutional aspects

Outcome 2: Strengthened Institutional, Technical, and Financial Framework for ABD Conservation (GEF US$ 320,000; Co-Financing US$ 483,000; Total – US$ 803,000)

To ensure effective implementation of the management plans, the project will work to establish viable institutional structures and mechanisms for ABD conservation and management. The project will strengthen the institutional framework, and address the current lack of integration among institutions, by establishing new institutions, departments, and land-use designations and strengthening existing institutional capacities and resources. The project will strengthen national level coordination of management agencies and research institutions tasked with ABD conservation. A Department of ABD Conservation will be established as one of only five departments within the Forestry, Fishing and Hunting Committee (FFHC). In both of the project sites, SPA management of ABD resources will be enhanced through NP Departments of ABD Conservation, which will direct and regulate activities within the national

parks and on adjacent private lands. In addition, sustainable land-use and tourism development programs within each SPA will be created to coordinate economic activities and to enhance the collection of revenues from visitor and user fees and economic development programs.

To support the process of institutional change, the project will ensure that sufficient technical, managerial and financial capacity exists to fully develop and implement the management plans. Two sets of activities will be undertaken – one focusing on technical and managerial capacity development and the other on financial matters. First, an assessment will be undertaken to identify major capacity gaps in the technical and managerial capacity of NP staff and other relevant organizations that will be involved in the practical implementation of the management plans. On this basis a detailed training and capacity development program will be elaborated and implemented involving a spectrum of formal and on-the-job training, study tours and experience exchanges. Second, an assessment will be undertaken of the various existing and potential sources of long term and recurrent funding available to the project sites for the long term financing of the management plan's implementation. On this basis a financing plan will be developed and specific mechanisms/actions required fulfilling the plan incorporated into legislation and institutional operations. Furthermore the project will support the follow-up and lobbying of key government structures to ensure reliable and adequate state support.

2.1: Conservation agency and SPA institutional restructuring

- Assessment and recommendations for the institutional restructuring of conservation agency responsibilities, functions, and structure within the project areas and nationally
- Establishment of national level Department of ABD Conservation within FFHC
- Creation of Departments of ABD Conservation within Dzhungar and Ile Alatau NPs, including clear identification of mandate, organization and funding
- Creation of sustainable land-use and tourism development programs within SPAs to implement relevant components of management plans

2.2: Training and capacity development of managers and staff of SPAs and other conservation institutions

- On the basis of management plans developed and institutional restructuring undertaken, identify gaps in current technical and managerial capacity, undertake detailed training needs assessment, and develop training plans (including on-the-job training, formal training and extension worker programs, key skills workshops, and relevant study tours and fellowships)
- Identification of local, national and international partner organizations and institutions for implementation of training activities and establishment of sustainable long-term staff training programs
- Implementation of training plans, including awareness building and training on the contents and practical application of new and adapted legislation for SPA staff, local authorities, law enforcement bodies, judicial system and natural resource users

2.3: Identification and development of viable long-term financing mechanisms for agro-biodiversity conservation within Kazakhstan

- Lobby, negotiate and secure commitment to long term and adequate state budget financing for key components of the management plans, in particular long-term funding of the two NPs
- Establish, refine, and improve collection of visitor/user fees and penalties/fines in SPAs to support conservation and sustainable use objectives
- Pursue international academic partnerships and support for long-term research and monitoring program of globally important wild crop species
- Assessment, identification and development of other appropriate long-term financing partners from national and international natural resource and apple and forest-related agricultural product industries

Outcome 3: An effective legislative framework for the conservation and rational use of agro-biodiversity resources (GEF $US 260,000; Co-Financing US$ 67,000; Total – US$ 327,000)

For conservation of agro-biodiversity at the project sites to be viable, policy and legislative adaptation will be required at the local and national levels. The project will assist the government in elaborating a clear national policy regarding agro-biodiversity, in order to provide a defined long term and multi-sectoral context for agro-biodiversity conservation in Kazakhstan, and to establish the various institutional responsibilities and roles for agro-biodiversity conservation to ensure cross-sector awareness and coordination of policy enactment. In addition, the project will address the creation of an effective legal framework for ABD conservation and sustainable use in the project areas and whole country. The project strategy will be to identify and create new legislation needed to support conservation of ABD, such as a national law on vegetation, and to push through changes and adaptations to strengthen existing legislation, in particular through the development of by-laws needed for practical application and enforcement.

Four areas of legislative development will be the main focus of the project. First, the National Park Administrations in the project sites (Ile Alatau and Dzhungar) will become the key players in bringing about and coordinating an integrated approach to MABD conservation and sustainable use in the project areas. The project will assist in the improvement of key NP enabling legislation to clarify the roles, responsibilities and powers of the NP administration and provide a practical local-level legal framework for the pursuit of effective management. In particular, the project will work to develop legislative and regulatory changes that give these authorities (and other forms of protected areas) the exclusive power to regulate human activities within their own borders, including economic activities in and around wild fruit forests.

The project will also work to allow SPAs to retain the income generated through visitor and user fees, and to make NPs, zapovedniki, and other forms of SPAs the direct responsibility of the FFHC (removing the oversight of local and regional authorities). Second, the project will develop legal mandates, regulatory provisions and enforcement mechanisms to enable SPA managers to prevent clearance of wild fruit forests and to eliminate existing or future cultivated tree gardens and orchards in proximity to those forests. This effort will include the development of clear regulatory provisions and enforcement mechanisms to regulate and transfer dacha gardens and orchards (centers for disease and pest outbreaks) in close proximity to wild fruit forests. Third, regarding productive landscapes, activities on legislative development and reform will focus on establishing a legal framework for the sustainable use of ABD resources and new laws and regulations to minimize activities that have a negative impact on ABD. Priorities will include clarifying land tenure for local land users to facilitate long-term husbandry, improving legal context for appropriate small business and economic activity, and creation of legal incentives for appropriate use of ABD. Finally, the project will actively pursue the designation of the IANNP as a World Heritage Site. Such a designation will provide additional levels of legal protection and control for the IANNP, and will be a highly effective strategy for increasing the conservation priority of this area (and other ABD hotspots) in the eyes of the government and general population of Kazakhstan.

Activities & Specific Tasks

3.1: Develop long-term policy for agro-biodiversity conservation and sustainable use in Kazakhstan

- Analyze, identify and develop conceptual framework for ABD conservation policy on the basis of existing government policies and plans and in consultation with appropriate stakeholders
- Prepare detailed policy analysis on specific issues (institutional strengthening, socio-economic strategies, forest use rights and responsibilities, etc.)

- Work with stakeholders to review and approve overall policy priorities

3.2: Identify key legislative and regulatory changes required at national, SPA and local level to support agro-biodiversity management plans and initiatives

- Analysis and description of existing legal framework in the field of conservation and balanced use of ABD, identification of gaps in legislation at various levels, and development of recommendations for its improvement to ensure implementation of management plans and initiatives within ABD program
- Discuss with related parties problems and activities related to strengthening of the national and local legislation

3.3: Develop new or adapted draft national legislation and regulations and local level "by-laws", create clear guidelines and instructions on the practical implementation of legislation, and clarify the rights and obligations of stakeholders

- Develop and approve in consultation with related parties a list of activities related to the legislative provision of management plans and ABD program
- Organize preparation of the relevant draft legislative documents and guidelines in accordance with the approved list of activities

3.4: Consult with all stakeholders to ensure agreement on legislative and regulatory changes

- Account for interests and proposals of all stakeholders in developing normative and legal aspects
- Secure approval of legislative and regulatory changes by project partners and other related ministries

3.5: Submit legislation for official review and approval according to required procedures, and undertake lobbying and follow-up to ensure timely and effective results

- Ensure consistency of draft normative and legal documents to current legislation
- Finalize and submit legislative and regulatory documents for approval by relevant government agencies and parliamentary bodies
- Organize targeted lobbying and follow-up activities with active support of project National Coordinating Committee members
- Review effectiveness of new laws and regulations and make adjustments and additions as needed

<u>Outcome 4</u>: Alternative livelihoods benefiting local communities in project sites, reducing natural resource use pressure on mountain agro-biodiversity (GEF US$ 245,000; Co-Financing US$ 2,284,200; Total – US$ 2,529,200)

The development of alternative livelihoods is one component in an integrated approach to mitigating the threat posed by local communities to ABD resources. The project will use baseline studies to assess existing resource use among local inhabitants, will undertake education on ABD values and ecological systems for local communities, and will organize resource user associations to guide outreach on environmental education, livelihoods activities, and micro-credit programs. The final, critical step will be to specifically target the economic problems that underlie the over-dependence of local communities on natural resources and which result in ABD loss on private lands and within SPAs. Focused planning on the strategic approaches and mechanisms needed to achieve appropriate natural resource use and socio-economic development in the project area will be carried out by the project in full consultation with the local authorities, farmer associations, small business and fruit industry sector representatives, tourism sector, forestry bodies, NP Administration, academic institutions, etc. A key component of this strategy and plan will be extensive analyses of market demand for products and services within the project area, in particular in the Zailiskiy Alatau area that is in very close proximity to Kazakhstan's largest urban center. In addition, a clear definition of the responsibilities and roles of the various stakeholders and of the coordinating mechanisms will be established.

On the basis of these plans, and the extensive preparatory work on alternative livelihoods carried out during the project development process (see Annex XI – Alternative Livelihoods), the Project will leverage GoK and other sources of co-financing to enable the selection, development and implementation of pilot projects to demonstrate strategies to achieve sustainable alternative livelihoods for local populations. GEF funds will be used to assist in overcoming institutional and policy barriers to development of alternative livelihoods, an important factor in a country that still maintains many elements of a centralized economy. Thematic areas in which demonstration projects will be implemented include: Fruit Farming, Fruit Processing and Juice Making, Juice Concentrate Production, Wine Making Activities, Honey Production, and Tourism. In addition, other activities such as Landscaping Plants and Flowers, Medicinal Plants, Deer Breeding, and others will be explored further and possibly supported. For the demonstration projects to have a significant long-term impact, it is essential that they not only successfully demonstrate viable new or alternative livelihood options but also that they are widely replicated within the project sites. The project will assist this process through information and technical/business skills transfer via a variety of means (awareness raising and information dissemination, study tours, training materials and workshops, field extension and support). The NP's Departments for MABD and the local Land User's Associations will undertake these services both during and *post*-project. In addition, for agricultural activities, the GoK's Agro-Production Programme for 2003-05 (described in the baseline) will provide further information and technical skills transfers, as well as significant financial support.

A key problem identified during project development by land users and small businesses/entrepreneurs was the lack of access to small-scale credit with which to initiate alternative livelihood opportunities. For this reason the project, using leveraged co-financing, will develop a Micro-Credit Program to support rural farmers and local residents as they develop alternative livelihoods (see Annex XII – Micro-Credit). The project will work with an existing program, the Kazakhstan Community Loan Foundation (KCLF), for implementation of the micro-credit facility. KCLF has existing offices at the Dzhungar site and plans to open offices at the Zailiskiy Alatau site within three years. KCLF provides loans (average size $250; up to $15,000), primarily for small businesses, mostly for women (80%), and focused on traders and light industry. KCLF does not loan to individual farmers to cover costs of production, but it will make loans for agricultural processing businesses (even home-based). In particular, the micro-credit program will target small groups of farmers ready to pool their resources to undertake business development activities, as well as local inhabitants wishing to start businesses to replace existing activities involving unsustainable uses of agro-biodiversity. GEF funds will be used to overcome barriers on the supply and demand sides to a micro-credit program, and to seek additional capitalization during the project for the micro-credit facility. Finally, the GEF funds will be used to identify and to put in place economic and administrative incentive mechanisms that will discourage economic activities with negative impacts on ABD and encourage the conservation and sustainable use of ABD. Positive incentives may include tax holidays for startup phases of appropriate businesses and tax breaks for certain land uses, streamlined administrative procedures for activities that conserve or sustainably use ABD, and marketing support, loans, and other forms of economic assistance for sustainable local agriculture. Disincentives could include regulatory penalties for the most damaging activities (such as garden and orchard development in proximity to wild fruit forests).

Activities & Specific Tasks

4.1: Sustainable socio-economic and natural resource use strategy and action plans for local populations at each project site.

- Assessment of existing barriers, and strategies to overcome these barriers, for sustainable alternative livelihood activities

- Consultation with local authorities, farmers associations, small businesses and other stakeholders on strategic approaches and mechanisms for natural resource use and socio-economic development in the project areas
- Clear definition of responsibilities and roles of the various stakeholders and coordination mechanisms
- Development of participatory socio-economic and sustainable land use plans for productive landscapes adjacent to SPAs
- Development of employment and business opportunity strategies for local populations within SPAs in areas such as tourism, tree and medicinal plant nurseries, fruit processing, and agro-biodiversity research

4.2: Demonstration/pilot projects for alternative livelihood development

- Detailed development of pilot demonstration projects for sustainable alternative livelihoods by the Sustainable Land-use and Tourism programs at each SPA, focused on the long-term provision of technical, business and managerial support and extension services to local farmers and entrepreneurs to encourage appropriate sustainable economic development
- Implementation of alternative livelihood projects directly or through sub-contractors
- Facilitate and support the replication of successful alternative livelihood options (dissemination of information, organization of site visits, training materials and workshops)

4.3: Long term technical, business and organizational support services for appropriate small-scale farmers and relevant private sector

- On the basis of the experience gained during pilot alternative livelihood projects, carry out an assessment of institutional and capacity needs of local Land Users Associations and ABD Conservation Departments to provide support services for small-scale farmers and the private sector
- Provide technical, business and managerial support and extension services to local farmers and entrepreneurs (agro/fruit industries, tourism, honey producers, etc), encouraging sustainable development and ensuring participation in ABD conservation

4.4: Development of a micro-credit facility to support sustainable alternative livelihood activities for small-scale farmers and businesses in project sites (see Annex XII – Micro Credit)

- The project team will select experienced micro-credit facility specialists (from among those identified during the PDF-B process) to design and implement a micro-credit facility to support the specific interests of the project
- Pilot-level implementation of micro-credit facility to check viability and gain experience
- Expansion of micro-credit facility and development of client base at both project sites

4.5: Work with state agencies to create economic incentives to encourage sustainable use of natural resources and to discourage activities with negative impacts on agro-biodiversity

- Identification of viable incentives and mechanisms (for example, tax privileges, access to credit resources, economic support programs) and disincentives (taxes, penalties, fees)
- Development of viable options and of administrative and legal mechanisms for their application
- Introduction of economic incentives/disincentives and monitoring of their impact
- Review of lessons learned and subsequent adaptation or improvement of incentives/disincentives and their mechanisms for realization

<u>Outcome 5.</u> Awareness and support increased at all levels regarding the values and need to conserve Kazakhstan's mountain agro-biodiversity (GEF US$ 530,000; Co-Financing US$ 127,000; Total – US$ 657,000)

The Project will build awareness and support at all levels regarding the values of and need to conserve Kazakhstan's mountain agro-biodiversity. The Project will seek to create a renewed sense of national and local pride through public education and awareness programs about Kazakhstan's unique agro-biodiversity resources, with resulting impacts on national policy, financial support, and local-level commitment and participation. In addition, the project will promote basic awareness-raising regarding legal and institutional reforms, and their implications in practical terms for all stakeholders, which have been poorly understood due to the rapid speed of change since independence. To act as the focal points and "engines" of the awareness and education programs, ABD Conservation and Sustainable Use Education Centers will be established in the region of both project sites. These centers will be responsible, under the leadership of the Almaty center, for the development, coordination and implementation of education and awareness activities.

Awareness and education activities will be targeted at three levels: i) the general public within the project sites and nearby urban areas; ii) local and national policymakers; and iii) natural resource users, particularly ABD users, within the project area. For the general public, the project will build on existing efforts by the MEP and NGOs to create public awareness programs that reach all levels of society, by undertaking to develop educational programs for children, develop media products focused on raising the awareness of the general public, and test innovative ways to raise awareness, such as developing an annual "Apple Festival" for Almaty and other cultural and commercial events. In addition, the project will build the capacity of civil society institutions, especially NGOs, to sustain public education and awareness activities, and create curricula and teaching-aid materials and train teachers in their use. For policy/decision-makers, efforts will be focused on building an understanding of the values of ABD and the underlying factors affecting it so as to ensure greater valuation of agro-biodiversity and greater support for relevant conservation and sustainable use initiatives. Activities to achieve this will include the dissemination of concise awareness raising materials, the holding of seminars and training workshops, and focused study tours.

Finally, the project will target local natural resource users, the group with the most direct impact on ABD conservation and management. For natural resource users, the project will begin by raising the level of knowledge of basic sustainable development and agro-biodiversity concepts, and then move on to build understanding of how these concepts directly affect these groups, the key role played by these groups in affecting ABD resources, and the potential long-term sustainable benefits that ABD resources can have for them (particularly through effective alternative livelihoods programs). A variety of approaches will be used: mass media (press, radio, TV, billboards, posters, information leaflets, etc); training/education materials for dissemination to farmers associations and other appropriate target groups; and workshops and other training events, both free-standing and in collaboration with existing vocational/professional learning centers.

Activities & Specific Tasks

5.1: Development of Biodiversity Awareness and Education Centers in each project site to act as focal point for awareness and education campaigns

- Establish/renovate nature museums within SPAs and provide them with technical equipment; establish environmental education centers in collaboration with museums
- Develop training programs for schoolchildren in the field of environmental protection, and develop public lecture centers for teachers and NGOs
- Support rehabilitation of forestry education departments and forest friends associations within SPAs

5.2: Support local NGOs and institutions with relevant interests and objectives (nature clubs, fruit growers associations, etc.) to undertake ABD education and awareness activities

- Survey and assess potential NGO partners in the project implementation areas; hold meetings and consultations to identify NGO policies, interests, capabilities and willingness to collaborate with project structures
- Prepare and sign agreements with NGOs willing to cooperate on information dissemination and other initiatives
- Provide support for establishment of new NGOs in the project implementation areas

5.3: Awareness building and training on the contents and practical application of new/adapted legislation

- Organize and deliver training workshops for SPA staff, local governments, law enforcement bodies, judicial system, and natural resource users to explain existing and new laws related to environmental and ABD conservation
- Develop and publish reference books on legal aspects of ABD conservation and use

5.4: General public awareness campaign on the importance of Kazakhstan's natural environment and ABD resources

- Targeted education campaign for urban-based visitors and urban-based land owners in NPs on appropriate land use practices and recreation uses
- Produce publications and programs in print, audio, and video media related to environment and ABD conservation, to be distributed to the public, local farmers, schoolchildren and tourists
- Assist in organizing apple festivals in Almaty and Taldy-Korgan to demonstrate the uniqueness of Kazakhstan's mountain agro-biodiversity resources, the achievements of farmers in growing native fruits and medicinal plants, and the importance ABD conservation

5.5: Local-level awareness campaign for natural resource users on value of ABD resources and carrying capacities of local ecosystems

- Targeted local level awareness campaign to ensure local land users and relevant private sector actors understand issues involved, become aware of their potential role, and see positive cultural, social and economic reasons why they should support and contribute to agro-biodiversity conservation efforts
- Arrange a series of workshops for rural authorities and local farmers, dacha gardeners, herders, and other natural resources users in the project implementation areas to inform them of all aspects of ABD conservation and to generate support for the project
- Arrange meetings with relevant private sector actors to ensure awareness of, support for, and involvement in project activities

5.6: Awareness building with important national and local authorities on global values and economic importance of ABD conservation

- Targeted awareness building within important state ministries/institutions and among local authorities to ensure greater valuation of agro-biodiversity and greater support for relevant conservation and sustainable use initiatives
- Organize a workshop for environmental agencies and local Akhimats regarding project goals and objectives related to MABD conservation to raise awareness and ensure support of project activities
- Conduct hearings in the Environmental Committee of the Parliament related to MABD conservation program and its legal support

5.7: International networking and partnership development for ABD conservation

- Participate as part of UNDP Learning Portfolio for agro-biodiversity projects in Asia, under aegis of the International Plant Genetic Research Institute (IPGRI)[5]

[5] UNDP and IPGRI have formulated and approved an umbrella agreement concerning the provision of mentoring services to the UNDP portfolio of agrobiodiversity projects. Participation of a project under this mentoring team agreement will provide project teams with state-

- Strengthen contacts and participate in various sustainable mountain conservation and sustainable use networks (e.g. Asian Mountain Forum, Central Asian Mountain Program)
- Strengthen existing partnership between Project scientific advisers and project on "Preservation and utilization of genetic polymorphism of Kazakhstan fruit forests" sponsored by the USDA Plant Genetic Resources Unit
- Coordination on agro-biodiversity research with Institute of Botany and Phytointroduction project "Preservation and Utilization of Genetic Polymorphism of Kazakhstan Fruit Forests" (under development)

End of project situation: At the national level, by the time the project is completed, national agro-biodiversity conservation laws, policies, and institutions will be in place and clearly integrated into overall national biodiversity conservation and nature protection policies for the country. At the project area level, there will exist established and practically tested *in situ* programs for MABD conservation, based on sound conservation management and a public-private partnership to conserve wild crop relatives on a sustainable basis. This program will have: an effective legal framework, optimal institutional arrangements which allow adequate multi-stakeholder participation, and sufficient technical and managerial capacity to efficiently undertake conservation and natural resource management activities at the two project sites. Comprehensive management plans will have been developed, operationally tested and refined for each of the two project sites and the experience and capacity of institutions and personnel to effectively continue the implementation and long term adaptive refinement of management activities will be in place. Efficient regulation of land use, both inside and adjacent to the SPAs, will be in place, and a restoration program for wild fruit forests will have been planned and piloted. A program on ABD research and monitoring will be designed, and a research program that generates data relevant for management planning and decision-making will be in place. Adequate financing of management activities will be based on a combination of state-allocated funds and funds generated from sustainable and carefully regulated natural resources use within appropriate zones of the NPs and adjacent productive landscapes.

A partnership between SPA administrators and management staff and local authorities, local communities and the private sector in the productive landscapes adjacent to core areas of ABD habitat will have been established on the basis of mutual assistance and shared decision-making. The National Parks (Ile Alatau and Dzhungar) will have the legal and institutional mandates and technical capacity to provide assistance to farms, dachas and the private sector on agro-biodiversity conservation, as well as legal mechanisms to effectively regulate negative activities within the protected areas. An increased diversity of livelihood options, and a positive legal, administrative and technical environment for the conservation and sustainable economic use of natural resources in the area, will have improved socio-economic conditions, reduced pressures on ABD habitats adjacent to productive landscapes, and provided incentives for preservation of traditional crop varieties. Tourism master plans for both project sites will be in place, sustainable tourism development and management will have been piloted, and the NPs will have the necessary regulatory mechanisms and capacity to ensure previous unsustainable use does not occur.

Local land-users, the private sector, and policy/decision makers at the local and senior government and parliamentary level will be aware of the global and national values of ABD, have an adequate knowledge of what the ABD program is attempting to achieve, and understand the benefits related to ABD conservation. They will support and be committed to implementing the management plans at each site. The general public, both within the project areas and nearby urban areas (Almaty and Sarkand), will have developed a

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of-the art scientific advice by IPGRI on topics to be defined by the project teams themselves. Membership in an existing network of agrobiodiversity conservation practitioners will also constitute part of the relationship, opening up channels for exchange of lessons learned and best practices.

sense of pride in the unique ABD of their area, and become sensitive to environmental issues and appropriate ways of behavior within the NPs and tourism/recreation sites in the mountains.

The practical effect of the above changes for the in situ conservation of globally important agro-biodiversity will be evident in the condition of wild fruit forests at the end of the project. Clear regulatory provisions and enforcement mechanisms will have eradicated dacha gardens and orchards (centers for disease and pest outbreaks) in close proximity to wild fruit forests, greatly improving the health of these ecosystems. Research on wild fruit forest genetics, population dynamics and conservation strategies will have improved the genetic diversity of wild fruit forests. Effective education and enforcement of regulations preventing fires, grazing, and forest cutting, and implementation of ecological restoration activities, will have increased the total area of wild fruit forests.

Project Beneficiaries. Local communities constitute the primary domestic beneficiaries. These communities receive ecological and economic goods and services from the wild fruit forests, so that conservation and sustainable management of the area's natural resources is in their direct interest. Economic and social changes in the project areas have resulted in a cycle of environmental degradation, and the project will provide local communities with the training, technologies, and inputs necessary to adapt their resource uses in ways that both optimize their economic conditions and preserve mountain agro-biodiversity. Local staff of MEP, the Ministry of Agriculture, and specific protected areas (NPs, zapovedniki, forest protected areas) will benefit from training and resources for new forest management and agro-biodiversity conservation measures, as will local staff of authorities and agencies responsible for land use and economic development. Other project participants, such as partner NGOs and government agencies, will benefit from training and improved standing and relations among local communities. The global community will benefit from the conservation of globally significant agro-biodiversity.

Stakeholder Participation in Project Design: For details on stakeholder participation in project implementation, please see Annex V. The development of this project during the PDF Block B benefited from active stakeholder participation. A steering committee comprised of representatives from the MEP, MA/FFHC, RK Academy of Science and UNDP Country Office in Kazakhstan oversaw the entire process. The Project Steering Committee ensured that other stakeholders such as the Ministry of Agriculture, Ministry of Economy, regional (oblast) akhimat and district authorities of Almaty region, and various local-level agencies were consulted and closely interacted with the project implementation unit (PIU). Various governmental and non-governmental groups, including the farmer's support group "Farmers of Kazakhstan", the Kazakh Republic Society of Beekeepers, the NGO "Green Salvation", and experts from several forest-protection and national park agencies, presented their own views on the problems facing conservation of ABD and provided recommendations on the preparation of the project, including the selection of the project sites. Considerable assistance was provided by several international organizations specializing in the management of natural and agricultural resources, such as the Canadian Environmental Alliance, which provided alternative livelihood proposals; the ACDI-VOCA Country Office, which gave recommendations for management of Ile Alatau NP; and the staff of the Sustainable Development Programme of the UNDP Country Office, which took an active role in advising on all points of the PDF-A and PDF-B processes.

To ensure the active participation of local communities in project design, the Zhetysuskiy Economic Institute was contracted during the PDF-B to conduct community consultation and outreach meetings with the populations of 28 rural settlements in the project site areas. These meetings with local inhabitants and community leaders were designed to solicit their input, and to gather their views on issues ranging from the reasons for the destruction of wild fruit forests, resource management priorities, awareness of

environmental legislation, knowledge of wild plants and animals, and local use of forest resources. The researchers also met with representatives from more than 60 farms and five farmer organizations to investigate local economic conditions and potential future opportunities. During this process, the project team identified candidates for alternative livelihood and micro-credit programs to be carried out during the Full Project.

Project Linkage to National Priorities, Action Plans and Programs: Kazakhstan's National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity (NSAPCSUBD) specifically identifies mountain agro-biodiversity ecosystems as one of seven priority ecosystems in Kazakhstan, and the MEP has endorsed this project as one of the country's top biodiversity priorities (see Annex XIII). In 1997-98, the Ministry of Natural Resources and Environmental Protection (now Ministry of Environmental Protection) developed a National Plan of Action on Environmental Protection (NPAEP), under which 19 concepts for projects have been identified and shared with UNDP-GEF, one of which is the development of ecotourism and of the system of Specially Protected Natural Territories (SPNTs). The NPAEP also specifically calls for the conservation and sustainable utilization of biodiversity and forestry resources as a top priority. In addition, the project supports three priority areas in the Environment and Natural Resources section of the GoK Long-Term (2030) Development Strategy of Kazakhstan: "Conservation of Biological Diversity", "Sustainable Use of Natural Resources" and "Environmental Education". GoK Decree 1167 of 1 August 2000 approved a program of conservation, development and use of Kazakhstan's genetic resources of agricultural plants, animal species and micro-organisms for the period of 2001-2005 (although this program remains very poorly funded, as noted in the baseline funding analysis). Finally, the project supports the goals of the GoK program of 2000 "Conservation, Development and Use of Genetic Resources of Agricultural Plants, Animals and Microorganisms".

Eligibility under the CBD: This project is designed to support the primary objectives of the CBD: the conservation of biological diversity, the sustainable use of its components, and the equitable sharing of the benefits arising out of the utilization of these components. By integrating conservation and sustainable use of biodiversity into relevant plans and policies, the project will fulfill the requirements of: Article 6 (General Measures for Conservation and Sustainable Use) - by the realization of relevant components of the National Strategy and National Action Plan for Biological Diversity; Article 7 (Identification and Monitoring) - by defining the most important (globally significant) components of biodiversity, and identifying adverse factors and threats; Article 8 (In situ Conservation) - by creating new protected territories (Dzhungar NP, specially protected seed sites) and introducing the necessary legislative norms for preservation and sustainable use of ABD; Article 10 (Sustainable Use of Components of Biological Diversity) - by furthering the development and demonstration of alternative, sustainable livelihood options that avoid or minimize adverse impacts on biological diversity and provide incentives for sustainable use; Article 11 (Incentive Measures) – by creating economic and policy incentives promoting conservation of biological diversity, and disincentives for activities with adverse impacts on biological diversity; Article 12 (Research and Training) - by promoting targeted research on priority biodiversity, providing training in technical and managerial areas, and developing linkages for exchange of information; Article 13 (Public Education and Awareness) – by creating and implementing education and awareness programs for local populations, key decision makers, and the general public; and Article 17 (Exchange of Information) – by cooperating with public and international organizations, and disseminating information on biological diversity and lessons learned to the general population and other natural resource managers.

The project also supports relevant decisions of the Conference of Parties, notably decisions II/15, III/11 and IV/6 which specifically outline the need for Parties to promote: (a) the positive effects and mitigate the negative impacts of agricultural systems and practices on biological diversity in agro-ecosystems and their

interface with other ecosystems; (b) the conservation and sustainable use of genetic resources of actual and potential value for food and agriculture; (c) the fair and equitable sharing of benefits arising out of the use of genetic resources.

Eligibility for GEF Financing: The project is eligible for GEF assistance under Operational Program 13 – Conservation and Sustainable Use of Biological Diversity Important to Agriculture, and will generate substantial global benefits in this regard. Kazakhstan is a recipient of UNDP technical assistance and, as a participant in the restructured GEF as of March 1998, is eligible according to article 9(b) of the GEF instrument.

The global significance of the mountain agro-biodiversity within the project area is without question and has been the long-term subject of international scientific attention. The project fully meets GEF OP13 guidelines and objectives, particularly with regard to conserving genetic diversity of value for food and agriculture; to integrating agricultural biodiversity conservation and sustainable use objectives in land use and natural resource use management plans; to promoting the positive impacts and mitigating the negative impacts of agricultural systems and practices on biological diversity; and to creating partnerships on the basis of the fair and equitable sharing of benefits, with special regard for the rural poor.

The project also seeks to accomplish relevant aims and objectives set out in the Convention on Biological Diversity and the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture. The Government of Kazakhstan recognized the importance of conserving its rich biological heritage by ratifying the Convention on Biological Diversity in September 1994, and has also adopted the FAO Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources. In line with the Global Plan of Action, the project encourages conservation and sustainable utilization of agro-biodiversity. The project is in line with Priority Activity 4 “Promoting in situ conservation of wild crop relatives and wild plants for food production”, by supporting recommended activities such as “integrate genetic conservation objectives in the sustainable management of wild crop relatives and wild plants for food production in protected areas and other managed resources areas”, and “complement conservation in protected areas with measures aimed at conserving genetic diversity which lies outside such areas”.

Connection of the Project with GEF Emerging Directions in Biodiversity: The project will ensure the sustainable conservation of mountain agro-biodiversity by the strengthening of an existing protected area and the establishment of a second protected area; by establishing specially protected seed sites within these areas that ensure the protection of critical habitat zones; by instituting effective zoning and regulation of land use, both inside protected areas and in adjacent productive landscapes; by creating new institutional bodies and capacities for agro-biodiversity conservation, and strengthening coordination between government agencies at national and regional levels, NGOs, and the private sector; by establishing legal and policy frameworks to enable long-term support for agrobiodiversity conservation; and by improving opportunities for sustainable use and benefit sharing through broad stakeholder participation in project design, implementation, monitoring and evaluation.

The project will mainstream biodiversity conservation principles and practices into the agriculture, forestry, and tourism sectors through support to systemic and institutional capacity building in government agencies and promotion of integrated planning and management across sectoral institutions; by increasing relevant knowledge and building partnerships between government agencies, the private sector, NGOs, and communities that secure biodiversity conservation; by promoting market based measures, such as micro-credit, tax credits, etc. to support mainstreaming of biodiversity conservation objectives in small and

medium-sized enterprises; and by supporting alternative livelihoods based on sustainable natural resource use that help to demonstrate win-win examples of benefits to local livelihoods and the global environment. At the project's two sites, established and practically tested in situ programs for MABD conservation will provide lessons learned and best practices to inform the policies and procedures of the newly established Department of Agrobiodiversity Conservation, which will become institutional practice for other agrobiodiversity conservation activities throughout Kazakhstan.

Connection of the Project with UNDP activity in Kazakhstan: The Project complies with the UNDP program of support to Kazakhstan, falling under the strategic area that includes the development of policies and strategies to address ecosystem degradation and loss of biodiversity. Related efforts within the UNDP program include: UNDP participation in the preparation of the National Strategy and Action Plan on Conservation and Sustainable Use of Biological Diversity (NSAPCSUBD), and the National Environmental Action Plan for Sustainable Development; ongoing and close cooperation with the GoK and its Ministry of Environmental Protection (MEP) and Ministry of Agriculture; and participation in the work of the Supervisory Council of the GoK, which includes representatives of donors, executive agencies, parliament, and NGOs, and which monitors the performance of NSAPCSUBD and maintains consultations with key stakeholders.

Connection of the Project with other GEF projects: There are two other GEF projects that address conservation of agro-biodiversity in Kazakhstan. The first is the World Bank-GEF Central Asia Transboundary Biodiversity project, which is already under implementation, but does not overlap with the proposed project geographically (it is located in the northeastern part of Kazakhstan) or thematically (it is focused on conservation of wild fauna and flora biodiversity, with protection of agro-biodiversity only in the context of larger ecosystem conservation). Wild fruit species within this project are considered as associated forest species; i.e., as one of the components of ecosystem, but are not the direct focus of the project, and the project does not look at these wild fruit tree species as a component of agricultural biodiversity, nor as a part of livelihood strategies for local communities and the basis for sustainable agricultural development in marginal and isolated areas.

The second is the UNEP-GEF PDF B "*In Situ*/On-farm Conservation of Agro-biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia". Potential synergies or overlaps with this project were first highlighted and addressed in UNDP's technical comments on the PDF B and UNEP's response. While originally the proposed UNEP initiative overlapped geographically with the UNDP-supported proposal, ongoing coordination between UNDP and UNEP during the PDF-B phase will ensure a final site selection where any geographic overlap is clearly avoided. As part of this coordination, UNDP has reviewed the UNEP PDF-B proposal and submitted comments to UNEP and the GEF noting potential overlaps and proposing strategies for UNEP to revise its project activities as necessary during the PDF-B process to ensure that there is no overlap and that appropriate mechanisms for coordination are developed.

Thematically, while both projects are concerned with agro-biodiversity, their emphases are quite different. The UNEP project is focused on genetic diversity, academic and research studies, farmer-based interventions, and the conservation of agricultural and agro-ecological ecosystems (forest farms). In contrast, the proposed project is focused on species and ecosystem diversity, conservation implementation, forest management interventions, and the conservation of wild fruit forest ecosystems (protected areas). In fact, due to the ecological and genetic interrelationships and interactions that exist between cultivated varieties of a species and their close wild relatives, and the impacts of human selection factors, the differing emphases of the two projects will actually allow them to strengthen each other.

To ensure mutual benefit, proper coordination mechanisms, including cross-participation on project steering committees and oversight responsibility placed within the same ministry, have been proposed by both projects so that they will complement and reinforce each other. In addition, the regional training centers proposed in the UNEP project can support the proposed project by ensuring the availability of skilled and trained farmers and technicians and by serving as centers for the exchange of knowledge among Central Asian countries.

In addition to these two projects, a number of recent and current GEF Small Grants Program projects in Kazakhstan have pursued objectives related to those of the proposed project. Coordination with current SGP projects and application of lessons learned from completed SGP projects will continue to be undertaken by the project team. Among the related SGP projects are two completed projects from which lessons learned have been applied to the design of the proposed project, including strategies for conservation and sustainable use of medicinal plants from the project "Conservation of ecosystem and rare, valuable plants of the Ivanovskii mountain ridge" (2001-03), and strategies for NGO participation in protected areas management from the project "The role and participation of non-commercial organizations of Kazakhstan in the creation and functioning of Altai-Sayan transborder biosphere territory".

There are also two ongoing SGP projects related to the proposed project, including one entitled "Conservation and restoration of wild apple forests in the Zailijskij-Alatau's foothills", carried out by the teacher's organization Yablonka, the NGO ASSA, and the company Alma-Ata Ltd. from 1998-2003. The project's primary objectives are: 1) involvement of local population in conservation and restoration of wild apple forests in the Zailiskiy-Alatau foothills; 2) sustainable manufacture of high quality natural apple vinegar and creation of employment opportunities for the local population, and 3) ecological education of the population. Another project is "Conservation and restoration of bee abundance in the foothills and the lower mountain belt of Zailiyskiy Alatau mountain range", carried out by the Naurzum Public Ecological Organization (PEO) from 1998-2000. The project's primary objectives are 1) conservation and restoration of apifauna in the foothills and lower mountain belt of the Trans-Ili (Zailiyskiy) Alatau Mountains, and 2) awareness raising of the local population regarding conservation of biodiversity. In both cases, the SGP project proponents have been consulted in the design of the proposed project, and are also partners in implementation of conservation and alternative livelihoods components of the project (see paragraph 64 and Annex XI for further details).

As part of its efforts to strengthen cross-project learning, UNDP is securing the services of the International Plant Genetic Research Institute (IPGRI) to manage a "learning portfolio" of projects focused on agro-biodiversity in Asia. The proposed project will form part of this learning portfolio, which also involves the UNDP/GEF project "In situ Conservation of Native Landraces and their Wild Relatives in Vietnam" (which also includes fruit tree species), and which is expected to expand to include similar projects in China, Cambodia, Argentina, Bolivia and possibly Nepal. IPGRI will create a project mentoring team to provide support to each project within the learning portfolio in implementing the project – in particular in relation to substantive issues or performance and impacts. As a result, the learning portfolio will assist each project to strengthen the existing annual review process (APR); apply adaptive, learning-based approaches to project implementation; promote exchange and learning across UNDP/GEF's portfolio of agrobiodiversity projects; and improve the documentation and dissemination of project lessons and project accomplishments.

PROJECT IMPLEMENTATION AND STAKEHOLDER PARTICIPATION

Implementation and Execution Arrangements (see Annex III - Project Organizational Matrix): The implementation arrangements for the project have been designed to maximize and yet balance efficiency, transparency, and participatory decision-making. The Forestry, Fishing, and Hunting Committee (FFHC) under the Ministry of Agriculture is the designated project executing agency, while the Ministry of Environmental Protection (MEP) is the project supervisory agency. The Deputy Director of the FFHC will chair a **National Coordinating Committee (NCC),** which will be formed to ensure overall leadership, coordination and political support for the project. The NCC will meet three to four times per year to provide guidance and oversight on project implementation activities, including approval for all significant project initiatives and sub-contracts, to act as the primary lobbying and coordinating body to ensure GoK policy, legislative, and financial support for the project, and to act as a liaison between the Project and other national and international programs, organizations and donors. The NCC will include authorized official representatives from MEP, the Ministry of Agriculture, and the Ministry of Education and Science, and representatives of the State Agency on Land Resources Management, the Akhimat of Almaty Oblast, the NGO community, and UNDP.

The Project Implementation Unit (PIU), under the supervision of the National Project Manager (NPM), will implement project activities. The NPM will be a full time employee of the project and will be chosen through an open, competitive process following UNDP standard recruitment procedures. The NPM will be responsible for the day-to-day management of project staff and national and international consultants, for overall project strategy and coordination with other institutions and stakeholders, and for acting as the link between the PIU and the NCC. In addition to its own full-time employees, and national and international consultants to develop and manage specific aspects of the project, the PIU will also utilize sub-contractors, both national and international, for implementation of key activities and components within the project (such as alternative livelihoods development and preparation of recommendations in the protected areas management and legislative spheres).

In order to ensure the agreement and involvement of key stakeholders for the project's on-the-ground management objectives, each of the two project sites will have a local **Site Project Support Council (SPSC)** for project assistance. Each SPSC will include representatives of key stakeholder groups at the site level: the national park director at each site (who will chair the SPSC), other protected areas managers, the Ministry of Agriculture, the Almaty Oblast Akhimat and Forest and Bio-resources Departments and Environmental Protection Departments, local farming associations, representatives of the fruit industry, and NGO representatives and co-funding institutions. The SPSC will be an effective advocate, through the individual authority of its members, to ensure that the project implementation activities are open to stakeholder participation, and will approve the work plan for each of the site areas. Government officials and other co-financing representatives, being SPSC members, will provide timely and effective co-financing.

To further support the project's local level activities, and to strengthen stakeholder participation, three structures will be created at the local level to work with the project team and existing resource management agencies during and after the project: **MABD Conservation Teams,** under the direct supervision of the NPM, will be established at the two project sites to coordinate and support the implementation of project activities. These teams will be responsible for the fulfillment of MABD conservation and management plans at each project area, and coordination and liaison with protected areas staff, local administrations, NGOs, and local land-users and populations. Each MABD Conservation Team will include a Site Coordinator, a Technical Adviser (UNV), and two subject area specialists (local experts), and will be hired by UNDP using standard UNDP hiring procedures. It is envisaged that these teams will evolve by project's end into the new NP MABD Departments at each site.

Public Committees on NP Management will be organized in coordination with NP administrations under the aegis of the SPSC. These committees will facilitate general public participation, through NGOs and local authorities and associations, in the management of the national park at each site. At the same time, implementation of activities within productive areas adjacent to the SPAs will be coordinated and supported by **Land User Associations**, made up of local land users, landowners, and small business owners. These associations, through their executive committees, will provide a direct connection between their members and project implementing agencies, and will facilitate stakeholder participation in project activities, implement training programs, provide information exchanges, and render technical assistance. The project's alternative livelihood activities, and the micro-credit programs to support them, will be designed and implemented in close consultation with the Land User Associations and with the support of the SPSC.

Stakeholder input to project implementation: The following is a summary description (a more detailed description of stakeholder involvement in project implementation is provided in Annex V). A major objective and focus of the project is to build a MABD conservation and sustainable use system with stakeholder participation in decision-making and project implementation. To achieve this objective, a number of specific mechanisms (Site Territorial Councils on Project Implementation, Site Land User's Associations) are planned. This will help to achieve the full interconnection and active participation of all stakeholders. The Project will seek to build a partnership between the conservation agencies (NP Administration and forestry enterprises), local authorities and communities, and the private sector to create a conservation and land use system that meets, to the maximum extent possible, the aims and objectives of all concerned. The monitoring and evaluation process (including the annual reviews and tripartite reviews) also will provide opportunities for stakeholder feedback via stakeholder surveys that will be conducted on these reports.

INCREMENTAL COSTS AND PROJECT FINANCING

Incremental Costs: The incremental cost of the project for activities that are expected to provide global environmental benefits is estimated at US$ 2,770,000. Leveraged co-financing from non-GEF resources associated with the GEF alternative project is estimated at US$4,789,200. The total project cost, including US$ 230,967 during the PDF-B stage, amounts to US$ 7,790,167 (see Annex I for details).

Cost Effectiveness: This project is designed to be cost-effective and produce project outputs for the least amount of money possible. Working in two different sites, the project has been designed to achieve economies of scale with respect to developing and implementing various management programs in the two sites. GEF's Block B investment has leveraged substantial co-financing to meet the sustainable development baseline. The project will implement several demonstrations in sustainable agro-biodiversity practices in the productive landscape. These initiatives will cost-effectively demonstrate long-term sustainability of agro-biodiversity conservation and management in and beyond the specific areas when replicated. Initiatives established under this project are designed to be appropriate to the circumstances and abilities of the key players and can therefore be sustained by them over the long-term. The project will also establish cost-effective partnerships among key stakeholders, spreading responsibilities for addressing conservation needs among a range of actors. For example, project activities will be coordinated with and complemented by existing baseline activities by various parties to improve the socio-economic conditions in the rural mountain areas of Almaty Oblast. The participatory approach taken by the project should be cost effective in that it will engender greater stakeholder "ownership" of conservation efforts, improving the chances of successful outcomes.

BUDGET
(A detailed project output budget with breakdown of co-financing is provided in Annex XV)

Project Outputs/Activities (US$)	**GEF**	**Co-Financing**	**Total**
	USD	**USD**	**USD**
Outcome 1: Ecosystem-based conservation and management of wild crop relatives at two project sites	***1,415,000***	***1,828,000***	***3,243,000***
1.1: Baseline description of project sites and specific land use categories within each site	160,000	10,000	170,000
1.2: Establish Dzhungar Alatau National Park and Specially Protected Seed Sites	100,000	900,000	1,000,000
1.3: Build partnerships with local communities for ABD conservation on adjacent private lands	100,000	0	100,000
1.4: Sector specific sub-plan development (Scientific Research and Monitoring, Ecological Restoration, Tourism Regulation and Development)	240,000	70,000	310,000
1.5: Identification and analysis of key management objectives and components for project sites	80,000	10,000	90,000
1.6: Final management plans assembly, participatory review and agreement	185,000	40,000	225,000
1.7: Pilot phase implementation of management plan and sub-plans and periodic adaptation to incorporate lessons learned	550,000	798,000	1,348,000
Outcome 2: Strengthened institutional, technical, and financial framework for ABD conservation	***320,000***	***483,000***	***803,000***
2.1: Conservation agency and SPA institutional restructuring	90,000	237,000	327,000
2.2: Training and capacity development of managers and staff of SPAs and other conservation institutions	180,000	153,000	333,000
2.3: Identification and development of viable long-term financing mechanisms for agro-biodiversity conservation within Kazakhstan	50,000	93,000	143,000
Outcome 3: An effective legislative framework for the conservation and rational use of agro-biodiversity resources	***260,000***	***67,000***	***327,000***
3.1: Develop long-term policy for agro-biodiversity conservation and sustainable use in Kazakhstan	40,000	15,000	55,000
3.2: Identify key legislative and regulatory changes required at national, SPA and local level to support agro-biodiversity management plans and initiatives	100,000	15,000	115,000
3.3: Develop new or adapted draft national legislation and regulations and local level “by-laws”, create clear guidelines and instructions on the practical implementation of legislation, and clarify the rights and obligations of stakeholders	70,000	12,000	82,000
3.4: Consult with all stakeholders to ensure agreement on legislative and regulatory changes	35,000	10,000	45,000
3.5: Submit legislation for official review and approval according to required procedures, and undertake lobbying and follow-up to	15,000	15,000	30,000

ensure timely results			
Outcome 4: Alternative livelihoods benefiting local communities in project sites, reducing natural resource use pressure on mountain agro-biodiversity	***245,000***	***2,284,200***	***2,529,200***
4.1: Sustainable socio-economic and natural resource use strategy and action plans for local populations at each project site.	20,000	0	20,000
4.2: Demonstration/pilot projects for alternative livelihood development	55,000	1,868,000	1,923,000
4.3: Long term technical, business and organizational support services for appropriate small-scale farmers and relevant private sector	10,000	340,000	350,000
4.4: Development of a micro-credit facility to support sustainable alternative livelihood activities for small-scale farmers and businesses in project sites	100,000	70,000	170,000
4.5: Work with state agencies to create economic incentives to encourage sustainable use of natural resources and to discourage activities with negative impacts on agro-biodiversity	60,000	6,200	66,200
Outcome 5. Awareness and support at all levels regarding the values and need to conserve Kazakhstan's mountain agro-biodiversity increased	***530,000***	***127,000***	***657,000***
5.1: Development of Biodiversity Awareness and Education Centers in each project site to act as focal point for awareness and education campaigns	100,000	59,000	159,000
5.2: Support local NGOs and institutions with relevant interests and objectives (nature clubs, fruit growers associations, etc.) to undertake ABD education and awareness activities	60,000	0	60,000
5.3: Awareness building and training on the contents and practical application of new/adapted legislation	60,000	0	60,000
5.4: General public awareness campaign on the importance of Kazakhstan's natural environment and ABD resources	130,000	35,000	165,000
5.5: Local-level awareness campaign for natural resource users on value of ABD resources and carrying capacities of local ecosystems	70,000	23,000	93,000
5.6: Awareness building with important national and local authorities on global values and economic importance of ABD conservation	60,000	10,000	70,000
5.7: International networking and partnership development for ABD conservation	50,000	0	50,000
Total	***2,770,000***	***4,789,200***	***7,559,200***

KAZAKHSTAN CO-FINANCING

MEP (Ministry of Environmental Protection)
$2,487,000 Total (2003-08)
(MEP funding goes to many of the project activities, as detailed in Annex XV, but summarized here)

$2,020,000 Management of the Ile-Alatau National Natural Park and the Almaty Natural Reserve; aerial protection against fires in the mountain forests of Almaty Oblast; strengthening of the legal base for the System of Protected Natural Territories (SPNT); and creation and maintenance of the new Dzhungar National Natural Park.

$467,000 Implementation of scientific investigations and inventory of agro-biodiversity resources; monitoring and improvement of management within SPNT territories; organization of awareness and education programs; and financing of the general operational expenses of the project management team

Almaty Oblast Akhimat

$300,000 Total (2003-08)

$300,000 Activity 4.3: *Social and economic issues and support of farmers and entrepreneurs* for long term technical, business and organizational support services for appropriate small-scale farmers and relevant private sector.

Jibek Joly:

$800,000 Total (2003-08)

$800,000 Activity 4.2: Demonstration/pilot projects for alternative livelihood development ("for participation at the creation of tourist infrastructure of Ile-Alatau and future Dzhungar national parks").

Baldyrgan

$960,000 Total (2003-08)

$960,000 Activity 4: They will extend storage stations for agricultural goods and work with additional fruit and vegetable growers

Green Salvation:

$18,000 Total (2003-08)

$3,000 Activity 3.2: Identify key legislative and regulatory changes required at national, SPA and local level to support agro-biodiversity management plans and initiatives.

$9,000 Activity 5.1: Development of Biodiversity Awareness and Education Centers in each project site to act as focal point for awareness and education campaigns.

$3,000 Activity 5.4: General public awareness campaign on the importance of Kazakhstan's natural environment and ABD resources.

$3,000 Activity 5.5: Local-level awareness campaign for natural resource users on value of ABD resources and carrying capacities of local ecosystems.

Farmer of Kazakhstan

$16,200 Total (2003)

$10,000 Activity 4.3: Long term technical, business and organizational support services for appropriate small-scale farmers and relevant private sector

$6,200 Activity 4.5: Work with state agencies to create economic incentives to encourage sustainable use of natural resources and to discourage activities with negative impacts on agro-biodiversity

ACDI/VOCA Farmer to Farmer Project

$30,000 Total (2003)

$30,000 Activity 4.3: Volunteer international consultants to contribute to the development of Ile-Alatau National Natural Park and facilitate conservation activities for mountain agrobiodiversity.

Kazakhstan Community Loan Foundation
$70,000 Total (2003-08)
$70,000 Activity 4.4: Micro-credit for rural inhabitants

Agroinprof Service
$108,000 Total (2003-08)
$30,000 Activity 4.2: Education and awareness programs; training workshops for local inhabitants in collecting, using, and conserving medicinal plants
$60,000 Activity 4.2: Hiring of locals to collect medicinal plants
$18,000 Activity 4.2: Pilot plantations of endangered valuable medicinal species

RISKS AND SUSTAINABILITY

Project Risks: As the activities of human populations in and around the wild fruit forests of Kazakhstan constitute a long-term threat to mountain agro-biodiversity, the project will undertake to involve and empower the primary actors whose decisions have a direct bearing on agro-biodiversity, namely, farmers and local communities. In addition, though, cooperative actions with human populations must be embedded within a framework that guarantees sustained action. The GEF alternative would involve a one-time investment to develop the technical, managerial and operational framework for this through an array of well planned capacity-building activities. These actions will take place within a comprehensive strategy for agro-biodiversity conservation that will enhance legal and institutional structures and public awareness and support. Furthermore, Kazakhstan has mobilized additional resources to raise the present level of baseline activities to a more sustainable level, focusing on creating and strengthening protected areas, improving forest management, and researching forest and agro-biodiversity conservation.

A number of basic assumptions concerning external factors that could affect the project have been made and there is a varying degree of risk related to each. Specific abatement measures, summarized below, have been designed to reduce the risks that could undermine project results.

RISK	RATING	ABATEMENT MEASURES
1. Climate Change	Low	The project is within a semi-arid area and thus local ecosystems are vulnerable to significant changes in climate. The GEF alternative will support research to help identify agro-biodiversity species most likely to be threatened by climate change, and using such knowledge, undertake preparation activities (short-term protection measures, monitoring, etc).
2. Worsening macro-economic factors	Medium	Economic decline could increase the pressure on agro-biodiversity resources for short-term commercial gains rather than long-term sustainable use. While this is not expected to happen, the project is designed to anticipate these risks and proactively mitigate them by dealing directly with the social and economic factors behind MABD degradation and improving the

RISK	RATING	ABATEMENT MEASURES
		livelihoods of local people.
3. Change in governmental priorities, and frequent changes in governmental personnel	Low	The risk of government priority changes is low, given the commitment of the Federal and Oblast governments, demonstrated both through their development of the NBAP and the significant financial commitment to co-financed activities. However, to mitigate this risk will require the positive, active involvement of all relevant stakeholders, including Federal, Oblast and local government agencies, commercial and industrial enterprises and local communities in the site areas, the objective of the project's public education and awareness activities. There is also a risk posed by frequent changes in key government personnel, and thus a lack of continuity in policy and decision-making. Though it is hoped that such changes will be less frequent in the future, the project will mitigate against this risk by helping to put in place clear long-term policies which will ensure continuity of approach, and by establishing strong multi-stakeholder institutions which will have sufficient capacity and direction so as to be resilient to short-term fluctuations in decision making and policy interpretation.
4. Inability to achieve adequate consensus and cooperation between the various stakeholders.	Medium	While it may prove difficult to bring together stakeholders who traditionally have not cooperated, over time mutual understanding will grow and the net advantages that all parties can gain by cooperation and compromise will allow increasingly effective cooperative activity. The project has accounted for this risk in its design, and it is hoped that the gradual build up of consultation and partnership building will eliminate any initial resistance.
5. Mindset and traditional practices and approaches cannot be sufficiently changed to allow effective development of integrated conservation and sustainable use of MABD	Medium	This risk is frequently underestimated in international technical assistance projects in Central Asia, as on the surface administrative and technical capacity is comparatively high. However, approaches to management, economic development and natural resource management developed during the Soviet era are deeply ingrained, and reorienting such attitudes and the related institutional structures is not a short-term activity. The project recognizes this risk and seeks to mitigate it in a number of ways. First, through education and awareness activities, some of which are focused specifically on the highest risk group – senior policy and decision makers. Second, through ensuring wide and extensive consultation and participatory planning, the project will facilitate the gradual absorption of new ideas and approaches. Third, the project will support the initial operational establishment of new institutions and support demonstration projects to test new approaches and methods for achieving sustainable livelihoods; these practical actions and concrete examples should overturn lingering opposition to new approaches.
6. Key legislative	Low	The risk of zero legislative change is low given the existing

RISK	RATING	ABATEMENT MEASURES
changes and adaptations delayed or not made.		commitment to framework legislative improvement, but the risk of delays that will impact the effectiveness of project activities is more significant. The project will mitigate this risk by addressing legislative issues from the outset, by including specific legislative follow-up and lobbying activities, and through targeted awareness raising of parliamentary and other legislative organs.

Sustainability: The sustainability of the project's social and institutional changes will depend mainly on the following factors: the robustness of the institutional structures in the face of change and their ability to adapt and grow to meet new circumstances; the viability of applying new legislative and management approaches and mechanisms; and the active participation and support of all stakeholders. During project design this has been borne in mind and specific approaches and activities included to maximize sustainability. The development and creation of institutional structures with locally based multi-stakeholder participation will create a force for local representation and decision-making, and a means for accelerating decentralization of management control that will increase local resilience in the face of outside pressures. The operational piloting of the institutional structures during the project is intended to ensure that problems which may effect their sustainability are identified during, not *post*, project, and that the resulting refinements and experience gained will ensure their ability to efficiently operate and grow in the future. New or adapted legislation and management approaches and methodologies will be developed with in-depth consultation, and furthermore will be practically tested during the project to allow refinement and experience to be gained. The emphasis placed on education and awareness is a reflection of the importance project designers have placed in overturning deeply ingrained historical attitudes to natural resource use. Combined with alternative livelihood activities that benefit local communities and reinforce the advantages of sustainable natural resource use, the project's local outreach will ensure the development of genuine support and commitment at all levels to sound and sustainable use of local mountain natural resources and their unique ABD.

To ensure the long-term financial sustainability of its objectives, the project has been designed to create an end-of-project situation where long-term recurring costs are minimized, and mechanisms and commitments are in place to provide sufficient funding for those costs which will carry on through the long term. Significant capital costs, for essential research, legal/institutional reforms, infrastructure (tree seedling nurseries, visitor/education centers), equipment, training, and economic development, will all be addressed during the project itself, so that ongoing costs for these activities will be minimized. Micro-credit programs will be fully established and self-financing by the end of the project, and supporting alternative livelihood activities that also pay for themselves through increased incomes for participants.

To improve future financial inflows, SPAs will be empowered to carry out sustainable development programs within their territories (apple processing, bee-keeping), and to collect and retain visitor fees. In addition, user/operator fees will be levied on trekking/fishing lodges, tourism operators, and others who currently operate within SPAs (and heavily impact SPA resources) without paying any contributions at all to SPA management. The project will also, through legislative, policy, and educational changes, increase support among the general public and local and national officials for increased governmental financial support for ABD conservation. The project will seek out financial support for long-term research and conservation activities from international partners (FAO, IPGRI, et al.) based on the importance of Kazakhstan's wild fruit forests for globally important food crops (apples, apricots) and medicinal plants.

The project will also continue discussions with large international companies active in Kazakhstan's natural resources sector (e.g. oil and natural gas companies) and from apple and forest-related agricultural products companies, for support for public education and awareness on natural resources use and conservation. Finally, the GoK, by agreeing to place all important wild fruit forest areas within the territories of two national parks, and by establishing a precedent during the project for greatly increased funding of these parks, will be the primary partner in guaranteeing sufficient long-term funding for conservation, management, and research activities relating to mountain ABD.

MONITORING, EVALUATION AND LESSONS LEARNED

Monitoring: The project monitoring and evaluation process will rely on baseline data gathered during the PDF-B phase, including data on loss of wild fruit forests, effects of threats such as fires, pests, land clearance, and resource extraction, and socio-economic data, and will expand this baseline data during the first year of the project in order to provide a basis against which to measure the reduction in threats and/or the impacts of the project. A comprehensive monitoring and evaluation program has been included in the project's overall design that will be established and piloted during the project's initial stage, and will provide ongoing and improved data on the status of ABD and the key factors affecting it.

Project progress will be monitored by measuring the total area of securely protected wild fruit forests, and the ecological integrity of those forests, based on measures of genetic contamination, pest/disease incidence and overall species diversity. Specific cost effective and viable indicators of ABD ecosystem and biodiversity health will be developed in detail during the design of the research and monitoring program. In addition to ecological indicators, monitoring will be undertaken of a) awareness and support for ABD conservation and sustainable use within the key stakeholder groups, b) socio-economic conditions affecting ABD resources, and c) impacts of legal and institutional reforms. This monitoring will be ongoing, involving data collection and assessment of the project's field implementation, and will involve key project staff and UNDP counterparts meeting annually to review operations and field implementation and assessing whether new priorities require a shift in project priorities. Annual meetings of the interested parties and the PIU will be also an element of monitoring. At these meetings, assessments of project activity, review of conducted operations, and current activities and their conformity to stated priorities will be given.

Evaluation: Outcomes will be evaluated by measuring indicators of ecosystem health and function as well as sustainable use. In addition, annual participatory evaluation exercises will be undertaken with key stakeholders, including local communities, NGOs, and partner organizations. The National Project Manager will be required to produce an Annual Project Report (APR) designed to obtain the independent views of the main stakeholders of the project on its relevance, performance and likelihood of success. The APR then supports an annual Tripartite Review (TPR) meeting -- the highest policy-level meeting of the parties directly involved in the implementation of a project. The participants are the Government, UNDP, project management, and other stakeholders. They will consider the progress of the project based on the APR. UNDP will also report the results of this ongoing monitoring and evaluation conducted by UNDP to the GEF Secretariat during the annual PIR. The project will document lessons learned, and make them available to stakeholders over the Internet and through reports disseminated within the project area.

Three external evaluations are scheduled, one in year two, one in year four and a final review near the end of the project. These independent evaluations of project performance will match project progress against predetermined success indicators. Each evaluation of the project will document lessons learned, identify challenges, and provide recommendations to improve performance. The logical framework for this project sets out a range of impact/implementation indicators and threat reduction indicators that will be used to

gauge project impact. Success and failure will be determined in part by monitoring relative changes in baseline conditions established in the biological, ecological, economic, and social use arenas at the beginning of the project. Baseline conditions will be defined with respect to ABD habitat size, condition and species diversity to ensure that viable populations of these species are present in perpetuity. Indicator species that are sensitive to habitat change and indicative of increased hunting pressure will be identified and monitored. If populations of indicator, rare, or endangered species are shown to be in decline, proper measures will be taken to identify the reason for the decline, and alternative management strategies to ensure the long-term health of populations will be developed and incorporated into site management plans and operations.

The involvement of appropriate interest groups and stakeholders is a challenging task, and the right balance between establishing new coordinating and governing bodies for the project and the use and inclusion of existing institutions, organizations and user groups is a delicate one. The project's progress on this front will be evaluated as part of its periodic monitoring and evaluation exercises, particularly with respect to the National Coordinating Committee and the Site Project Support Councils.

Lessons Learned: Previous project development and design activities in Kazakhstan and the Central Asian/CIS region have been referenced during the development of this project. In addition, the UNDP-GEF evaluation (Nakashima 1997) yielded useful and germane lessons for this project. Government multi-sectoral coordination and enforcement bodies were found to be a strategic component of all biodiversity projects. A lengthy and sustained process was found to be necessary to achieve biodiversity conservation using an integrated management framework. Experience from all over the world demonstrates that development of integrated management policy and its acceptance does not occur quickly and that the strategic input of technical support over time rather than the quick injection of large funds is more effective for achieving sustained results. In most cases, projects must establish a sustainable institutional mechanism, with strong government commitment, for integrated management and conservation of biodiversity. To meet this objective, they must provide technical expertise for issue identification, biodiversity assessments, environmental surveys, public awareness building, training, legal and institutional analysis, GIS and databases, and the supervisory focus for managing all these activities. Lessons learned suggest that a two-track approach be used to build capacity at the national policy level (regulations and institutions) while at the same time integrating implementation activities at the local and community level.

Replication. Sound methods for resolving conflicts, improved management of protected areas, strong institutions for the planning and management of conservation and development activities, and clear legal mandates are important in order to successfully integrate the activities of diverse sectors. This project has been designed to apply significant effort in developing lessons learned and facilitating the sharing of information and replication of successful methodologies. During implementation, the project will develop contacts and participate in various sustainable mountain conservation and sustainable use networks, including the internet based Asian "Mountain Forum", and coordinate with other relevant projects and initiatives, including the WB/TACIS project "Biodiversity Preservation of Western Tien Shan", the UNDP/GEF project "Complex Preservation of Globally Important Wetland Habitat for Migratory Birds", and the GoK program of sustainable development for the Ile-Balkhashskiy water basin, and through these means disseminate lessons learned and encourage/facilitate replication of successful project approaches, initiatives and activities.

List of Annexes:

ANNEX I: Project Incremental Cost Assessment

1. Broad Development Goals

Kazakhstan's broad development objectives are: 1) to maintain recently achieved positive economic growth; 2) to increase the presence and role of the private sector in the economy; 3) to improve social conditions and the security of livelihoods, and 4) to utilize natural resources sustainably to safeguard the long-term future development of the republic (Kazakhstan Strategy of Development through 2030). In the project areas, development goals are principally aimed at improving economic and social conditions in rural areas through private sector development, including the development of agriculture and fruit farming, related SME's, and tourism development on the basis of local mountain landscapes of high aesthetic and recreational value.

The Government of Kazakhstan recognized the importance of conserving its rich biological heritage by ratifying the Convention on Biological Diversity in September 1994. In 1997-98, the MEP developed a National Action Plan for Environmental Protection (NEAP), under which 19 concepts for projects have been identified and shared with GEF, one of which is the development of ecotourism and of the system of Specially Protected Natural Territories (SPNTs). The NPAEP also specifically calls for the conservation and sustainable utilization of biodiversity and forestry resources as a top priority. In addition, the National Strategy and Action Plan on Conservation and Sustainable Use of Biological Diversity (NSAPCSUBD) identifies mountain agro-biodiversity ecosystems as one of seven priority ecosystems in Kazakhstan.

2. Global Environmental Objectives

Global environmental benefits include significant indirect use (option and insurance) and passive use (existence) values, as well as the immediate direct use value of the protected ecosystems as scientific laboratories. The global option and insurance values spring from Kazakhstan's myriad, distinct varieties and related intraspecific genetic diversity of wild apples and other mountain forest agro-biodiversity. For world agriculture, this genetic diversity preserves options to rebuild, preserve, or augment the genetic vitality of domestic apple varieties. It also serves as a global insurance policy against disease and other potential problems for the domestic apple industry. With this safety net of conserved wild mountain agro-biodiversity in place, managers and policymakers worldwide have time to explore other possible global benefits of wild mountain agro-biodiversity, while conservation action mitigates long-term risk consistent with the precautionary principle.[6] The global existence value arises from nontrivial per capita existence values multiplied by the hundreds of millions of developed country citizens who hold these values and live outside of Kazakhstan.

These global values will be preserved by conserving mountain agro-biodiversity ecosystems in two sites of Kazakhstan's Tien Shan mountains through an ecosystem-based, integrated conservation and sustainable use approach. Diversity conservation policies, programs and practice will be developed for application across the whole forestry sector in Kazakhstan. The project will demonstrate them in two priority mountain ecosystems encompassing a representative sample of the full spectrum of mountain agro-biodiversity.

3. Baseline

[6] As stated in Principle 15 of the 1992 Rio Declaration on Environment and Development, the precautionary principle says that, "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Despite the GoK's policies on nature protection, there remains a considerable unmet need for effective mountain agro-biodiversity conservation. This section describes existing and planned activities as well as existing gaps that would occur in the absence of the GEF Alternative project.

Policy and Regulatory Framework: Kazakhstan has undertaken a number of planning and legislative activities aimed at conserving and sustainably using forestry and biodiversity resources efficiently, including a number of specific government decrees and medium-term strategies for forestry and a tourism development. Future plans call for the strengthening of overall environmental legislation and the development of specific regulations for SPAs both nationally and within the project area. Legislation on land ownership and agrarian sector reforms will also be undertaken. In total, Kazakhstan is expected to commit an estimated US$15,000 to relevant legislative reforms over the next 6 years.

Protected Area Management: Management of the issues of biodiversity conservation and SPA activity is assigned to the Ministry of Agriculture but their coordination is carried out by the Ministry of Environmental Protection (MEP). MEP has the right to issue decisions in the field on environmental protection and use, to issue certain types of legal standards and decrees, to carry out ecological analysis of proposed projects and economic activity, and to coordinate the development and implementation of ecological projects. Management of biological resources, and especially SPAs, is carried out through the Forestry, Fishery and Hunting Committee (FFHC), a division of the Ministry of Agriculture (MA). Under the baseline, MA/FFHC is stated to provide US$991,933 in financing over the next 6 years for the management of protected areas at the two project sites, including Ile Alatau National Park, Almaty Nature Reserve, Sarkand and Lepsin Forest Reserves, and for work to establish Dzhungar Alatau NP. This funding level will be insufficient to implement the changes required to achieve long-term sustainability and specific objectives such as MABD conservation. Under baseline conditions, the sites will continue to operate at a minimal operational level, with no unified or participatory management, no systematic and focused management of key species and habitats, and the continued disappearance and degradation of key areas of mountain agro-biodiversity. Furthermore, financial and capacity constraints under the baseline make it unlikely that Dzhungar NP would be established.

Monitoring & Research: The capacity to carry out effective research and monitoring in Kazakhstan exists. GoK is planning to undertake a number of actions that will, at least in part, meet research and monitoring needs at the project sites. For example, Decree 1379 of 11 September 2000 created a scientific-technical program titled "Scientific Provision of Manufacture, Processing and Storage of Agricultural Products in the Regions of Kazakhstan for 2001-2005". Among this program's measures is the development of scientifically based forestry management within a number of natural zones of Kazakhstan, the search for efficient conservation measures to protect forests from pests and diseases, the improvement of propagation methods for endangered and rare species of trees and bushes, and the development of food manufacturing technologies for natural fruits. Approximately US$32,000 will be spent at the project sites on these issues, primarily for the establishment of a Center for Fruit and Viniculture and a Forest Research Institute. In addition, Decree 1167 of 1 August 2000 created a national program for the Conservation, Development and Use of the Genetic Fund of agricultural plants, animal species and microorganisms for the period of 2001-2005. This program provides for the establishment of eight genetic plant selection centers, including ones dealing with forest, fodder and fruit species, and for the establishment of a National Genetic Fund Council. The total program budget is US$1,836,735, of which it is estimated that US$55,102 will be spent in the project area. Thus an estimated total of US$86,102 will be spent in the project sites over the six years of the project. However, this work will not provide for the establishment of long-term R&D

programs specifically focused on mountain ABD, nor will it adequately generate the kind of applicable data needed for the long-term management ABD resources.

Awareness, Environmental Education and Specialist Training: Limited activities on general environmental awareness raising will continue to be undertaken by the government and NGO sector, but only totaling an estimated US$3,400 over the six years of the project. In addition, an estimated US$5,000 will be used for the training of relevant forestry and NP personnel. This level of support will be wholly inadequate to meet the awareness, educational and training needs required for effective ABD conservation and sustainable use of the resources at the project sites. Currently, the level of awareness among local communities and akhimats of the global genetic value of mountain fruit forests and the need to conserve them is very minimal. The same is true of district authorities and the personnel and managers of protected areas and local offices of MEP, FFHC, and other agencies, who also have insufficient technical and managerial capacity to instigate necessary changes in approaches to ABD conservation. There is also a considerable gap between the positive increase in awareness of the public on general issues, and actual changes in their behavior, as exemplified by a still prevalent "litter culture", even in nature reserves.

Socio-Economic and Sustainable Land Use Development within Project Sites: Development of small and medium-size businesses is viewed as a priority for economic development in Kazakhstan. Small businesses are seen as a flexible and powerful leverage for a great number of economic and social problems, from supplying the market with varied goods and services, to reducing unemployment, providing jobs by establishing new enterprises, forming new and efficient economic structures, and increasing healthy competition. In this context, Almaty Oblast has adopted for 1999-2003 a pilot project entitled "Post-Privatization Support of Agriculture and Processing Industries", with ongoing support from the EBRD, British Know-How Fund, TACIS, the GoK, and commercial banks totaling approximately US$12 million. Of this amount, it is estimated that US$114,000 is to be spent within the project sites.

4. GEF Alternative

This project proposes an alternative approach to address the root causes of the threats to globally important mountain agro-biodiversity in the project sites, with significant funding from partners other than GEF. This project will modify the baseline/business as usual scenario with GEF incremental funding for activities that provide direct global environmental benefits. These activities will be complemented by co-financing for sustainable development activities necessary to support the realization of global environmental benefits. A portion of the co-financing, particularly from government, will go to project activities that provide global environmental benefits, notably for the strengthening of protected areas and conservation institutions and laws, and public awareness. Co-financing will also reduce threats related to habitat destruction and the over-harvesting of biological resources emanating from productive landscapes within and adjacent to protected areas, by enabling stakeholders to sustainably utilize agro-biological resources. The following is a description of the proposed GEF Alternative:

*A national integrated agro-biodiversity conservation and sustainable use policy framework***:** Building on initial work already undertaken within the context of the NSAP and other policy documents, the project will assist the government in developing a clear long term strategic and policy framework for the conservation and sustainable use of agro-biodiversity nationally. Besides the overall benefits this should have for agro-biodiversity conservation in the country, this will provide a clear-cut policy environment for the development of ABD conservation programs.

National Parks and adjacent territories with well-planned operations and effective management: The GEF financing will help to strengthen the management of mountain ABD in the two priority sites. A fundamental problem for the conservation and sustainable use of ABD in the project area is the lack of any integrated planning instruments and mechanisms for ensuring that the many stakeholders involved work effectively towards clearly agreed upon conservation and sustainable development goals. Furthermore, management structures established for the conservation and use of biodiversity resources in the area do not have the technical and managerial capacity, finances, legal or planning instruments needed to do the job.

GEF funding will be used to develop integrated and adaptive management planning for each project site. Management plans will encompass all land-use categories within the project site, including specially protected areas (NP's, forestry reserves, etc), and adjacent productive landscapes which significantly impact ABD within the SPAs. Mountain ABD hotspots currently with insufficient or no legal protection status will be identified and earmarked for inclusion into the SPA system. To ensure real support and commitment, such planning must be done with the involvement of all stakeholders, and thus emphasis is placed on ensuring full participation and achieving consensus within the various parties involved (FFHC, NP Administrations, local authorities and communities, etc.). The agreement and definition by the key stakeholders of short, medium and long-term management objectives for each site as a whole, and for specific land use categories within each site, will provide a vastly improved environment for the practical achievement of conservation goals.

Institutional Capacity Development, Training and Revenue Generation: The development and definition of the institutional structures and mechanisms necessary for effective long-term management is a critical factor, and the GEF Alternative project will focus resources on their development. In this context, the role and mandate of the NP administrations (the existing Ile Alatau NP and the new Dzhungar NP) will be greatly expanded to provide a focal point with over-arching responsibilities for coordination, monitoring and execution of new tasks required within the ABD program. The mandates of the NP administrations will include regulatory and control functions within the NP borders and adjacent territories, as well as support functions for appropriate sustainable use of resources throughout the project sites. To achieve the latter functions, a new Department of ABD Conservation within each NP administration will be established. At the same time, mechanisms to ensure multi-stakeholder participation into overall decision making and further development of site management plans will be developed through the creation of a National Coordinating Committee at the national level, and Project Site Support Councils, Land Users Associations, and Public Committees on NP Management at each site.

To support the process of institutional change, and to ensure sufficient technical, managerial and financial capacity exists to fully develop and implement the management plans, GEF financing will be used to undertake two sets of activities – one focusing on technical and managerial capacity and the other on financial resources. The former will assess technical and managerial capacity needs of NP staff and other relevant organizations that will be involved in practical implementation of the plans in order to identify major capacity gaps. On this basis, a detailed capacity development program will be elaborated and implemented involving a spectrum of formal and on-the-job training, study tours and experience exchanges. Regarding financing, the project will assess the various existing and potential sources of long-term and recurrent funding in the context of the estimated required budgets for implementing the management plans and, in collaboration with other project activities, follow-up and secure reliable financial inputs.

Within the overall site management plans, long-term sector-specific plans and programs will be identified for further elaboration, including: a collaborative, targeted and cost effective research and monitoring

program, ecological restoration plans for wild fruit forests, a strategy and action plan for sustainable economic development in productive landscapes within the Project sites, and tourism plans for each site.

The project will support an initial pilot phase implementation of the management plans at each site and work with the various institutions and stakeholders involved to improve and refine the plans based on the experience gained. In particular, pilot implementation will provide a critical period of supported evolution for the institutional structures established by the project and ensure that they have the experience and capacity to efficiently continue the implementation of management plans *post*-project. In addition, the pilot phase implementation will allow the field-testing and further refinement of various management mechanisms, including continued support of existing GoK activities such as the establishment of the Dzhungar NP; aerial photo surveys of the project sites; and actions to secure the long-term status of Almaty Reserve and the Almaty and Lepsin forest reserve areas.

*Legal and Regulatory Framework***:** GEF funds will be used to create an effective and supportive legal framework for ABD conservation and sustainable use in the project area. To achieve this, activities will be strongly linked to GEF supported development of management plans and sustainable livelihoods in productive landscapes and will be undertaken in close coordination with them. The strategy will be to identify key legislative changes and adaptations required to make the management plans and sustainable ABD initiatives in productive landscapes practically viable. Though in broad terms the key legislative issues have been identified during project preparation, the specific ways and means to building a truly workable legislative framework will only become entirely clear when practical management planning is undertaken and pilot implementation is attempted.

In the baseline, the GoK is planning to improve the Forest Tax Code, the Law on Environmental Protection, and the Law on Protection, Reproduction and Usage of Animals; to make changes in the tax code related to nature use; and to create new laws on forests, the protection, regeneration and use of fauna and flora, and protection of rare and endangered species of plants and animals. GEF funds will provide strategic assistance to improve and extend these planned activities on the basis of international experience and the needs identified through activities undertaken to improve the management of existing protected areas and to promote sustainable livelihoods in productive landscapes within and adjacent to protected areas.

The National Park Administrations in the project sites (Ile Alatau and Dzhungar) will become the key player in bringing about and coordinating an integrated approach to ABD conservation and sustainable use in the project areas. However, as described previously, the current legal basis for the operation of NP's is insufficient to meet even current obligations within their borders and totally inadequate to fulfill the expanded role foreseen. Thus, GEF funds will support the development and enactment of necessary enabling legislation for NP's to implement management plans. Following effective enabling legislation, the NP Administrations will be assisted in developing rules and regulations (bylaws) that specifically define prohibited acts and establish rules and penalties, including the financial procedures and operations of the Park administration.

Within productive landscapes, activities on legislative development and reform will focus on establishing a positive legal environment for the sustainable use of ABD resources and minimization of activities that have an impact on the integrity of natural populations of ABD. Priorities will include therefore, improving the land tenure for local land users to facilitate long-term husbandry, improving and clarifying legal context for appropriate small business and economic activity, and the creation of legal incentives and disincentives for the appropriate use of ABD.

ABD conservation and sustainable use in productive landscapes: The GEF Alternative, with considerable non-GEF resources, will specifically target actions to address the underlying root causes of ABD loss in the productive landscapes in and adjacent to the selected SPAs. The Project will achieve this goal by offsetting and mitigating negative aspects of existing baseline activities to ensure that ABD conservation objectives and priorities are incorporated into socio-economic developments and that a positive environment for sustainable use and conservation of ABD is created in the project area. Key to achieving this outcome will be the creation of a real partnership between the conservation bodies (FFHC and SPA Administrations), local authorities, local natural resource users and the private sector.

On the basis of the sustainable socio-economic and natural resource use strategy and action plans developed in Output 1, the preparatory legal and institutional developments in Outputs 2 & 3, and the extensive preparatory work carried out during the project development process (see Annex XI), the Project will leverage GoK and other sources of co-financing to enable the selection, development and implementation of pilot projects which demonstrate strategies to achieve sustainable alternative livelihoods for local populations. Thematic areas in which demonstration projects will be implemented include: Fruit Farming, Fruit Processing and Juice Making, Juice Concentrate Production, Wine Making Activities, Honey Production, Landscaping Plants and Flowers, Medicinal Plants, Tourism, and other miscellaneous activities (small-scale alternative and renewable energy production, traditional handicrafts and foods, apple seed collection, animal husbandry). The overall composition of demonstration projects will differ slightly between project sites due to differences in socio-economic and resource conditions.

For the demonstration projects to have a significant long-term impact, it is essential that they not only successfully demonstrate viable new or alternative livelihood options but also that they are widely replicated within the project sites. The project will assist this process through information and technical/business skills transfer via a variety of means (awareness raising and information dissemination, study tours, training materials and workshops, field extension and support). The NP Departments of ABD Conservation and the Land Users Associations will undertake these services both during and *post*-project

A key problem identified during project development by land users and small businesses/entrepreneurs was the lack of access to small-scale credit with which to initiate alternative livelihood opportunities. Though alternative livelihood initiatives undertaken as pilot demonstration projects may receive project-derived grants to ensure adequate initial capital, this is not a sustainable approach in the long-term. For this reason the project, using leveraged co-financing, will develop a Micro Credit Program to support rural farmers and local residents as they develop alternative livelihoods (see Annex XII). In particular, the micro-credit program will target small groups of farmers ready to pool their resources to undertake business development activities, as well as individual farmers and local inhabitants wishing to start businesses to replace existing activities involving unsustainable uses of agro-biodiversity. Planning for a micro-credit program, including coordination with national and local management institutions, consultations with target users, legal and regulatory adjustments, and program testing will take several years to complete. However, the Project will benefit greatly from consultation and coordination with a variety of institutions in Kazakhstan, including several banks and credit agencies, NGOs, and the UNDP-Kazakhstan, with previous experience with micro-credit programs.

Finally, the GEF funds will be used to identify and to put in place economic and administrative incentive mechanisms that will discourage activities with negative impacts on ABD and encourage the conservation and sustainable use of ABD. Such incentives may include tax holidays for startup phases of appropriate

businesses and tax breaks for certain land uses, streamlined administrative procedures for activities to conserve or sustainably use ABD, and regulatory penalties for the most damaging activities.

Building Awareness, Support and Commitment of Stakeholders: GEF funds will be used to build awareness and support at all levels regarding the values of and need to conserve Kazakhstan's mountain agro-biodiversity and to have an impact on national policy, financial support, and local-level commitment and participation. Awareness and education activities will be targeted at three levels: i) the general public within the project sites and major nearby urban areas; ii) natural resource users, particularly ABD users, within the project area (i.e. farmers, fruit industry, tourism industry, etc); and iii) national and local policymakers. To act as the focal points and the "engines" of the awareness and education programs, a network of ABD Conservation and Sustainable Use Education Centers will be established within the project areas and main nearby urban centers (Almaty and Sarkand). These centers will be responsible, under the leadership of the Almaty center, for the development, coordination and implementation of education and awareness activities.

5. Economic Rationale for GEF Financing

Benefits of Kazakhstan's Mountain Agrobiodiversity. There are a wide variety of benefits provided by Kazakhstan's mountain agro-biodiversity. The following table summarizes some of these benefits. As shown in the table, these benefits differ in several important ways. First, they differ with respect to the type of biodiversity from which they are derived. Some types of benefits derive primarily from species biodiversity, while others derive from more intra-specific diversity characterized by morphological variation among the same species. The categorization suggested by the table is of course very rough, as these three types of diversity overlap. Second, most benefits depend primarily upon the genetic diversity within the population--so that what matters is maintaining a "healthy" population rather than a large population. Third, the locus of benefits varies widely. Some benefits flow almost entirely to Kazakhstan, such as the benefits of sustainable commercial harvests. Other benefits flow only minimally to Kazakhstan, such as option and insurance values and the existence value that accrues to people outside Kazakhstan from the mere knowledge that diverse wild apple populations are thriving in the Tien Shan mountains of Kazakshtan.

Economic Benefits of Kazakhstan's Mountain Agro-biodiversity

Type of Benefit	Description of Benefit	Levels of Agro-Biodiversity Needed	Locus of Benefit
Direct Use Values	Sustainable commercial apple harvests	Species, Intraspecific variety	Kazakhstan;
	Sustained personal use & subsistence harvest of apple and other forest agrobiodiersity species.	Species, Intraspecific variety	Kazakhstan
	Scientific understanding of mountain agrobiodversity, the origin of wild apples and wild apple forest varieties and ecosystems	Species, Intraspecific varieties	Mostly global
Indirect Use and Option Values	Genetic Vitality Option Value to rebuild, preserve, or augment the genetic vitality of domestic agricultural varieties.	Species, Intraspecific vareities	Global
	Conservation insurance for rare and threatened species dependent upon wild mountain forest ecosystems.	Species, Intraspecific varieties	Mostly global
Existence Value	Existence value of wild apple and forest agrobiodiversity, ecosystems, and other species dependent on mountain agrobiological ecosystem integrity	Species, Intraspecific varieties	Almost completely global

Underlying Economic Rationale for GEF Intervention: Ecosystem-based diversity management to conserve the broad array of mountain agro-biodiversity at the species and variety levels will impose incremental learning, management, and opportunity costs relative to those incurred in a management regime characterized by minimal intervention. There is presently little reason for Kazakhstan to incur these costs because many of the resultant benefits are intangible and accrue in large measure to the rest of the world over a long time horizon. Like global climate stability and air for breathing, they are known as "pure public goods." Economic theory assures us that such goods must be provided through collective action by a global entity. That is, much of the benefit of conserving diversity for the long run does not accrue to, and cannot be captured by, the local population or the national government.

The specific values that fall most clearly into this category are the scientific values, genetic option and insurance values, and existence values of Kazakhstan's mountain agro-biodiversity resources and the associated ecosystems. For example, the value of the protected ecosystems as scientific laboratories could be theoretically captured by selling the rights to conduct research in Kazakhstan, but no one could afford to pay very much for these rights because much of the resulting knowledge about basic apple varieties, for example, as with every apple variety, is itself a public good.

6. Scope of Analysis

The system boundary of this project is principally defined by the two project sites, though a component addressing the policy and public awareness framework includes the national level. The system boundary has been delimited during the course of the Block B process through analysis of the key areas for mountain ABD and the practical geographical scope for actions to ensure its conservation and sustainable use.

The threats/root causes analysis of the areas key for ABD has identified four primary types of threats: 1) habitat destruction and inappropriate concurrent land-use; 2) overharvesting; 3) genetic erosion; and 4) pest/alien species introduction and proliferation within wild fruit forests. Thus, the system boundary for each of the two sites extends well beyond the core areas of wild fruit forests and SPA boundaries to include adjacent productive landscapes from which many of these threats arise.

Within the Zailiyskiy Alatau, the project will focus on a part of the Ile Alatau NP and adjacent productive landscapes that are the most significant for ABD conservation, covering an area of approximately 1,380 km^2. The GEF Alternative will address the management of this whole area, but with particular focus on priority sites for ABD both within and adjacent to the NP. In Dzhungar Alatau, the project scope will be the future Dzhungar NP and adjacent productive landscapes significant for MABD, including the territory of the Lepsinskiy and Sarkandskiy forests and adjacent territories covering an area of approximately 1,240 km^2.

7. Costs and the Incremental Cost Matrix

The Baseline associated with the project is estimated at US$1,575,435. The GEF Alternative is US$9,387,602. The total Project Cost is US$7,812,167 (including the Block A and B budget of US$ 22,000 and US$230,967), of which US$2,770,000 is considered incremental. These incremental funds have leveraged US$4,789,200 in co-financing for the sustainable development baseline. Costs have been estimated for six years, the duration of the planned project.

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
Domestic benefits	1. Lack of awareness or appreciation for the potential benefits of healthy agro-biodiversity. 2. Key government agencies are not collaborating on management of ABD by integrating conservation with sustainable development. 3. Existing development practices are not sustainable. 4. Knowledge and technology and access barriers prevent stakeholders from pursuing sustainable livelihoods. 5. Absence of law and policies establishing incentives for sustainable economic development.	1. GoK's ability to ensure sustainable use of ABD resources will be strengthened. Collaboration institutionalized. 2. Public/private partnership for ABD conservation and appropriate use established, based on participation and benefit sharing. 3. Sustainability of development practices enhanced. 4. Incentives encourage stakeholders to pursue sustainable alternative livelihood options. 5. Collaborative management unlocks new potential for economic development.	1. Knowledge, technology and access barriers to the realization of local benefits are overcome. 2. Goods and services more important to local people (clean water, erosion control) generated by healthy ABD ecosystems. 3. Some direct-use and non-use existence values of ABD will accrue in part to Kazakhstan. 4. Long-term sustainable use of ABD will be secured for future generations.
Global Benefits	1. Current conservation is inadequate to conserve ABD. 2. Lack of public/private coordination and collaboration in the sustainable use/conservation of ABD. 3. SPAs in existence but lack resources and capacity to operate effectively. 4. Policy and legislative framework for SPAs inadequate *5.* Law and policy do not facilitate the conservation and sustainable use of ABD in productive landscapes. 6. Insufficient institutional, human, and financial capacity at the site level to manage ABD. 7. Existing livelihood options are destructive to ABD at project sites. 8. Senior decision makers, SPA staff, local government and communities lack awareness of broader ABD conservation values. 9. Lack of local land user incentives and options for sustainably using ABD resources and for non-destructive livelihoods.	1. Long-term conservation program for ABD will be established. 2. Clear policy direction and appropriate enabling legislation allows effective application of ABD conservation measures and facilitates appropriate land use by local stakeholders. 3. Institutional reform improves effectiveness of ABD conservation measures, incl. enhanced technical capacity and financial resources. 4. Capacity of community institutions is strengthened to the point where they are self-sustaining. 5. Communities in productive landscapes develop sustainable alternative livelihoods and reduce pressure on ABD resources. 6. Implications for ABD integrated into implementation of relevant land use and socio-economic investments	1. Global use, non-use, existence and options values for ABD secured. 2. SPAs with adequate capacity and resources to operate effectively. 3. Strong, participatory management mechanism is established to improve conservation and sustainable use of ABD. 4. Land users and private sector become active partners in conserving globally significant ABD. 5. Existing livelihoods are modified. Pressure on ABD reduced as people receive tangible benefits from non-destructive livelihood options. 6. Increased awareness of ABD values translates into greater active support and commitment to its conservation. 7. Sustainable livelihood initiatives provide demonstration value for other efforts around the world.

Costs	Baseline (B)	GEF Alternative (A)	Increment (A-B)
Outcome 1: Ecosystem-based conservation and management of wild crop relatives at two project sites	Continued protection and management of existing SPAs with little emphasis on ABD but poor integration and coordination between main stakeholders $1,247,933	***ESTABLISHMENT OF NEW SPAS AND INTEGRATED AND ADAPTIVE MANAGEMENT REGIMES COVERING THE TWO PROJECT SITES (SPAS AND ADJACENT TERRITORY) DEVELOPED AND AGREED TO BY STAKEHOLDERS COALITIONS*** $2,662,933	***GEF: $465,000*** ***CO-FIN: $950,000*** Total: $1,415,000
	No detailed plans for forest restoration, tourism, or development of appropriate socio-economic/land use in adjacent territories $0	***SECTOR SPECIFIC SUB-PLANS PREPARED (FOREST RESTORATION, TOURISM, SOCIO-ECONOMIC/LAND USE PLANS).*** ***$310,000***	***GEF: $240,000*** ***CO-FIN: $70,000*** Total: $310,000
	Inadequate or not directly applicable research, monitoring and protection programs $86,102	***DEVELOPMENT OF LONG-TERM RESEARCH AND MONITORING PROGRAM SPECIFICALLY FOR ABD IN THE PROJECT SITES WHICH WILL GENERATE INFORMATION OF DIRECT APPLICATION FOR MANAGEMENT*** $256,102	***GEF: $160,000*** Co-Fin: $10,000 Total: $170,000
	Lack of mechanisms for interaction between SPAs and adjacent territories $0	***SITE MANAGEMENT PLANS OPERATIONALLY TESTED AND INSTITUTIONS AND PERSONNEL GAINED PRACTICAL EXPERIENCE AND KNOWLEDGE ON HOW TO EFFECTIVELY IMPLEMENT PLANS. LESSONS LEARNED FROM PILOT IMPLEMENTATION AND PLANS REFINED AND UPGRADED.*** ***$1,348,000***	***GEF: $550,000*** ***CO-FIN: $798,000*** Total: $1,348,000
	Sub-total: $1,334,035	*SUB-TOTAL: $4,577,035*	**Sub-total: $3,243,000** ***GEF: $1,415,000*** Non-GEF: $1,828,000

Costs	Baseline (B)	GEF Alternative (A)	Increment (A-B)
Outcome 2: Strengthened institutional, technical, and financial framework for ABD conservation	Inadequate capacity of SPA, local authority and land use planning and management personnel to develop and apply new approaches and tools for MABD conservation. $5,000	Increased technical and managerial capacity of NP, forestry reserve, local authority and land use planning/management personnel to effectively implement management plans $ 338,000	***GEF: $180,000*** ***CO-FIN: $153,000*** Total: $333,000
	Absence of systematic planning or capacity to ensure long-term financial inputs for MABD conservation management $0	***MEANS FOR GENERATING LONG TERM FINANCING IDENTIFIED, AND PLAN FOR DEVELOPMENT OF REQUIRED MECHANISMS, INSTITUTIONAL ARRANGEMENTS AND LEGAL BASIS DEVELOPED.*** $ 143,000	GEF: $50,000 Co-Fin: $93,000 Total: $143,000
	Inadequate institutions and poor institutional coordination in the implementation of agro-biodiversity conservation planning $104,000	Development of framework for institutional coordination implemented $431,000	GEF: $90,000 Co-Fin: $237,000 Total: $ 327,000
	Sub-total: $109,000	*SUB-TOTAL: $912,000*	**Sub-total: $803,000** ***GEF: $320,000*** Non-GEF: $483,000

Costs	Baseline (B)	GEF Alternative (A)	Increment (A-B)
Outcome 3: An effective legislative framework for the conservation and rational use of agro-biodiversity resources	Lack of clear policy direction for ABD conservation and use $0	A clear national policy for ABD conservation and use agreed. $55,000	***GEF: $40,000*** Co-Fin: $15,000 Total: $55,000
	National environmental legislation improved but continues to be difficult to apply and insufficient to meet needs of regional/local environmental/conservation agencies. SPA legislation remains unchanged and fails to provide adequate framework for new management approaches. $5,000	Legislative and regulatory reforms undertaken on the basis of needs and requirements identified during management planning process. SPAs, particularly NP's, have clear overall legislative frameworks and practical mechanism for development and application of local level regulatory by-laws to ensure practical application of framework legislation. $ 162,000	GEF: $120,000 Co-Fin: $37,000 Total: $157,000
	Limited improvement in legal business environment, land tenure situation, and taxation legislation continues to inhibit the development of appropriate and sustainable long term livelihoods and land use practices $10,000	Positive legal environment for small business. Clear ownership and secure land tenure situation encourages long-term investments in sustainable land use and resources use. Appropriate taxation policy and structure provides greater incentives for appropriate land use and small business $125,000	GEF: $100,000 Co-Fin: $15,000 ***TOTAL: $115,000***
	Sub-total: $15,000	*SUB-TOTAL: $342,000*	**Sub-total: $327,000** ***GEF: $260,000*** Non-GEF: $67,000

Costs	Baseline (B)	GEF Alternative (A)	Increment (A-B)
Outcome 4: Alternative livelihoods benefiting local communities in project sites, reducing natural resource use pressure on mountain agro-biodiversity	Limited number of alternative livelihood options for local land users and communities available and current unsustainable livelihood strategies continue. $114,000	Alternative livelihood options identified and tested. Replication facilitated, and widespread adoption decreases negative impacts on MABD and provides incentives for sustainable use. $2,127,000	***GEF: $55,000*** Co-Fin: $1,868,000 Total: $1,943,000
	Low level of business knowledge, lack of experience of independent action, and low availability or absence of suitable credit sources prevents the development of significant sustainable alternative livelihoods options. $0	Support and extension services for relevant business development established. Practical experience gained through demonstration project implementation. Micro-credit facility established and providing critical credit support to appropriate livelihood initiatives. $450,000	GEF: $110,000 Co-Fin: $410,000 Total: $520,000
	No economic or administrative incentives for land users and private sector involved in MABD processing to encourage sustainable use of MABD resources. $0	Economic and administrative/legal incentives identified and put in place. $66,200	***GEF: $60,000*** Farmer to Farmer Fund: $6,200 Total: $66,200
	Sub-total: $114,000	*SUB-TOTAL: $2,643,200*	**Sub-total: $ 2,529,200** **GEF: $245,000** Non-GEF: $2,284,200

Costs	Baseline (B)	GEF Alternative (A)	Increment (A-B)
Outcome 5: Awareness and support at all levels regarding the values and need to conserve Kazakhstan's mountain agro-biodiversity increased	Limited general awareness raising through mass media and dissemination of posters and other materials on MABD issues $3,400	Development of an awareness and environmental education program targeting different kinds of media. Awareness and education centers established and acting as engines/focal points for information dissemination. Community groups and nature NGOs supported. $567,400	***GEF: $460,000*** Co-Fin: $104,000 Total: $564,000
	Low level of awareness at all levels of reforms and strategies being undertaken, and thus poor practical application in the field. $0	All relevant stakeholders within the project area aware of legislative and regulatory changes, their practical application, and implications and their objectives. $93,000	***GEF: $70,000*** Co-Fin: $23,000 Total: $93,000
	Sub-total: $3,400	*SUB-TOTAL: $660,400*	**Sub-total: $657,000** GEF: $530,000 Non-GEF: $127,000
Total	**Baseline Total: $1,575,435**	GEF Alternative Total: $9,134,635	**Project Cost: $7,559,200** GEF: $2,770,000 Non – GEF: $4,789,200
PDF A		$22,000	$22,000
PDF B		$230,967	$230,967
GRAND TOTAL:	**$1,575,435**	**$9,387,602**	**$7,812,167**

ANNEX II: Logical Framework Matrix

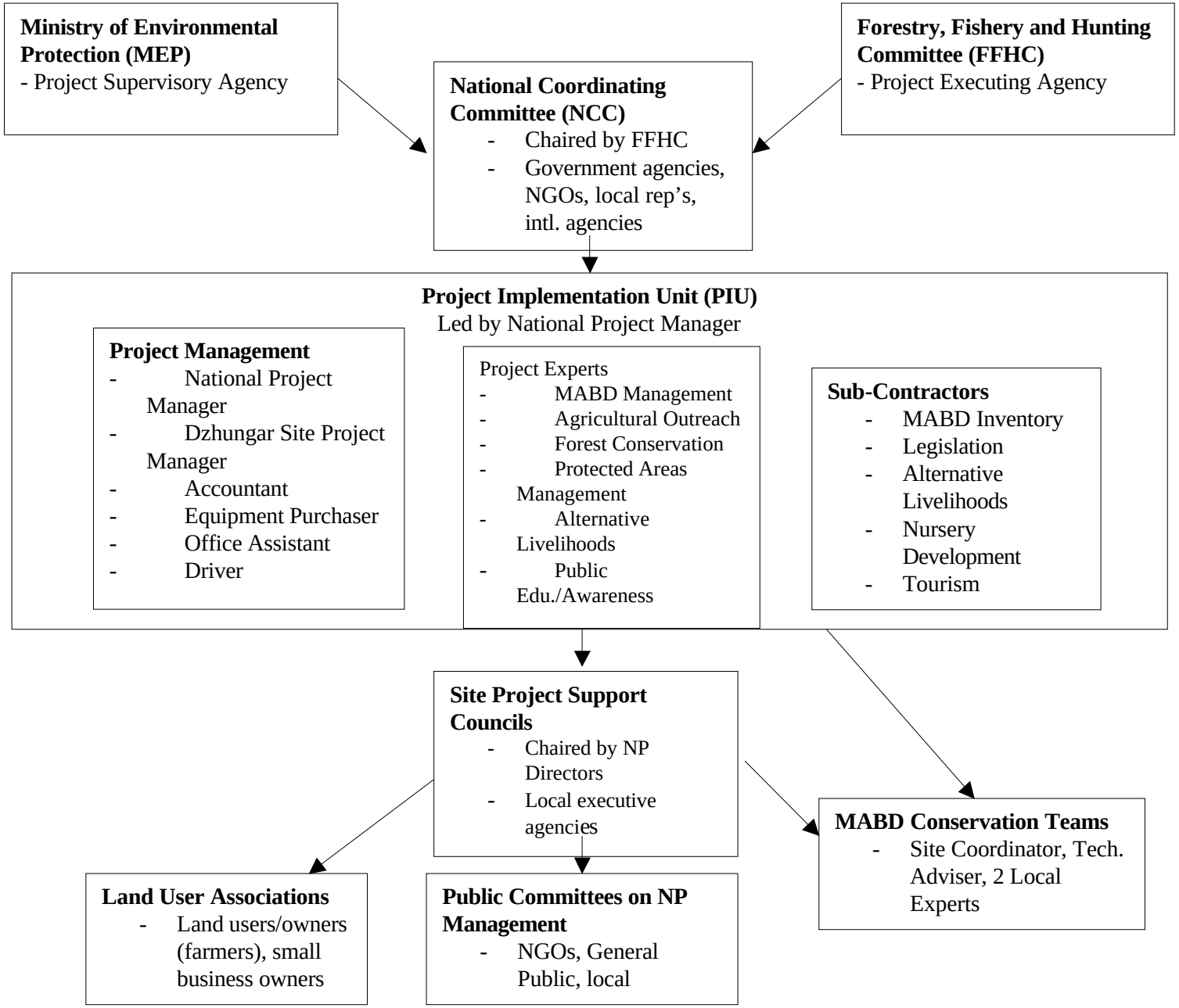
Project Objective and Components	Verifiable Indicators	Source of Verification	Assumptions
Project Development Objective: The conservation of key areas of mountain agro-biodiversity in Kazakhstan	1. Illegal harvesting of resources (wood, fruit, medicinal plants) within specially protected wild fruit forest ecosystems is reduced by 90% by project end compared to project start levels 2. Wild fruit forest ecosystems (measured in ha.) in the project area at project start are maintained and rehabilitated and have improved their qualitative indicators by end of project, and expanded within 5 years of project completion (actual reforestation requires 6 years, plus 8 years to reach fruitage) 3. The integrity of ABD ecosystems existing at project start (measured through species diversity and genetic variability) is ensured by project end 4. Pest and disease levels within ABD ecosystems are stabilized and have declined by 90% by end of year 5 of project	– Project Terminal TPR and independent evaluation reports. – Periodic Management plan review and evaluation reports prepared by SPA administrations post-project on the basis of functioning monitoring programmes. – Independent academic research and monitoring reports (including GIS analysis) and materials	– That government priorities will remain or become more supportive of agro-biodiversity protection – That the socio-economic situation will not significantly worsen – That climate change or natural disasters (earthquakes, etc) will not occur or have significant physical and socio-economic impact
Project Immediate Objective: Stakeholders conserve agro-biodiversity in two priority sites within Kazakhstan's Tien Shan Mountains by developing and applying new methods and tools for conservation, including partnerships among conservation and land-use agencies, local governments, SPAs, local communities and the private sector.	1. Existence by project end of an ABD conservation and management program for two project sites which is financially sustainable, has an adequate legal and regulatory framework, and sufficient technical/managerial capacity 2. Existence by project end of functioning partnerships among main stakeholders for the conservation and sustainable use of ABD	– Project Terminal TPR – Independent evaluation reports. – Periodic Management plan review and evaluation reports prepared by SPAs post project on the basis of functioning monitoring programs	– That frequent changes of key senior GoK personnel will not adversely impact project implementation.
Outcome 1: Ecosystem-based conservation and management of wild crop relatives at two project sites	1. Mountain agro-biodiversity conservation programs for research, restoration, protection, and tourism, have been implemented in project site areas by end of year 1 ½ 2. Dzhungar National Park and Specially Protected Seed Sites formally established by end of year 2, and fully functioning by end of year 6 3. Land Users Associations for conservation, land use and economic development issues on private lands established by	– Conservation program strategy documents – Legal documents on PA establishment – Project reports – Independent evaluation of project – Reports and minutes of various Committees / Boards etc meetings.	– That GoK support for the strengthening and upgrading of the SPAs will continue – That consensus and cooperation between the various key stakeholders can be adequately achieved

	end of year 2, and with 60% local community participation by end of year 6 4. Public Committees on NP Management for cooperative management of mountain agro-biodiversity within protected areas established by end of year 2, with participation of at least one representative from all relevant agencies and representation for all communities within project zone 5. Agro-biodiversity conservation principles and criteria, including preventive activities oriented to conservation, are formally adopted and applied by land and resource management agencies by end of year 2 ½	– Evaluation report of Capacity building and technical training programmes	
Project Objective and Components	**Verifiable Indicators**	**Source of Verification**	**Assumptions**
Outcome 2: Strengthened institutional, technical, and financial framework for ABD conservation	1. ABD divisions within FFHC and SPA administrations established and operational by end of year 2 ½ 2. SPA managers and conservation agency staff have received training in conservation biology, forest ecology, and participatory management by end of year 2 ½ 3. Long-term funding to cover the re-current costs of ABD conservation in two site areas is identified by end of year 3, and funding no less than 50% of ABD conservation costs by end of year 5	– Official documents on administrative reorganizations – Project reports – Independent evaluation of project; field visits; government gazette; interviews with park staff and local communities. – Training assessment/evaluation before training begins and after it is completed. – Financial planning and budget reports – Official government planning and statistics on annual budgeting for nature protection	That detrimental historical and traditional approaches / mindsets can be overturned sufficiently to allow new approaches to work That Government of Kazakhstan will provide financial support from budget for PAs, and will allow PAs to collect and retain significant visitor and user fees
Outcome 3: An effective legislative framework for the conservation and rational use of agro-biodiversity resources	1. Drafts of legislation, regulations, by-laws and application guidelines for conservation of ABD and management of SPAs prepared by end of year 2 2. Submission and approval (enactment) of legislation, regulatory acts and by-laws by end of year 3 3. Regulations to prevent new dacha gardens and orchards within designated buffer zones for wild fruit forests, and plans to eliminate existing gardens and orchards (with rights transferred to areas outside buffer zones), finalized by end of year 4	– Project reports – Independent evaluation of project – Government Gazette; published laws and regulations – Review Report	– That required adaptations and new legal instruments will be viable within the context of Kazakhstan legal system. – That the approval process for critical legal instruments will occur in a timely manner
Outcome 4: Alternative livelihoods benefiting local communities in project sites,	1. Alternative livelihood activities providing primary income to 60 community members in Ile Alatau site and 60 community members in Dzhungar Alatau site by end of year 5	– Project reports – Field interviews with participants – Independent evaluation of project	– That effective mechanisms exist and can be applied within the socio-economic and administrative

reducing natural resource use pressure on mountain agro-biodiversity	2. 100 stakeholders in project site areas accessing micro-credit for small-scale business loans by end of year 3. 3. Land User Association and ABD Dept. in each SPA providing business support/extension services by year 5 4. Economic incentive measures identified by end of year 2 ½ and legally established by end of year 4	– Review and Evaluation report on economic incentives – Periodic Reports of appropriate land use and private sector support and extension organizations – Periodic reports of micro-credit loan activities – Surveys (before and after) of local stakeholder capacity/knowledge/ confidence to pursue alternative livelihoods	context of the project – That viable alternative or more sustainable livelihoods options can be successfully demonstrated in the socio-economic and private sector context of project sites and that they will be replicated – That certain stakeholders do not overly dominate and monopolize private sector development of fruit sector

Project Objective and Components	Verifiable Indicators	Source of Verification	Assumptions
Outcome 5. Awareness and support at all levels regarding the values and need to conserve Kazakhstan's mountain agro-biodiversity increased	1. Education and Awareness Centers in each project site operating by end of year 2 2. Cooperative agreements with at least 2 NGOs at each project site for education and awareness activities signed by end of year 2 3. Forestry programs for schoolchildren in at least 3 local communities by end of year 2 4. One workshop on ABD value and conservation held for local stakeholders in each project site by end of year 2, and follow-up workshop in each area by end of year 5 5. 75% of local stakeholders who participate in wild fruit forest habitat destruction and resource extraction at start of project report by end of project that their participation has ended due to awareness-raising activities conducted by the project.	– Knowledge and behavior surveys before awareness raising begins and after. – Independent evaluation of project – Public and local awareness campaign impact assessment reports – Workshop reports	– That greater awareness on biodiversity values and issues in the general public and local populations will result in less damaging practices and support for conservation efforts – That greater awareness at state decision making levels will result in increased political and financial support for agro-biodiversity conservation.

ANNEX III: Project Organizational Matrix



ANNEX IV: Maps of the project area and detailed project site description

Annex is on file at UNDP GEF Secretariat.

ANNEX V: Stakeholder Participation in Project Implementation

1. A key issue identified during project development and design is the current lack of adequate stakeholder interaction, coordination and input into overall management decision-making for ABD conservation and use. At one level there is a lack of integrated and coordinated activity by the various government agencies involved. Though they share many mutual objectives, they have no structured means to work together, and a history exists of individual effort and even competition for territorial or managerial control. At another level, historical management approaches do not include mechanisms for consultation and the participation of non-government stakeholders such as local land users and communities, private sector entities and NGOs.

2. As a result, a major emphasis within this project is to address multi-stakeholder involvement issues in ABD management both inside and adjacent to SPAs and at both the levels described above. However, it must be recognized that current approaches and management mentalities are deeply rooted, and that developing new approaches and mechanisms for stakeholders to work effectively together is neither a quick nor simple task. For this reason, the project will approach this task in a gradual "incremental" manner.

3. The development of integrated management plans for each site will form the main framework in which multi-stakeholder involvement in MABD conservation and sustainable use will be established. Within these plans, institutional mechanisms for achieving the real involvement and genuine commitment of various stakeholders will be identified and the appropriate institutional structures identified. Following this initial planning, it is expected that the following institutional structures will be created:

4. First, a *National Coordinating Committee* to ensure overall leadership, coordination, and policy, legislative, and financial support for the project, and to act as a liaison between the Project and other national and international programs, organizations and donors. This committee will include senior government officials from relevant government ministries and regional authorities, as well as international agency representatives with an active role in the project.

5. At the site level, the project will assist in the establishment of four organizational structures at each site. First, and overseeing all the other three, will be *a Site Project Support Council (SPSC)* consisting of representatives from all key site stakeholder groups and chaired by the NP Director. The SPSC will be an effective advocate, through the individual authority of its members, to ensure that the project implementation activities are open to stakeholder participation, and will allow, for the first time, locally interested parties to participate and play a role in overall management planning and decision making at the project sites.

6. Second, *MABD Conservation Teams*, working within the NP administration, will be set up, which will be responsible specifically for agro-biodiversity management issues. This department will be responsible within each project site for ensuring that the NP's responsibilities within the site management plans are implemented. Its functions therefore will include coordination and liaison with other departments in the NP administration responsible for specific technical tasks (inspection, fire control, forest restoration, etc), as well as being directly responsible for tasks and activities not adequately covered by current NP departments (MABD specific research and monitoring, awareness raising, technical support to land-users for sustainable use of agro-biodiversity, etc). This Department will also form a direct working link between the NP administration and stakeholders in adjacent territories.

7. The third new structure the project will assist to establish will be *Site Land-User Associations* which will be composed of members from the various groups of relevant stakeholders within the productive areas

adjacent to the NP. These organizations, through an executive board (including the NP director) and a small executive team, will provide overall coordination and support for the implementation of the management plan components focused on the productive areas of the project sites adjacent to the SPAs.

8. The final new site-level structure will be *Public Committees on NP Management*, which will be organized in coordination with NP administrations to facilitate general public participation, through NGOs and local authorities and associations, in the management of the national park at each site. Local communities are expected to play an important role in conservation and protection activities within the NPs, and to participate in sustainable economic activities (ecotourism, sustainable harvesting of fruits and medicinal plants), within the new legal and regulatory framework established for the national parks.

9. For these new institutions to develop into effective entities, their responsibilities will be gradually increased and broadened as the project progresses, and a dedicated effort to ensuring that adequate capacity is developed will be made to ensure that they will continue to function and develop *post*-project. The project will therefore support significant training and capacity development for these new and adapted institutions. Most critically, it will also support a pilot period of management plan implementation at each site during which the effectiveness of institutions can be tested, real gaps in design or capacity identified, and remedial action undertaken.

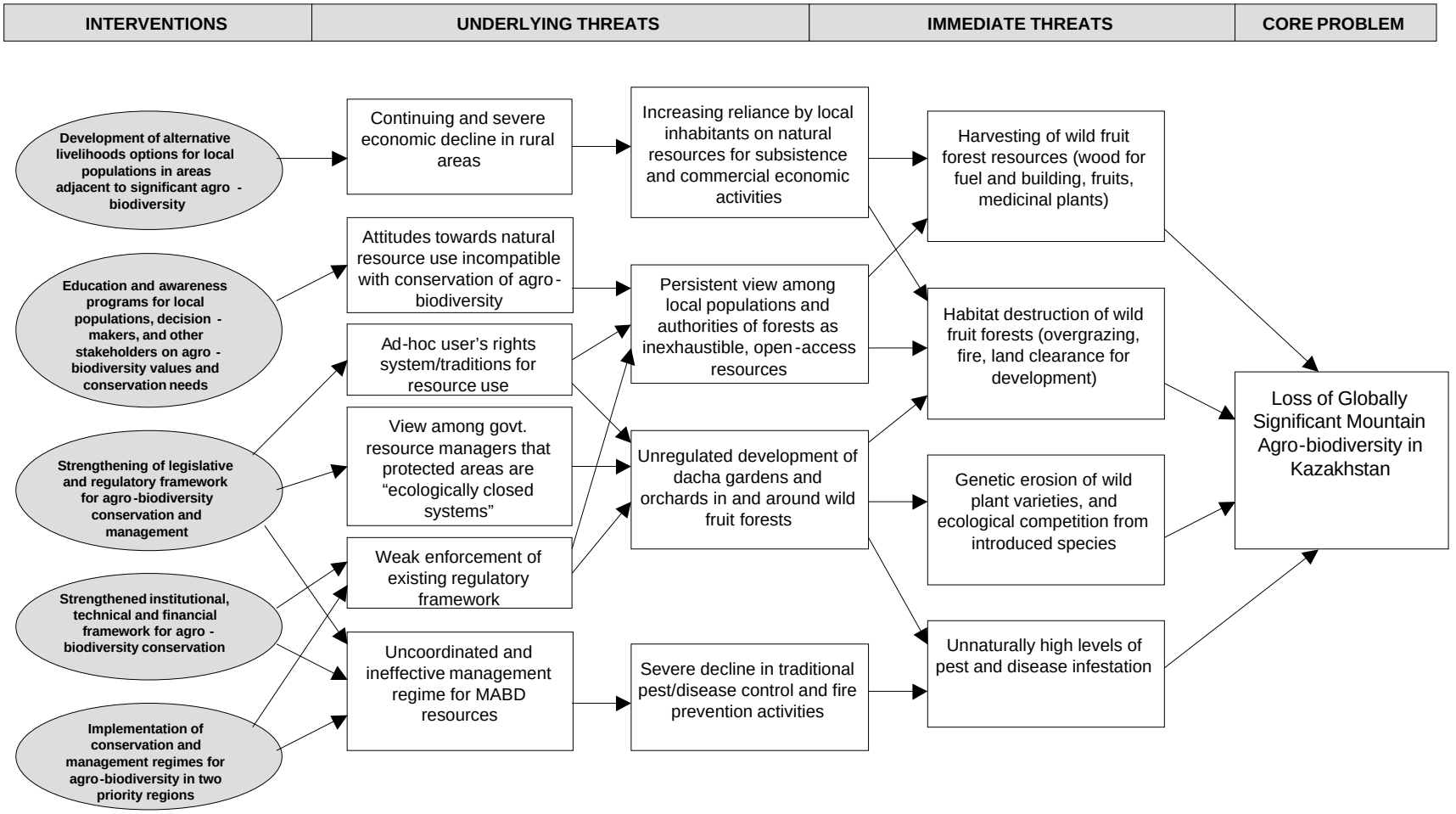
ANNEX VI: Project Work Plan

Activity	Months											
	6	12	18	24	30	36	42	48	54	60	66	72
1.1: Baseline description of project sites and specific land use categories within each site												
1.2: Establish Dzhungar National Park and Specially Protected Seed Sites												
1.3: Build partnerships with local communities for ABD conservation on adjacent private lands												
1.4: Sector specific sub-plan development (Scientific Research and Monitoring, Ecological Restoration, Tourism Regulation and Development, ABD Conservation on Adjacent Private Lands)												
1.5: Identification and analysis of key management objectives and components for project sites												
1.6: Final management plans assembly, participatory review and agreement												
1.7: Pilot phase implementation of management plan and sub-plans and periodic adaptation to incorporate lessons learned												
2.1: Conservation agency and SPA institutional restructuring												
2.2: Training and capacity development of managers and staff of SPAs and other conservation institutions												
2.3: Identification and development of viable long-term financing mechanisms for agro-biodiversity conservation within Kazakhstan												
3.1: Develop and implement long-term policy for agro-biodiversity conservation and sustainable use in Kazakhstan												
3.2: Identify key legislative and regulatory changes required at national, SPA and local level to support agro-biodiversity management plans and initiatives												

Activity	Months											
	6	12	18	24	30	36	42	48	54	60	66	72
3.3: Develop new or adapted draft national legislation and regulations and local level "by-laws", create clear guidelines and instructions on the practical implementation of legislation, and clarify the rights and obligations of stakeholders												
3.4: Consult with all stakeholders to ensure agreement on legislative and regulatory changes												
3.5: Submit legislation for official review and approval according to required procedures, and undertake lobbying and follow-up to ensure timely results												
4.1: Sustainable socio-economic and natural resource use strategy and action plans for local populations at each project site.												
4.2: Demonstration/pilot projects for alternative livelihood development												
4.3: Long term technical, business and organizational support services for appropriate small-scale farmers and relevant private sector												
4.4: Development of a micro-credit facility to support sustainable alternative livelihood activities for small-scale farmers and businesses in project sites												
4.5: Work with state agencies to create economic incentives to encourage sustainable use of natural resources and to discourage activities with negative impacts on agro-biodiversity												
5.1: Development of Biodiversity Awareness and Education Centers in each project site to act as focal point for awareness and education campaigns												
5.2: Support local NGOs and institutions with relevant interests and objectives (nature clubs, fruit growers associations, etc.) to undertake ABD education and awareness activities												

Activity	Months											
	6	12	18	24	30	36	42	48	54	60	66	72
5.3: Awareness building and training on the contents and practical application of new/adapted legislation												
5.4: General public awareness campaign on the importance of Kazakhstan's natural environment and ABD resources												
5.5: Local-level awareness campaign for natural resource users on value of ABD resources and carrying capacities of local ecosystems												
5.6: Awareness building with important national and local authorities on global values and economic importance of ABD conservation												
5.7: International networking and partnership development for ABD conservation												

ANNEX VII: Threats matrix and activities to address them



ANNEX VIII: Detailed Description of Project Sites

Site 1: Zailiyskiy Alatau (Ile Alatau National Natural Park):

The priority site for the Zailiyskiy Alatau is the Talghar/Turgen region in and adjacent to the eastern part of the Ile Alatau National Natural Park (IANNP). This site is located 100 km east of Almaty and contains the most globally significant wild apple and apricot trees in the Zailiyskiy Alatau with more than 1,300 ha of wild apple forest.

Specially protected areas in the Zailiyskiy Alatau include the Ile Alatau National Park and the Almaty State Nature Reserve. The IANNP was formally designated on February 22, 1996 and encompasses 1,649 sq km, beginning virtually on the outskirts of Almaty city and extending south to the international border with Kyrgyzstan. It measures 15 km to 36 km wide north-to-south and 120 km long east-to-west. The IANNP provides a stark and dramatic visual background for the urban metropolis of Almaty. On clear days, the abrupt incline above the city can be viewed to the crest of the mountains with their permanent snowfields and glaciers. On three sides, the Park encloses the Almaty State Nature Reserve, which is 717 sq km in size, thereby forming an ecological continuum covering almost 2,400 sq km. Vertically, this continuum proceeds from an elevation of 650 m (2.133 ft) to 5017 m (16,441 ft) at the top of Talgar Peak.

The Kazakstan-Kyrgyzstan border follows the crest line of the Zailiysky Alatau/Kungey Alatau Mountains, which are spurs of the Tian Shan Range, which south of the border rises to elevations of almost 23,000 ft (7404 m). The north face contains many permanent glaciers and the summer snowline fluctuates between 3800 and 4100 m. The area contains habitat for an extremely diverse flora and fauna. Approximately 1,000 plant species are found here, as well as over 230 vertebrate animals. The territory is critical habitat for the snow leopard, the Tian Shan brown bear, the Central Asian lynx, and the falcon, which are among 15 listed (Red Book) species. The large mammals found here also include wild boars, roe deer, Ibex, moufflon sheep, mountain goats, and wolves. Avian species include such unusual birds as bearded ptarmigan, cuckoo birds, black grouse, chukar partridge, and the bearded vulture.

The project area transcends at least five major vegetation (life) zones including: grassland steppe, deciduous forest, coniferous forest, alpine, and glacial zones. A particular feature of the IANNP, and principle focus of the project, is a belt of foothills that form two platforms (between 1000-1300 m and 1500-2000 m) where wild fruit forests are primarily found. Throughout the IANNP, steady geological erosion is evident in all sectors, exacerbated by avalanches, earthquakes, and extreme flooding events. Anthropogenic activity dating back 2,000 years to the opening of the Silk Route has also accelerated these disturbances. Livestock grazing and human along the steep canyons of the mountain ranges and along fragile riparian zones have intensified erosion effects. Other illicit uses such as poaching, woodcutting, off-road automobile traffic, and hay harvesting have also had serious impacts upon this ecosystem.

In the period predating the IANNP's establishment, a large number of facilities were allowed to proliferate within the area. These developments include two ski areas; a word-class skating/recreation complex; numerous resorts, restaurants, lodges, "pioneer camps", recreational

homes, transmission lines, pipeline corridors, hydrological networks, and hydraulic systems. Fortunately, most of this infrastructure is located in the western areas of the park, away from the project site area and the wild fruit forests therein. Nevertheless, many of these features will need to be reconsidered in the Park's planning and ultimate implementation, and the extreme proximity of a large urban population (1.2 million people) presents serious challenges to the dual goals of resource preservation and human visitation management throughout the IANNP.

Livelihoods and natural resource use in areas around the park are agriculturally based. The main farming activities are vegetable growing, livestock (for meat and milk), cereals production, fruit production (apples, apricots, grapes, etc) and some tobacco growing. Related to these activities is food processing (fruit puree and juice, wine, etc), though these enterprises are currently in a depressed condition. Within the IANNP itself, there is some fruit production within the Talghar/Turgen region, and tourism and recreation is a common use of this region of the park.

Site 2: Dzhungar Alatau (Lepsinsk-Topolyovsk mountain forests):

The second site selected by the project is the Lipsink and Topolyovka forest departments within the Dzhungar Alatau, which include more than 3,800 ha of wild apple trees including nine endemic varieties.

The Dzhungar Alatau represents an important transitional zone between the Altai and the Tien Shan ecosystems. For example, the southern border of the range for Siberien fir (*Abias sibirica*) and the northern border of the range for *Celtis caucasica* intersect in these mountains. The agro-biodiversity of the site is mainly centered in the wild fruit forests located in the forest-meadow-steppe zone, and area consisting of well-weathered low mountain slopes. The microclimate is characterized by a high level of solar insulation, sharp continentality, frequent temperature fluctuations and thick snow cover in the upper mountain areas, and has an average annual precipitation of 500-600 mm.

The forest-meadow-steppe zone, including but not limited to the wild fruit forests, has immense economic and ecological significance. The forests limit erosion and prevent excessive evaporation of soil moisture. Forest resources are the source of wood for local populations and used as pasture for cattle and goats. The meadow areas are used as naturally highly productive hayfields and summer pastures, and the rich vegetation of both meadows and forests is a good basis for apiculture (the honey of this region is considered the best in Kazakhstan).

In the Sarkand and Alakol regions of Dzhungar Alatau the primary economic sector is agriculture, including: cattle and dairy farming, production of cereals, sugar beat, fodder crops, medicinal plants, collection of apple seeds, and apiculture. The distance from any significant market has hampered efforts to develop the fruit processing industry. Until 1990, there were several small processing industries, including a winery, cheese manufacturing plant, butter manufacturing plant, and a plant for medicinal plants, but these enterprises have faced enormous challenges and only now continue at a much reduced size.

ANNEX IX: Full species lists and agro-biodiversity assessment of the project sites

Table I: Agro-biodiversity in the Zailiyskiy and Dzhungar Alatau Mountains (From study "Analysis of genetic threats and development of actions to stabilize agrobiodiversity populations in Zailiyskiy and Dzhungar Alatau ", Kazakhstan Institute of Botany and Phytointroduction, 2000)

Description of Varieties: Importance and Use	Crops	?	Varieties – Wild Congenors of Crops	Varieties – Crop Ancestors	Endemic to Kazakhstan	Threat of disappearance in Kazakhstan	Presence in each proposed Project Site	
							Zailiyskiy Alatau	Dzhungarskiy Alatau
Most important fruit varieties	Apple tree	1	Malus sieversii (Ledeb.) M.Roem.	+	-	+	+	+
		2	Malus niedzwetzkyana Dieck.	+	-	+	+	+
		3	Malus kirghisorum Al. et An. Fheod.	+	-	-	+	+
	Apricot	4	Armeniaca vulgaris Lam.	+	-	+	+	+
	Grapes	5	Vitis vinifera L.	+	-	+	+	-
	Loeaster	6	Elaeagnus oxycarpa Schlechy.	-	-	-	+	+
Additional fruit varieties	Currant	7	Ribes nigrum L.	+	-	-	-	+
		8	Ribes heterothicjum C.A.Mey	-	-	-	+	+
		9	Ribes hispidulum (Jancz.) Pojark.	-	-	-	-	+
		10	Ribes janczewskii Pojark.	-	-	-	+	-
		11	Ribes meyeri Maxim.	-	-	-	+	+
		12	Ribes saxatile Pall.	-	-	-	+	+
	Raspberries	13	Rubus idaeus L.	+	-	-	+	+
		14	Rubus sachalinensis Levl.	-	-	-	-	+
	Sea-buckthorn	15	Hippophae rhamnoides L.	+	-	-	+	+
	Gooseberries	16	Grossularia acicularis (Smith.) Spach	+	-	-	-	+
	Cherry	17	Cerasus tianschanica Pojark	-	-	-	+	-
Most important vegetable and spice varieties	Onion, garlic	18	Allium longicuspis Regel	+	-	-	+	-
		19	A.galanthum Kar. et Kir.	-	-	-	+	+
	Carrot	20	Daucus corata L.	+	-	-	+	+
	Purslane	21	Portulaca alevacea L.	+	-	-	-	+
	Cole-seed, mustard	22	Brassica campesyris L.	+	-	-	+	+
		23	Brassica nigra (L.) Koch	-	-	-	+	-
	Hop	24	Humulys Lupulus L.	+	-	-	+	+
Additional vegetable varieties	Onion, garlic	25	A.kasteki M.Pop.	-	+	+	+	-
		26	A.lineare L.	-	-	-	-	+
		27	A.strictum Schrad.	-	-	-	+	+
		28	A.schrenkii Regel	-	-	-	-	+

Description of Varieties: Importance and Use	Crops	?	Varieties – Wild Congenors of Crops	Varieties – Crop Ancestors	Endemic to Kazakhstan	Threat of disappearance in Kazakhstan	Presence in each proposed Project Site	
							Zailiyskiy Alatau	Dzhungarskiy Alatau
		29	A.dolichostylum Vved.	-	-	-	+	-
		30	A.oreoprasum Schrenk	-	-	-	+	+
		31	A.rubens Schrad ex Willd.	-	-	-	-	+
		32	A.obliquum L.	-	-	-	-	+
		33	A.platyspathym Schrenk	-	-	-	+	+
		34	A.carolinianum DC.	-	-	-	+	+
		35	A.hymenorrhizum Ledeb.	-	-	-	+	+
		36	A.kaschianum Regel	-	-	-	+	-
		37	A.setifolium Schrenk	-	-	-	+	+
		38	A.Kokanicum Regel	-	-	-	+	+
		39	A.tianschanicum Rupr.	-	-	-	+	-
		40	A.petraeum Kar. Et Kir.	-	+	-	+	+
		41	A.talassicum Regel	-	+	-	+	-
		42	A.kurssanovii M.Pop.	-	+	-	+	-
		43	A.korolkowii Regel	-	-	-	+	+
		44	A.wescharijakowii Regel	-	-	-	+	-
		45	A.teretifolium Regel	-	-	-	+	+
		46	A.atrosanguineum Kar. et Schrenk.	-	-	-	+	+
Additional vegetable varieties	Onion, garlic	47	A.semenowii Regel	-	-	-	+	+
		48	A.karelinii Pojark.	-	+	-	+	+
		49	A.parvulum Vved.	-	+	-	+	-
		50	A.lasiophyllum Vved.	-	+	-	+	-
		51	A.pallasii Murr.	-	-	-	+	+
		52	A.coeruleum Pall.	-	-	-	+	+
		53	A.caesium Schrenk	-	-	-	+	+
		54	A.schoenoprasoides Regel	-	-	-	+	+
		55	A.turkestanicum Regel	-	-	-	+	-
		56	A.valentinae Pavl.	-	+	-	+	-
		57	A.oreophilum C.A.Mey.	-	-	-	+	+
		58	A.vvedenskyanum Pavl.	-	+	-	+	-
		59	A.fetisowii Regel	-	-	-	+	-
		60	A.robustum Kar. et Kir.	-	+	-	-	+

Description of Varieties: Importance and Use	Crops	?	Varieties – Wild Congenors of Crops	Varieties – Crop Ancestors	Endemic to Kazakhstan	Threat of disappearance in Kazakhstan	Presence in each proposed Project Site	
							Zailiyskiy Alatau	Dzhungarskiy Alatau
		61	A.decipiens Fisch. Ex Schult. et Schult. fil.	-	-	-	+	+
		62	A.altissimum Regel	-	-	-	+	-
	Asparagus	63	Asparagus neglectus Kar. Et Kir.	-	-	-	+	+
		64	Asparagus angulofractus Iljin.	-	-	-	+	+
		65	Asparagus persicum Baker	-	-	-	+	-
Other important varieties	Rocket salad	66	Eruca sativa Lam.	+	-	-	+	+
	Soflor	67	Corthambus tinctorius L.	+	-	-	+	+
		68	Corthamnus lanatus L.	-	-	-	+	-
Spinning/thread plant varieties	Flax	69	Linum perenne L	+	-	-	+	+
		70	Linum violascens Bunge	-	-	-	+	-
		71	Linum heyerosepalum Regel	-	-	-	+	+
		72	Linum pallescens Bunge	-	-	-	+	+
Forage plant varieties	Lucerne	73	Medicago tianschanica Vass.	-	-	-	+	+
		74	Medicago schisehkinii Sumn.	-	-	-	+	+
		75	Medicago falcata L.	-	-	-	+	+
		76	Medicago romanica Prod.	-	-	-	+	-
		77	Medicago minima (L.) Bartalini	-	-	-	+	-
		78	Medicago lupulina L.	-	-	-	+	+
Valuable ornamental flower varieties	Tulip	79	Tulipa greigii Regel	+	+	+	+	-
		80	Tulipa ostrowskiana Regel	-	+	+	+	-
		81	Tulipa kolpokowskiana Regel	-	-	+	+	+
		82	Tulipa brachystemon Regel	-	+	+	+	-
		83	Tulipa tarda Stapf	-	+	+	+	-
		84	Tulipa thianschanica Regel	-	-	-	+	-
		85	Tulipa tetraphylla Regel	-	-	-	+	-
		86	Tulipa dasystemon (Regel) Regel	-	-	-	+	-
		87	Tulipa heterophylla (Regel) Baker.	-	-	-	+	-

Table II: Rare and endangered plants (including agro-biodiversity) in the Zailiyskiy Alatau project area **(Red Book of Kazakhstan - 1981)**

?	English/Russian Name	Scientific Name	Relation to ABD
1.	Common apricot	Armeniaca vulgaris Lam.	+
2.	Adonis	Adonis chrysocyath-us Hook.f. et Thoms.	-
3.	Tien-Shan Adonis	A. tianschanica (Adolf.) Lipsch.	-
4.	Milk vetch	Astragalus dshimensis Gontsch.	-
5.	Goloplodnik Besstebelnyy	Leiospora excapa (C.A.Mey)	-
6.	Gimnospermium	Gymnospermium altaicum (Pall.)	-
7.	Onion	Gagea neo-popovii Golosk.	-
8.	Wallflower orange	Erysimum croceum M..Pop	-
9.	Iris	Iris albertii Regel	-
10.	Iridodictyum	Iridodictyum Kolpakovskianum (Regel) Rodion.	-
11.	Ikonnikovia	Ikonnikovia Kaufmanniana (Regel) Lincz.	-
12.	Hackberry	Celtis caucasica Willd.	-
13.	??????? ????????	Cortusa semenovii Herd.	-
14.	Catnip	Nepeta transiliensis Pojark.	-
15.	Kurchavka Mushketova	Atraphaxis muschketowii Krasn.	-
16.	Lepidolopsis Goloskokova	Lepidolopsis goloskokovii Poljak	-
17.	??????? ???????? Spurge	Euphorbia jaroslavii Poljak	-
18.	??????????? ??????	Jurinea robusta Schrenk	-
19.	Neuroloma Beketova	Neuroloma beketovii (Krasn.)	-
20.	Crazyweed	Oxytropis almaatensis Bajt.	-
21.	Liverleaf	Hepatica falconeri (Thoms.)	-
22.	Apple	Malus niedzwetzkyana Dieck.	+
23.	Peony	Paeonia hybrida Pall.	-
24.	Pasternakovnik lednikovyy	Pastinacopsis glacialis Golosk.	-
25.	Rhubarb	Reum wittrockii Lundstr	-
26.	Current-bush	Ribes janczevskii Pojark	+
27.	Anthrax	Sibiraea tianschanica (Krasn.) Pojark	-
28.	Sossureya obvernutaya	Saussurea involucrata (Kar. et Kir.) Sch	-
29.	Tulip	Tulipa kolpakowskiana Regel	+
30.	Tulip	Tulipa ostrowskiana Regel	+
31.	Corydalis	Corydalis semenovii Regel	-
32.	Shmalgauzeniya gnezdistaya	Schmalhausenia nidulans (Regel) Petrak	-
33.	Apple	– Malus sieversii (Ledeb.) M. Roem	+
34.	Hawkweed	Hieracium kumbelicum B. Fedtsch.	-
35.	Sainfoin	Onobrychis alatavica Bajt.	-
36.	Unona Almatinskaya	Juno almaatensis Pavl.	

Table III: Rare and endemic fauna in the project sites (Red Book of Kazakhstan - 1996)

1. Zailiskiy Alatau Region

A. Mammals:
1. Indian Crested Porcupine - Hystrix leucura Satunini*
2. Tian Shan Red Bear - Ursus arctos isabellinus*
3. Marbled Polecat - Vormela peregusna*
4. Middle Asian Stone Marten - Martes foina intermedia*
5. Otter - Lutra seistanica
6. Pallas's Cat - Felis manul
7. Snow Leopard - Uncia uncia
8. Pamir Argali - Ovis ammon*

B. Birds:
9. Black Stork - Ciconia nigra*
10. Demoiselle Crane - Anthropoides virgo*
11. Great Bustard - Otis tarda
12. Short-Toed Snake-Eagle - Circaetus ferox gallicus*
13. Egyptian Vulture - Neophron percnopterus*
14. Blue Whistling-Thrush - Myophonus caeruleus*

2. Dzhungar Alatau Region

A. Mammals:
1. Asiatic Wild Dog - Cuon alpinus*
2. Tian Shan Red Bear - Ursus arctos isabellinus*
3. Marbled Polecat - Vormela peregusna*
4. Middle Asian Stone Marten - Martes foina intermedia*
5. Otter - Lutra seistanica
6. Pallas's Cat - Felis manul
7. Snow Leopard - Uncia uncia
8. Persian Gazelle - Cazella subgutturosa
9. Pamir Argali - Ovis ammon*

B. Birds:
10. Black Stork - Ciconia nigra*
11. Demoiselle Crane - Anthropoides virgo*
12. Great Bustard - Otis tarda
13. Little Bustard - Otis tetrax*
14. Ibisbill - Ibidorhyncha struthersii*
15. Short-Toed Snake-Eagle - Circaetus ferox gallicus*
16. Egyptian Vulture - Neophron percnopterus*
17. Booted Eagle - Aquila pennata chrysaetus*

- habitat includes wild fruit forests

ANNEX X: Ile-Alatau National Natural Park - Challenges & Opportunities

(Note: Annex X is the text of a report provided to Ile-Alatau National Natural Park and ACDI/VOCA Kazakhstan in September, 1997 by three international consultants: David A. Koehler, Ph.D., Raymond R. Hoem, and Harold H. Hagemann, Jr. Findings and recommendations from this report have been integrated into the project strategy and into the overall project document).

Part I. Introduction.

Less than eighteen months since its inception as Ile-Alatau National Park, the supporting management policy, regulatory foundation, legal structure, and legislative support necessary for its perpetuation and protection as an intact ecosystem have not yet evolved. The park was formed through the consolidation of four forest reserves and, in the absence of new regulations, standards, and methodologies, continues to be administered and managed under the traditions and internal arrangements of an earlier time and political legacy. The current officials and administrators of the park recognize the unique qualities and components of their jurisdiction and are eager to implement the procedures and practices that have proven successful in park management systems in the United States and elsewhere.

In 1994, the proposed park administration, together with the Green Salvation Ecological Society (a local environmental advocacy group) and Volunteers in Overseas Cooperative Assistance (VOCA), sponsored a consultancy by two American volunteers to evaluate the efficacy of a formal designation of the Park and management actions to effectively manage that Park. This collaboration was followed in 1996 by another VOCA consultancy to provide advisory services regarding park management, budgeting processes, and environmental legislation. Finally, in September, 1997, VOCA (now ACDI/VOCA) recruited the three authors to work with Park administrators to provide training for parks personnel and, concurrently, conduct a Needs Assessment for actions leading to full implementation of contemporary policies, actions, and standards that would eventually bring Ile-Alatau National Park to the status of biological and organizational equity with other internationally known parks or protected areas.

Accordingly, the consultants began on September 4, 1997, to devise an intensive series of training seminars with groups of Parks employees ranging in number from 8 to 29 and possessing various levels of expertise/authority. The seminars were designed to provide short-term, intensive instruction on the subjects of: management and protection of natural resources, cultural resources, and wildlands; ecological education; recreational use; economic resources; and, the roles and responsibilities of park rangers.

The seminars also served the dual purpose of providing the consultants with opportunities to engage in interactions and dialogue with the employees that allowed information gathering and data collection for later assessment. Information thus obtained was processed by the consultants to provide the bases for identification of major issues confronting the Park Administrators and the actions required to potentially resolve them.

Part II. General Description of the Park.

Ile-Alatau National Park in the Almaty oblast of southeastern Kazakstan was formally designated on February 22, 1996. The Park, encompassing 1645 sq km, begins at the virtual outskirts of the capital Almaty and extends south to the international border with Kyrgyzstan. It measures 15 km to 36 km wide north-to-south and 115 km long east-to-west. On three sides, the Park encloses the Almaty State Biological Reserve which is 717 sq km in size, thereby forming an ecological continuum covering almost 2400 km. Vertically, this continuum proceeds from an elevation of 650 m (2133 ft) to 5017 m (16461 ft) at the top of Talgar Peak.

This ecosystem provides a stark and dramatic visual background for the urban metropolis of Almaty. On clear days, the abrupt incline above the city can be viewed to the crest of the mountains with their permanent snowfields and glaciers. This visual resource is unique in the experience of the authors and gives the city an appearance that is singular and appealing.

The Kazakstan-Kyrgyzstan border follows the crest line of the Zailiysky Alatau/Kungey Alatau Mountains which are spurs of the Tian Shan Range, which south of the border rises to elevations of almost 23,000 ft (7404 m). The north face contains many permanent glaciers and the summer snowline fluctuates between 3800 and 4100 m. The area contains habitat for an extremely diverse flora and fauna. Approximately 1400 plant species are found here, as well as over 240 vertebrate animals. The territory is critical habitat for the snow leopard, the Tian Shan brown bear, the Central Asian lynx, and the falcon, which are among 22 listed (Red Book) species. The large mammals found here also include wild boars, roe deer, Ibex, moufflon sheep, mountain goats, and wolves. Avian species include such unusual birds as bearded ptarmigan, cuckoo birds, black grouse, chukar partridge, and the bearded vulture.

The Park/Reserve transcends at least five major vegetation (life) zones including: grassland steppe, deciduous forest, coniferous forest, alpine, and glacial zones. Geological erosion is evident in all sectors of the Park and these effects have been exacerbated by avalanches, earthquakes, and extreme flooding events. Anthropogenic events associated with the Silk Road, which originated in the 2nd century B.C. and continued for over 2000 years, accelerated these disturbances. Certainly, livestock grazing and human traffic up and down the steep canyons of the mountain ranges and along fragile riparian zones have intensified erosion effects. Other illicit uses such as poaching, woodcutting, off-road automobile traffic, and hay harvesting have also had serious impacts upon this ecosystem.

In the period predating the Park's establishment, a large number of constructed facilities were allowed to proliferate within the area. These developments include two ski areas; a word-class skating/recreation complex; numerous resorts, restaurants, lodges,"pioneer camps", recreational homes, transmission lines, pipeline corridors, hydrological networks, and hydraulic systems. Many of these features will need to be reconsidered in the Park's planning and ultimate implementation. Some may be removed or eliminated, while others can be refurbished or converted to other uses (adaptive reuse). In any case, these structures and facilities require evaluation before any decisions to incorporate them into the permanent park infrastructure.

The extreme proximity of a large urban population (1.5 million people) to the park boundary presents serious challenges to the dual goals of resource preservation and human visitation management. Already, air quality in the park detracts from and limits the enjoyment of its scenic vistas and unregulated recreation has compacted the favored picnic/visitor sites. Unconstrained

activities such as grazing and off-road automotive traffic have further degraded the soil and vegetation resources. It is imperative that active and pre-emptive management and regulation of the park begin at the earliest possible time in order to protect the special qualities of the park and prevent unalterable degradation.

The Consultant Team's Activities

Initially, two consultants (Raymond Hoem and David Koehler) were invited from the United States. They left the United States on 2 September 1997 and arrived in Almaty on 4 September 1997. An initial meeting was held with personnel from VOCA and the Ile-Alatau management on 5 September 1997. A third member (Harold Hagemann) was added to the initial team by the VOCA office in concurrence with the park management and the initial two consultants.

Initial meetings resulted in the consultants developing a training module but the resulting meeting on 6 September 1997 resulted in a modification of the training plan which was followed for the rest of the training period.

Each branch of the park was visited and presentations related to on-the-ground park administration were made to the staff of each of the branches with attendance ranging from 7 to 25 personnel at each training section. Following the training sessions at each section of the park, we toured each section of the park and were shown the various things that each of the chief foresters in the park areas considered important. A great deal of information was shared during these visits and the volunteers saw and learned a great deal about the park and its resources. When all the branches had been visited, a final meeting was held with park management on 18 September 1997. Training at this session was primarily devoted to management problems.

Other meetings were held with the Green Salvation Ecological Society, the World Band and US AID were held during the period. A meeting with Victor Yegorov, Chief Engineer of the Park, VOCA and the consultant team was held on 12 September 1997 to assure the instruction continued to be along the lines of park management instead of the multiple use management commonly found on US Forest Service and Bureau of Land Management lands. There had been some question as to which type of management should be implemented due to the many differing types of land management found within the park boundaries.

Part III. Needs Assessment and Recommendations

This section of the report summarizes the consultant team's observations and recommendations regarding various aspects of the park, its management and operations. Some recommendations can be implemented in a relatively short period of time and with few financial resources. Others require further planning and will require financial commitments of various degrees. And others require coordinated political efforts by the Ministry of Agriculture in concert with other relevant government bodies.

Enabling Legislation

Issue: Present legislative authority does not devolve to the National Park the authority ecessary to effectively manage the park.

Existing Conditions:

1997 law of the Republic of Kazakstan on natural areas of preferential protection further endorses the value of the protected areas and high environmental standards and crates a framework for the protection and restoration of those areas.
There is no provision within the law that allows the National Park Administration to develop regulatory rules and regulations to effectively manage the park.
The lack of regulatory authority severely limits the enforcement capability and resource protection actions of park employees.

Recommendations:

The Minister of Agriculture, working in concert with the Director of the Park and his management team, should initiate a process to promulgate the necessary legislation to enable the National Park administration to effectively develop rules and regulations to manage the park and its various resources. Such legislation should designate the National Park administration as the primary authority within the park boundaries with all other entities and organizations subordinate to that authority. This will enable other authorities to still exist within the park but put the primary responsibility for park management in one administrative unit. This legislation should extend to all revenue collections and distribution of financial resources within the Park boundaries.
Following effective enabling legislation, the Park Service administration must develop rules and regulations which specifically define prohibited acts and conduct rules and penalties. Further, the regulations should describe the financial procedures and operations of the Park administration.

Management Issues

Issue: Park management structures and policies should be updated to fully meet the new transition from the forest reserve system to contemporary park management.

Existing Conditions:

The park, at this point in time, continues to be managed as five units instead as an integrated park unit. This is exemplified by the appearance of different management standards for each of the sections. In one instance, the Almaty State Reserve, it is managed by an entirely different entity.
Middle management, in particular, would benefit from closer contact and interaction with field personnel. Personal contact and observations would benefit from these personal interactions. In some instances, middle management had not met with employees for some time, appearing not to know some employees. This underlies the need for improved internal communications.
At the conclusion of our seminars, the consultant team heard very different versions of park policy and objectives stated by park administers.

Some managers seem reticent to establish relationships with external organizations, donor sources and partners. This attitude could inhibit scientific, professional and financial support for the park and preclude the exchange of critical information.
Pesimissum pervades about future prospects also forecloses the possibilities of cooperative ventures that could lead to a more immediate necessary improvements.
Conflicting jurisdictions within the park make park management very difficult. As an example, the park administration needed to get permission from the KGB to enter its own area of jurisdiction.
Supervision and accountability of field personnel can be considerably strengthened by the requirement that managers and supervisors monitor the accomplishments of their staff.

Recommendations:

Establish a clearly defined direct line of authority that reaches from top to bottom of the organization. The park director has to be recognized as the eminent authority within the park and all other entities within the park must be subservient to this entity. The park entities must work together, as one unit, to accomplish the most effective management of the park.
There should be clear job descriptions and performance requirements for each position within the park service.

There must be a system in place for recording and reporting of field observations.
Training and educational opportunities should be made available for all employees. This function is an essential component of the park and can be a good exercise for all managers.
Regular and mandatory staff meetings are an effective management tool.
Park employees and supervisors must be role models for professionalism and technical quality in the management of the park.
Park supervisors need to communicate with and to park employees as well as be an advocate for those employees. They must convey a positive vision of the future of the park.
Management officials must establish relationships outside the park to elicit business, social and political interest in park activities and resources.
Employment and continued service in the park needs to be predicated on skills and qualifications.

Rangers

Issue: Mode of lifestyle for park rangers is not conducive to the management of the national park. It must be modified, substantially, if the park is to achieve contemporary international standards.

Existing Conditions:

Rangers live in full time housing found in the park. These privileges include performing subsistence farming methodology which includes such things as grazing, gardening, wood

harvesting, other forest product harvesting, cutting of hay crops and other consumptive uses of the park resources.
There are no available uniforms or other symbols of park employment and authority.
Compensation, when it is available, does not provide the means necessary to satisfactorily maintain subsistence in the Kazakstan economy.
Communication with mid-level managers and supervisors is not occurring in an adequate fashion for proper management of the park.
Radio and telephone communication does not exist.
There is minimal equipment provided to meet the requirements for accomplishing the duties prescribed by the supervisors.
There is no underlying foundation of regulatory structure from which they can draw information on how to conduct themselves and do the job for which they are hired.
There are no job descriptions available to prescribe duties and responsibilities.
There are, apparently, no regularly described working schedules.
Public information, education and outreach are not part of the current ranger duties.
It appears the rangers do a wide variety of tasks associated with forestry management but need to focus on resource protection and allow other specialists to perform silvicultural and other management skills.

Recommendations:

Revise the position description for rangers to meet the present needs essential for resource protection/park management. Provide the rangers with a coordinate work schedule.
Salary and other compensation must be available to replace subsistence farming and bring the standard of living to a level commensurate with that of other government employees.
Following the adequate provision for compensation, the dozens of permanent ranger residences scattered throughout the higher elevations and fragile ecosystems need to be removed. Temporary residences, in selected areas, may be provided as deemed necessary. Permanent habitations, outside of enclaves and compounds, within a national park are inappropriate.
Rangers need to be provided with the necessary tools to effectively perform their assigned duties. These tools include uniforms, other symbols of authority, regulations and enforcement authority, appropriate transportation, effective communications systems and hand tools to perform everyday work.
Training and continuing education in all aspects of natural resource management and law enforcement.
Patrol patterns need to be changed to provide for ranger activities in areas of high human concentrations and needs. Rangers schedules and work assignments need to be rotated so that personnel can become familiar with all aspects of the park administration and resource enforcement activities.
Rangers daily work schedules need to be coordinated through the chain of command within the park administration.

Revenue Structure

Issue: The Park has no comprehensive nor consistent legal authority to collect user fees from businesses, facility operators, recreational providers and users.

Existing Conditions:

Multiple concessions and facilities have proliferated throughout the park that do not contribute financially to the operations of the park. For example the Shymbalyk ski area is a privately owned recreation facility in the center of the Medeu region that utilizes Park lands and facilities for commercial gain yet provides no or little compensation to the Park. Recognizing the ski area has been privatized, it still draws upon park resources such as roads, viewscape, topography and other natural geographic attributes.

The city of Almaty collects an environmental passport fee at the entrance of the Medeu region of the National Park. These funds are not returned to the National Park budget as far as we can determine.

Numerous privately owned recreational houses provide little or insignificant financial return to the Park despite being entirely dependent upon the natural scenic resources of the park for their success and popularity.

A huge number of dachas can be found within the park boundaries with no compensation to the park. Many of these are either not completed or have been abandoned and, along with those that are lived in during occasional visits to the area, provide for a degradation of the aesthetic values found within the park. Further each dacha has, at best, primitive sanitary waste facilities. The cumulative affect of these poor sanitary facilities has the potential to introduce significant disease to common aquifers transmitting these diseases to the entire population of the city of Almaty and other users of waters generated within the park boundary.

There are a number of tour operators, trekking guides and outfitters operating within the park without accountability to the park administration or the requirement to pay for these privileges. These people have a significant impact to the user population of the park.

Water and power lines represent another uncompensated use within the park boundaries.

Recommendation:

The National Park should develop the necessary legal basis, within the context of enabling legislation, to recover adequate and appropriate financial compensation for all users of its resources. Such fees should be equitable and fairly compensate the park without unduly hindering business enterprises. The fee process must be applied outside the political arena such that ALL users of the park pay fees in a fair and equitable manner.

Recreation Uses

Issue: The present mode of recreational activities on the National Park needs to be modified to make it more compatible with resource protection priorities.

Existing Conditions:

Visitor use patterns are not actively managed by the park; consequently use levels are not sustainable e.g. off-road driving and parking, poor sanitation, vegetation trampling and soil compaction.
Recreational habits reflect a poor environmental ethic and result in large quantities of refuse and pollution of park resources.
Most recreation use in the park is high intensity, short-term concentrated in narrow access corridors. These corridors corresponding with major river drainages cannot accommodate the high numbers of people, automobiles and associated activities without sustaining permanent environmental damage.
Thousands of dachas intrude upon park lands under dubious ownership authority. Each dacha is a user of physical and aesthetic park resources and holds the potential of polluting both surface and subsurface waters with the intensive concentration of human waste.
Private recreational facilities and homes within the park boundaries are not managed in a manner conducive to sound resource management practices. They contribute relatively little revenue while making major demands on park resources.
Commercial activities such as the billboards at the Chimbulak ski facility are not compatible with the park and should be removed.

Recommendations:

Park should develop a recreation management plan to guide recreation activities within the park boundaries.
Dachas and private homes should be given time limits to be removed from within park boundaries. This is primarily to relieve the potential water pollution and disease potential existing with this type of development to Almaty and other residents using water resources emanating from within the park boundaries.
Private and commercial recreational facilities should be managed within conventional resource management protection standards.

Current Uses and Resource Degradation

Issue: Current practices and management policies do not effectively protect the park resources.

Existing Conditions:

Visitors habitually drive from regularly maintained roads, park and have picnics.
Roads are not constructed with adequate protection for erosion and drainage control.
The flood plain, in many instances, is used as a road area contributing to maintenance and erosion within the park.
Litter and garbage control within the park is a critical concern.

Overgrazing, trampling and trailing by domestic livestock, owned by park personnel, are degrading the forage resources, soils and water quality of the park.
Stream and river banks are being abused by overuse both by human and domestic livestock traffic.
Forage utilization in most locations in the park, visited by the consultants, was estimated to be at 80% or above of available forage. In contrast to the 50% allowable use standard accepted as best management practice.
There are few sanitary facilities for disposal of human waste. Those facilities that are available do not contain the waste and are merely pit systems which allow pollution of the streams, the watershed and aquifers.
Subsistence farming, gardening, fuel wood harvest and forest product harvest by park employees not only degrades the forage resources but contributes directly to the amount of labor that each employee is able to contribute to park management.

Recommendations:

Begin restoration of watersheds and stream channels at the upper reaches in combination with severe cutbacks on permitted grazing use.
Begin the process of blockading all unnecessary secondary primitive roads and access points.
Limit off road parking vehicle use to existing roads, parking facilities and trail heads.
Develop trail systems for recreational visitors that include access points, directional signing and maps. Incorporate construction standards that will prevent erosion and deterioration.
Develop walk-in recreation sites at short distances from parking facilities. Recreation areas should include appropriate sanitation facilities such as vault toilets. Facilities can range from primitive to well constructed, aesthetically pleasing facilities.
Disallow fuelwood harvesting near recreational sites.
Provide specific educational messages at the entrances to the park to discourage littering. Provide a small bag as the visitor enters the park and encourage visitors to take the garbage with them as they leave. Join in and encourage a public campaign aimed at proper litter and garbage disposal methods.
Litter within the park must be cleaned up daily by park personnel so as to indicate to people that littering is NOT an acceptable practice.
Use of park resources and permanent and temporary living facilities within the park boundaries by park employees and other people should be phased out within 10 years.
Develop an advertising campaign to encourage responsible use of park lands and resources.
Encourage all park visitors to eliminate fires and extinguish campfires before departing the camping areas.

Political Visibility of the Park

Issue: The Ile-Alatau National Natural Park is scarcely seen in the business, social and political network as an important resource within the Republic of Kazakstan.

Existing Conditions:

International conservation organizations and donor foundations point of contact with the Kazakstani government is usually the Ministry of Ecology and Biological Resources. This puts the Park at somewhat of a disadvantage because these groups may not be advised of the significance and critical issues of Ile-Alatau National Natural Park when conducting business.
The Park does not have a major profile within the business community of Almaty or Kazakstan.
Essential relationships necessary to draw attention to the Park have not been cultivated at this time. This issue has not yet been identified in the action plan for the park.

Recommendations:

Develop some type of action plan for publicizing the unique characteristics of the Ile-Alatau Natural National Park within the business, social and political communities of the Republic of Kazakstan.
Successful repositioning of the Park in these various arenas can only occur with the full endorsement and participation of executives and management personnel. Principal in this arena would certainly be the Director of the Park.
Other public relations activities, i.e. newspaper articles, appearances at local business meetings, radio talk show appearances, television interviews and related outreach services should be attended and exercised.

Financial Constraints

Issue: Budget allocations are insufficient to meet the salary costs, administrative needs, operating costs and maintenance needs of the park.

Existing Conditions:

Salary arrears are as much as 18 months.
There is an inadequate pay scales for rangers, leading to subsistence farming in order to maintain an adequate lifestyle.
Little discretionary income for management activities.
Deferred maintenance has led to serious deterioration to park infrastructure and facilities.
Revenue, currently collected, from entrance fees, concession fees, commercial activities (apple activities) and camping is a very minor component to the needed agency budget.
There appear to be bureaucratic and banking obstacles encountered when monies are moved from one portion of the government to the park administration.

Recommendations:

The government needs to assure employees are adequately and timely compensated.
A pay scale for government employees needs to be described and implemented so that all employees will understand the compensation scale. The scale needs to be fair and adequate to subscribe a standard of living necessary for a family to survive comfortably in the Kazakstani economy.
It is unlikely that government income for the park will increase substantially within the immediate future. It is incumbent upon the park administration to aggressively pursue alternative revenue sources, consistent with natural resource management objectives. Some potential avenues of funding include:

a. Apple processing
b. Adaptive reuse of existing facilities for uses other than for which they were designed e.g. Pioneer camps as base lodges for trekking expeditions.
c. Lake Issyk and marketing of water resources for irrigation and other consumptive uses.
d. License fees for commercial operators of recreational activities.
e. More effective use of existing revenue resources.
f. Fees for water and utility transportation rights-of-ways.

Park administration needs to be given sole control of funds allocated for park management activities.

A more detailed financial planning exercise is being pursued by Mr. Harold Hagemann, an author to this paper.

Cultural Resources and Archeological Values

Issue: There are a variety of cultural and archeological values found within the park boundaries and these need to be protected from vandalism and destruction.

Existing Conditions:

The Russian Orthodox Shrine exists within the park boundaries.
Several archeological discoveries found within the park boundaries are currently housed at the National Museum of Culture. Others, such as the Internationally prominent Golden Warrior, were excavated within sight of the national park boundaries.
The parks location along the historic location of the silk road for 2000 years would lend credence to the fact that historical and archeological values exist.

Recommendations:

Cultural and archeological resources need to be integrated into the management of the park.
Protection of archeological and cultural sites should have high priority within the park.

Environmental Ethics

Issue: The practical management of natural resources involves the full cooperation of the public at large. A key component of park management should address the attitudes and lifestyle habits of the public sector.

Existing Conditions:

Habits and lifestyles of the Kazakstani people need to be modified relative to littering and other practices contributing to the public good.
Need to drive one's vehicle as close to a destination as possible needs to be modified.
Public practices and perceptions do not recognize the incongruity of desecrating public use area and recreational sites.
Outdoor resources should increase the quality of life for the people that use them. This is consistent with the park's theme of «Parks for Living.» These resources cannot provide that function if they are abused.

Recommendations:

Environmental education needs to be a dominant effort within all ministries of the government. The park service could be a keystone in the initiation and institutionalization of that effort.
There needs to be consequences and penalties for destructive activities. The park service should have the authority to arrest or detain people for these kinds of activities.
The newspapers need to be a key figure in educational awareness of proper natural resource management efforts.
The current park employees have demonstrated a strong commitment to an environmental ethos and they are to be commended for such.

Partnerships with International Organizations and Donor Foundations

Issue: The national Park has not accessed the expertise and funding available from international sources.

Existing Conditions:

There are a multiplicity of foundations and organizations willing to contribute money and time to environmental studies which pursue the themes of global warming, biodiversity, endangered species and eco-tourism.
Demonstrably, these organizations are interested in coordinated projects within Kazakstan agencies and ministries.
There does not appear to be a great deal of cognizance of these opportunities and resources within the park staff and management.

Recommendations:

Immediately initiate interviews and contacts with organizations that may provide technological or monetary subsidies to ongoing park programs.
There should be a park employee that pursues grants, partnerships and environmental coordination with organizations and foundations of this kind.

ANNEX XI: Alternative livelihood report: Recommendations for alternative livelihoods Activities

The project will attempt to leverage co-funding to bolster the sustainable development baseline in order to maintain agro-biodiversity in the two selected priority sites. Currently there are few sustainable development alternatives for rural farmers and local businesses to pursue in the Almaty Oblast. The following section will describe activities that could be supported in the full project. Some of the suggestions may be funded by the Kazakh government or national agencies, others will require external co-funding for their implementation, and others may be classified as incremental cost activities and be funded by the GEF. The project in general will need to approach the threat to agro-biodiversity in an integrated manner and the suggestions made here are only one part of the overall project activities.

All of the following activities were assessed by national and international consultants and deemed worth further analysis as part of Full Project implementation. In particular, it was generally agreed that fruit processing, wine production, and honey production had high potential. Already in Kazakhstan there are numerous companies that are prepared to purchase fruit and fruit juice products from these regions, if they can be assured of quality and consistent production. Surveys of local inhabitants during the PDF-B process largely confirm these priorities, although locals also put a high emphasis on increasing tourism (and capturing locally more of the tourism revenues) in these areas. In general, the majority of local inhabitants acknowledged frequent use of local natural resources, including ABD resources. In addition, they admitted to knowing that some of their practices and levels of use were destructive and unsustainable, and were eager to explore alternative livelihoods to provide themselves with new options for interaction with their local environment.

Activities 1-2 are general recommendations that would benefit both of the selected priority sites. Otherwise, the development of economic activities and alternative livelihood opportunities will be slightly different depending on which Alatau the activity is proposed for, and thus the suggestions for alternative livelihood development will also be presented in two sections, one for each mountain range. Activities 3-15 apply to the Zailiyskiy Alatau region, while Activities 16-26 apply to the Dzhungar Alatau region.

Many of the suggested activities below recommend that workshops should be conducted. For budget purposes the cost of a workshop is considered constant for all activities. The estimate of $2,250 per workshop consists of the following expenses.

- Two days for the trainers to advertise the workshop before it takes place. This activity will require that the trainers visit the area before the workshop and invite local farmers and residents to attend. Without this direct promotion the workshops will not reach the appropriate audience. - $400
- Three days per trainer preparing poster boards, overheads and other presentation materials. The information should be presented in a language and a level of complexity that is appropriate for the audience. - $ 600
- Two days of travel time for each trainer - $ 400
- Three days for delivery of the workshop - $ 600
- Cost of transportation, equipment rental, accommodation and other expenses. - $ 250

The analyses below are focused on those activities that for economic, technical, and financial reasons are believed to be the most viable alternative livelihood opportunities for local inhabitants in the two project sites. Thorough economic analysis of these opportunities was beyond the scope of the PDF-B stage, and will be carried out as part of the Full Project. However, a basic cost-benefit analysis was carried out on two alternative livelihood options that could provide

employment to many local inhabitants – bee breeding (Activity 9) and fruit processing (Activities 4-6). These analyses are provided at the end of the descriptions of activities.
Finally, short descriptions of some of the existing small and medium enterprises in the two regions are provided at the end of this Annex. This is by no means an exhaustive list, but rather a representative sample of potential partners for alternative livelihoods activities. This list of fruit producers, medicinal plant companies, nurseries, etc., also demonstrates that significant scientific, technical and managerial expertise developed during the Soviet era, at a level well beyond that typical for developing countries, still exists in these regions and can be accessed to the benefit of rural economic development activities.

Activity 1. MODIFY TAX APPLIED TO FRUIT FARMERS, MICRO-BUSINESSES AND SME

From the information collected during the two missions to Kazakhstan it became clear that potential alternative livelihood and economic activities would benefit from a more favourable federal tax system for small and medium sized businesses. In Code of the RK dated June 12, 2001 "On Taxes and Other Obligatory Payments to the Budget", article 135 describes the "Rates of Income Tax for Legal Entities". It states:

1. Taxable income of a legal entity shall be subject to taxation at a rate of 30 per cent
2. Legal entities for which land is the only means of production, shall pay the tax at a rate of 10 per cent of the income received directly from its use.

In addition to this there is also the Value Added Tax which is described in Article 245. It states that

1. The Rates of Value-Added Tax shall be 16 per cent of the amount of taxable turnovers.

A third form of tax is Personal Income tax as described in Article 145. Rates of Income Tax for Physical Persons. Taxable income of a physical person shall be subject to taxation at the following rates:

1. up to 15-times 5 per cent of the annual amount of taxable calculation base income
2. from 15-times amount of tax up to 40-times the 15-times the annual calculation base annual calculation base + 15 per cent of the amount in excess of it
3. from 40-times amount of tax on to 600-times the 40-times the annual calculation base annual calculation base + 20 per cent of the amount in excess of it
4. from 600-times amount of tax on to 600-times the 30-times the annual calculation base annual calculation base + 20 per cent of the amount in excess of it

Description of Activity: The project should work with the national government to make the taxation system for fruit farmers, micro-businesses and SME more attractive. A system that recognizes the importance that farmers, micro-businesses and SME have on the national economy would be more appropriate.
A number of options could be presented to the government of Kazakhstan including:

1. Tax holidays for new companies, to allow them time to start their operation and recover some of their initial investment before paying tax. This would allow companies to develop a strong base which would create sustainable companies, who are able to pay taxes for many years.
2. Reduce taxes applied to small fruit farmers who actively work to conserve unique agrobiodiversity as recognition of their involvement in the conservation program.
3. Reduce the tax rate for micro-businesses and SME to levels that are more attractive to business people. A reduction in the business tax rate from 30% may encourage more entrepreneurs.
4. Changes to the Value Added Tax to make the operation of fruit farmers, micro-businesses and SME more profitable.

Period of Implementation: Estimate 6 years, or the entire duration of the project.

Activity Implementers: Legal and Regulatory Specialists, working with the National Government. Input would also come from the Alternative Livelihood specialist, fruit farmers, micro-businesses and SME representatives.
Cost of Activity: Cost estimate would be developed by the Legal and Regulatory specialist.

Activity 2. CAPTURE MORE OF THE FINAL MARKET PRICE BY AVOIDING MIDDLE MEN AND DISTRIBUTORS

Description of Activity: Many of the products that are produced by rural farmers such as fruit and honey are collected at the farm by distributors and then taken to the market. Many farmers are unaware of where their products end up or how much they sell for. Workshops that describe a products life cycle from the time it leaves the farm to the final customer would benefit the farmers. Most farmers are selling to distributors because they are unsure how to market items themselves.

Table 1 – Selected price comparison

	Price on Farm	Final Sale Price
Honey	US$ 1.40	US$ 3.00
Flowers	US$ 0.10	US$ 0.40
Apples	US$ 0.15	US $0.30

Several products more than double in price after they leave the farm even though very little additional processing is done. The final sale price was estimated from markets in Almaty. Once specific opportunities have been identified where farmers can capture more of the final price, the training workshops will show them how to work directly with the final sellers of the product and provide financing so that they can transport their products directly.
Period of Implementation: 4 years.
Activity Implementers: A number of Kazakh agencies have the experience and expertise to assist the project with this type of training, potential partner organizations include:

1. Economic training institutes in Almaty and Taldykorgan, Economical Faculties of the Institutes
2. NGO "Harvest"

Cost of Activity: Cost is US$ 55,000.

- Conduct a four month market analysis and identify the most promising opportunities for capturing more of the final product - $ 5,000
- 12 workshops over two years explaining the results of the market analysis to rural farmers. - $ 27,000.
- Equipment such as packaging and trucks for farmers who wish to market their product with distributors. - $ 23,000

Recommendations for Zailiyskiy Alatau

As this mountain range is located near a major population center the opportunities for economic development are more varied. With the population of Almaty and the surrounding cities at almost two million people, there is a substantial market to interact with.

Fruit Farming

The unsustainable farming practices that are currently being used by local farmers living near SMA in Kazakhstan pose a threat to the unique agrobiodiversity in the region. The current practices are being driven by the difficult economic situation that most rural farmers and business people find themselves in. If the quality and quantity of economic opportunities available to rural farmers can be increased, it will help reduce the threats to agrobiodiversity.

Activity 3. TRAINING WORKSHOPS FOR RURAL FARMERS

Description of Activity: Conduct workshops in rural communities on a regular basis eight time per year. Coordinate this activity with the Dacha farmers association, and rotate the workshops so that the topics of discussion are appropriate for the specific area and time of year. The workshops should describe how individual farmers could modify their farming practices to become less damaging to the wild agrobiodiversity in the area. Ensure that the workshops are effectively promoted by advertising well in advance. Some workshops on livestock grazing and animal husbandry would help address one of the threats to agrobiodiversity.
Potential themes for the workshops could include:

1. Farm Management: appropriate selection of seedlings and trees, organization and management of orchards, inputs and other production enhancers, harvesting and transportation techniques to reduce post-harvest loss, etc.
2. Business Management: development of business plans and long term goals, basic accounting, financing options for business growth, etc.
3. Diversification of Farm Production, Exploitation of Unique Markets: flowers, honey, landscaping plants, medicinal plants, etc.
4. Co-operative Farming: describe the advantages and disadvantages of working in small groups of 3 – 5 farmers, including cost sharing, organizational structure, etc.

Period of Implementation: 5 years.
Activity Implementers: A number of Kazakh agencies have the experience and expertise to assist the project with this type of training, potential partner organizations include:

1. Kazakh Research Institute of Fruit Growing and Viticulture
2. Talgar Tree Nursery
3. Economic training institutes in Almaty and Taldykorgan, Economical Faculties of the Institutes
4. NGO "Harvest"

Cost of Activity: Cost is US$ 110,000.

- Equipment and advertising materials prior to workshop ($250) for eight workshops per year for five years. - $ 10,000
- Transportation for 20 rural farmers to attend local workshop for three days ($250) for eight workshops per year for five years - $ 10,000
- 8 workshops per year for five years - $ 90,000

Fruit Processing and Juice Making Industry

The fruit processing industry could offer alternative livelihood opportunities, as the region grows enough raw fruit to supply many different activities. It is important that any development of fruit processing activities supported by the full project must have a good business plan. The business plan must clearly demonstrate that there is a market for the product being produced. The fruit processing facilities that were visited in the Almaty Oblast indicated that they have experienced a decline in demand for their product, although during the Soviet era demand was very high. The market reality for the region has changed dramatically over the past decade and activities that were successful in the past may not be profitable in the new market place.
If it is possible to promote fruit processing in the oblast, it could have several beneficial effects including:

- Increasing the demand for raw products will have a positive trickle-down effect on rural farmers as demand for their raw products increases.
- Offer direct alternative livelihood opportunities for local farmers who are interested in pursuing this activity.

- Allows the local economy to capture revenues from secondary processing which may have otherwise been captured in other oblasts or outside the country.

Puree and Juice processing opportunities are present in the Zailiyskiy Alatau as both the infrastructure and the expertise to run these operations is present. Market demand and financing are two of the obstacles that are prohibiting these activities. Many of the juice and puree plants are sitting empty or have only recently been purchased and restarted on a small scale. Successful juice makers such as FoodMaster and Ice Berg are enjoying success as they develop unique products that do not compete with imports. For example, FoodMaster has developed a combination apple juice and milk drink that is selling well because it does not have competition from domestic or imported products.

Activity 4. DEVELOPMENT OF PUREE AND JUICE INDUSTRY

Description of Activity: Analyze the local market and determine the demand for juice, puree and other products. If there is a weakness in the current market that can be exploited a business plan should be developed that will focus on this. Try to concentrate on areas where local products have some competitive advantage or where there is currently little competition. Financing would need to be available to local fruit grower to encourage this activity. Section 4.0 has specific information on micro credits.

Some of the specific activities that could be considered include:

- Vinegar
- Wine/Hard Cider
- Syrup / Sugar substitute
- Fruit Breads
- Baby Food
- Dried Fruit
- Frozen Products (juice, pies)

Period of Implementation: 5 years

Activity Implementers: A number of local businesses and agencies have produced the above reference fruit products in the past, and some of their expertise and experience may be available to the project.

- Vinegar: Alma Alta Ltd.
- Wine: Issyk Winery
- Government and SMA

Cost of Activity: Estimate cost US$ 63,000.

- Domestic market analysis and develop specific training programs based on market analysis $ 10,000
- Transportation for local farmers to attend the workshops - $ 8,000
- 20 training workshops over a four year period for rural farmers or others interested in fruit processing activities. - $ 45,000

Activity 5. DEVELOPMENT OF EXPORT OPPORTUNITIES FOR PROCESSED FRUIT PRODUCTS

Description of Activity: Analyze the opportunities to export juice and puree products. Starting with traditional markets such as Russia, Uzbekistan, etc., analyze the potential for niche markets internationally for products made from either “wild varieties” or from organic gardens. If an opportunity is identified, financing would need to be available to local fruit grower to encourage this activity.

Period of Implementation: 5 years.

Activity Implementers: International market analysis firms with experience in Kazakhstan and internationally working with local export specialist.
Cost of Activity: Estimate cost US$ 93,000.

- A one year export/international market analysis and development of specific training programs based on market analysis $ 40,000
- Transportation for local farmers to attend the workshops - $ 8,000
- 20 training workshops over four years for rural farmers 45,000

Juice Concentrate Plant

The opportunity to reduce the amount of juice concentrate that is imported to Kazakhstan represents another possible alternative economic opportunity. A rough estimate of the economics of a medium and large sized concentrate plant were included in Table 2.3.1. The development of a concentrate plant is an activity that may be considered by the full project given the right mixture of co-funding, management, and timing. However it may be more feasible for the project to work with micro-businesses or SME who have an interest in starting such a facility. In either situation a concentrate plant in Kazakhstan would present another opportunity for rural fruit growers to expand their sales.

Activity 6. CONCENTRATE PLANT DEVELOPMENT OPTIONS

Description of Activity: Work with all of the potential concentrate plant builders to inform them of the opportunity to purchase raw products from rural farmers. Explore the opportunities to establish advance contracts so that partial payment can be made up-front to local farmers who supply the raw product.
If the concentrate plant agrees to buy local product, then work with the local farmers to ensure that they understand the special requirements of the concentrate plant. Possible topics would include:

- Specific timing for picking fruit for concentrate production
- Varieties that are best for concentrate production
- Appropriate storage and transportation of fruit for concentrate production

Period of Implementation: The initial three years of the project.
Activity Implementers: Meetings with three companies in Almaty revealed that all of them were exploring the idea of building a juice concentrate plant. It may be more practical for the full project to work with one of these private sector companies to encourage them to buy raw products from rural farmers as opposed to trying to develop a concentrate plant as part of the Project. The three companies that were considering building concentrate plants were:
FinImpex: A subsidiary of Astana Holding Ltd. is considering building a 50 000 tons per year concentrate plant in Chimkent;
Director: Mr. Kairat Desupov
Tel:50-94-58
email: bvv@astana.kz
Raimbeck Bottlers: They have begun discussions on a joint venture with GNV of Belgium to build a 30 000 tons per year plant in Almaty
General Director: Yerlan Shinturinov
Tel: 58-23-54
Email: raimbek-bottlers@kaznet.kz
Baldyrgan Vegetable and Food Processing Plant: They have analyzed the possibility of building a concentrate plant with a capacity of 50 000 tons per year
Director: Mr. Radilda Hasenov
94 Jandosov Street

Cost of Activity: US$ 52,000

- During the initial year promotion and marketing local farmers to potential concentrate plant builders - $5,000
- During the second and third year as the plant is being constructed conduct 12 workshops for local farmers on special requirements for concentrate plants - $27,000
- Equipment for storage (trays) and transportation to concentrate plant during first few years of plant operations - $20,000

Wine Making Industry

Wine making in Kazakhstan is an established industry, however it is still recovering from the damage caused by the prohibition movement of the former Soviet Union. If local consumption of wine increases, then there will be a need by local wineries for more grapes. This would present another opportunity for rural farmers to diversify and sell their products.

The market niche for Kazakh wines will probably continue to be lower quality inexpensive wine, although the potential to encourage a few well trained wine makers to compete in certain high quality niche markets also exists.

Activity 7. PROMOTE CONSUMPTION OF LOCALLY PRODUCED WINES

Description of Activity: Although wine consumption in Kazakhstan has decreased over the past decade there has been a steady growth in sales over the past two years. Following this recent trend the Project should work with local wine makers to market and promote their product. The competition for inexpensive wine comes from neighboring countries such as Uzbekistan and other central Asian Republics. A campaign that allows local wine makers to differentiate their product from Uzbek or other central Asian wines (e.g. special markings on bottles) combined with an advertising campaign to encourage Kazakh citizens to buy locally made wines would help local producers.

Period of Implementation: 3 years.

Activity Implementers: Local wine makers and distributors and departments in the national government responsible for encouraging production of products that replace imports.

- Issyk Winery, "Bakhus" "Turgen Winery
- Other Kazakh wineries

Cost of Activity: US$ 35,000

- During the first year develop a market study and develop ad campaign - $15,000
- Periodic meetings for a steering committee made up of stakeholders and Government, meetings every 3 months for life of ad campaign - $ 5,000
- Buy promotional space for ad campaign, print, radio or TV. - $ 15,000

Activity 8. UNIQUE WINE PRODUCTS

Description of Activity: Explore the possibility of encouraging some local wine makers to produce higher quality wine products on a small-scale basis. The new products would have to draw on some type of competitive advantage that Kazakhstan wine makers have. The wine makers would also be encouraged to work with or partner with rural farmers using local wild fruits such as grapes or apples. Financing would need to be available to local wine makers to encourage this activity.

Period of Implementation: 5 years

Activity Implementers: Local wine makers and distributors and departments in the national government responsible for encouraging production of products that replace imports.

- Issyk Winery

Cost of Activity: US$ 62,500

- Complete a one year market study and develop ad campaign - $15,000
- Conduct ten training workshops for selected wine makers on production of a specific alternative product that the activity has identified - $ 22,500.
- Purchase equipment needed for production of special product - $ 25,000.

One example of this type of niche activity may be to take advantage of the strong continental climate in Kazakhstan and look at producing Ice Wine. This topic was discussed during the mission and the following paragraph is a brief description of the process for the information of the project team members.

Ice Wine is a wine made from frozen grapes. Ripe healthy grapes are left on the vines until they have frozen. Since the grapes are picked and pressed while the grapes are still frozen, the water content is removed in the form of ice. The only thing that remains is a concentration of natural sugars and natural flavours. This syrup-like juice is then fermented. Ice Wine tends to be very expensive. On average, a 375ml. bottle can cost US$ 100 or more. Most Ice Wines, however, range from $30 to $70. The high cost is related to the greatly reduced yield, difficulty in production and the rarity of the product. It is generally a product produced once or twice in a decade and only in grape growing regions that have strong continental climates.

Honey Production

Honey production is not as common in the Zailiyskiy Alatau as it is in the Dhzungar Alatau, but there is some potential to promote more of this activity in the southern mountain range.

The economics of apiculture as described in Section 2.5 are attractive. However honey produced in Zailiyskiy is not as highly regarded as honey from the Dhzungar so it may be more difficult to market. Still some of the farmers living near the priority selected site have a good potential to collect good quality honey.

Activity 9. DEVELOPMENT OF APICULTURE

Description of Activity: Work closely with rural farmers living near the priority selected site to encourage apiculture on their land. The objectives would be to train farmers on effective beekeeping activities and enhance the ability of existing beekeepers. Financing will need to be available to these participants to support their activity. The opportunity to by-pass the distributor and sell directly to the market as described in Activity 2 would be included, in these workshops. Many aspects have an impact on honey quality and training workshops may wish to focus on a few specific activities, such as:

- Location of the hives
- Types of bees
- Collection of honey
- Marketing vs. Direct Marketing

Period of Implementation: 3 years to promote the idea and establish some apiculture

Activity Implementers:

- Institute of Botany's Apiculture Specialist
- Rural Farmers
- Astana Beekeepers Association (if it is still functioning)
- Beekeepers Oblast Association

Cost of Activity: US$ 65,000

- Complete a six month study of appropriate apiculture techniques in the region - $ 8,000
- Promotion of the alternative livelihood opportunity to rural farmers and 12 training programs over three years - $ 37,000

- 500 hives ($40 per hive) of Beekeeping equipment - $ 20,000

Tourism

The Project has received reports on improving SMA management from VOCA and those suggestions should be integrated with the following ideas into a common SMA development plant.

A number of common ideas came up in each of the individual meetings with the various stakeholders in the tourism industry for the Zailiyskiy Alatau. Ideas that were discussed during the missions and are probably covered in the VOCA study, but that do not specifically represent alternative livelihood opportunities include:

- Development of hiking paths and signposts in the Specially Managed Areas. Users of the SMAs currently have to make their own paths through the forest, with each visitor walking over different routes and resulting in widespread damage to the ecosystem. With a designated path system, the impact on the environment would be minimized, as all visitors would use the same trails. This would also enhance the experience for most users.
- Construction of basic facilities such as garbage bins and bathrooms were requested. Some of these facilities strategically located throughout SMAs would reduce the environmental impact that tourist currently have on the parks.
- The SMA also need the development of a Radio or other communication system in the area. Communication would help both the forestry rangers and tour operators.
- Improved roads to recreation areas, so that day tours with local citizens are more feasible. If local tourism is going to be promoted, it will likely start with short day tours to interesting natural sites. With poor roads outside the major cities it is difficult to travel to interesting sites.

Care must be taken to ensure that tourism development does not negatively impact the environment or the unique agrobiodiversity that the project is conserving, and that some of the economic benefits are received by local residents. Although this study focuses on economic development and alternative livelihood opportunities, a brief summary of environmental impacts and mitigation measures for tourism development has been included as Appendix 2 of this report.

A good base for alternative livelihood activities could be established as part of a development program for a National Tourism Policy. A set of policies, regulations and guidelines that outlines the goals and objectives of a tourism development plan is an essential part of any sustainable tourism development. The goal of the national policy would be to maximize the benefits to stakeholders and minimize the negative impacts. An effective policy can create positive economic benefits for local residents and the country as a whole. The exact outline of the national policy would be developed in consultation with all stakeholders, but a few important aspects include:

- Definition of the role that tourism will play in the country
- Economics (financing for tourism, cost of infrastructure, taxes on tourism industry, etc.)
- Environmental considerations
- Marketing and the role of each stakeholder

Any development must be designed so as not to negatively impact on the environment in the area. Appendix 2 has a more detailed description of how to design tourism activities in a sustainable and environmentally friendly manner.

Activity 10. DEVELOPMENT OF ACCOMMODATION FACILITIES

Currently there are only a few hotels outside of Almaty, and in natural areas where tourists want to visit there are only a few park buildings or some private homes. Near the winter recreation areas such as Mideu there are hotels, but they are all within a small geographic zone. Within the

parks, some agencies are now working with Park management to build traditional style urts and other accommodations.

Description of Activity: A number of Kazakh owned and operated hotels exist in major urban centers and even within some of the countries SMA. The Project should work with National Park and Forestry Committee representatives to identify possible locations for tourism accommodations. Once these areas have been identified local residents and hotel owners from the urban centers can be contacted to develop plans to build these facilities. The development of small, low impact facilities such as urts may be a good option as they have the benefit of promoting cultural awareness and are small enough that local residents could actively participate in their development. Information can be shared via quarterly workshops that describe the opportunities to interested investors.

Period of Implementation: 5 years.

Activity Implementers: Participants should include local residents and private sector representatives. The development of accommodations must be integrated into the other suggestions for tourism development, but individual may have specific ideas on good locations based on their knowledge of the area.

Cost of Activity: US$ 50,000

- 20 workshops over a five year period and associated promotion - $ 50,000

The Zailiyskiy Alatau currently has 5 travel agencies that focus on tours within Kazakhstan. There is an opportunity to expand both the recreation and adventure tourism by foreigners and create more economic opportunities for rural farmers.

Activity 11. DEVELOPMENT OF ADVENTURE TOURISM

Description of Activity: Adventure tourism should focus on sustainable tourism opportunities such as mountain climbing, white water raft and trekking. Typically the clients for this tourism will be foreigners and the cost of the activity will be between US$ 4,000–6,000 (including airfare). Encouraging more Kazakh based tourism companies to start booking tours to Kazakhstan is a start, but ultimately, international marketing efforts must be made to promote the activity, a process that has already begun with several international firms. The process should involve local residents and they should benefit from increased employment or partnerships opportunities. Development of a national tourism policy as described in Activity 10 would include a description of what type of recreational tourism will be promoted. Before marketing can be undertaken, the following activities should be completed:

- Development of adventure tourism sector plan with input from government, park officials and tourism industry based on the national tourism policy.
- Creation of promotional material that will help Kazakh tourism companies promote tourism by foreign tourists. Focus on expanding the current market which is European based with Germany in particular being a good source of tourists.

Hunting is also classified as adventure tourism, but care must be taken when considering an expansion of this activity. Forestry Management officials currently feel that the numbers of the more popular animals (mountain goats, deer) are not as large as they used to be and that careful studies must be done to ensure that there are sufficient numbers to continue to issue licenses.

Period of Implementation: 5 years.

Activity Implementers: Government, SMA officials and stakeholders.

- The five existing travel agencies with tours in Kazakhstan
- Other tourism agencies that are interested in adventure tourism
- Local residents who can work with agencies as partners or as employees (cooks, guides)
- Ile Alatau National Natural Park officials

Cost of Activity: US$ 40,000

- Complete a one year adventure tourism study - $ 10,000
- During the second year development promotional material - $ 20,000
- Periodic marketing missions outside Kazakhstan over three year period - $ 10,000

Activity 12. DEVELOPMENT OF RECREATIONAL TOURISM WITH A FOCUS ON KAZAKH CITIZENS SPENDING THEIR VACATIONS IN KAZAKHSTAN

As opposed to adventure tourism, recreation tourism focuses on more traditional activities, such as hiking, sight seeing, relaxation, and skiing. These activities can be promoted both internationally and domestically but a domestic focus would be more cost effective. The potential to increase the number of Kazakh citizens who go on vacations in Kazakhstan is good. However the basic infrastructure as described at the beginning of this section (3.1.6) is needed before the full economic potential of recreational tourism can be realized. Encouraging Kazakh citizens to spend their holidays in Kazakhstan is easier and will likely be more successful then trying to bring foreign recreational tourists to the region. With over 350 travel agencies in Almaty alone and 345 of them focus on sending tourists outside of Kazakhstan there is a great potential to re-direct tourism money back into the country.

Description of Activity: Development of a national tourism policy would include a description of what type of recreational tourism will be promoted. Based on this policy a specific recreational tourism plan can be developed. Following this promotional materials and a marketing campaign can be undertaken. A strong focus should be on encouraging Kazakh citizens to spend their holidays in country. The competion for foreign tourist is very intense internationally, but there will be only a few countries that will actively market Kazakh citizens and therefore an aggressive ad campaign by the project to convince people to stay home for their vacations has less competition and is more likely to have positive results.

Period of Implementation: 5 years.

Activity Implementers: Local tourism agencies who have an interest in promoting tourism in Kazakhstan as well as the government and the SMA management.

Cost of Activity: US$ 150,000

- 1 year recreation tourism study - $ 25,000
- Focus the recreational tourism activities on environmental friendly areas or areas that will result in direct benefits to residents living near the specially selected priority areas. - $ 25,000
- Development of promotion material - $ 50,000
- Add campaigns promoting “Kazakh Vacations” in print, radio and television - $ 50,000

<u>Landscaping Plants and Flowers</u>

As described in section 2.7 the sale of flowers and plants for landscaping is a growth market. The sector is a good opportunity for alternative livelihood development for rural farmers because it is a new market with limited existing competition, and it will not likely attract international competition because of the cost and difficulty in transporting live plants long distances.

Activity 13. DEVELOPMENT OF LANDSCAPE PLANTS AND FLOWER GROWING INDUSTRY

Description of Activity: A number of local farms are already focusing on this market, and several of them indicated that they would be willing to share information with rural farmers about their business. A series of workshops on the potential for this type of activity in the areas near the priority selected area will allow interested farmers to investigate this type of alternative livelihood activity.

Period of Implementation: 3 years.

Activity Implementers: Working with interested stakeholders including farms that are currently undertaking the activity and farmers who are interested in the potential business opportunity.
Cost of Activity: US$ 52,000

- Conduct six month study of the potential market for flowers and landscaping plants in the region - $ 5,000
- 12 workshops over 2 ½ year period where existing flower and landscaping plant farmers meet to discuss their activities and new farmers can collect information - $ 27,000
- Equipment and plants to start or expand existing operations for selected farmers in the priority selected sites - $ 10,000

Medicinal Plants

Medicinal plants represent a unique product where there is little competition and where locally produced products have a natural competitive advantage.
Description of Activity: An analysis of the potential medicinal plants in the area would allow local residents who are interested in this activity to learn about what plants are found locally and what there value is. For those individuals interested in this activity training workshops could be held to show them how to collect and process the plants. Marketing would also be another important topic in the training program.
Period of Implementation: 3 years
Activity Implementers: Local residents and farmers who are currently collecting medicinal plants
Cost of Activity: US$ 37,000

- Study of the medicinal plants in the area and their market value - $ 10,000
- 12 Training work for interested stakeholders - $ 27,000

Other

Activity 14. DEVELOPMENT OF ALTERNATIVE ENERGY POTENTIAL

Description of Activity: The selected priority site in the Zialiyskiy Alatau will have the potential to exploit alternative energy generation.
Kazakhstan has not taken full advantage of cleaner sources of power such as hydroelectricity, and only 10% of the country's hydroelectric potential of 60 terawatt-hours has been developed. The potential for alternative energy projects associated with this project would be relatively small in comparison to the countries overall production, but its development is still a viable economic opportunity.
An analysis of the need for rural electrification is the first step, and once the demand has been identified then the options for supplying that demand need to be considered, including alternative energy. If there is a need for an alternative energy development, then local residents should be contacted and those interested in developing this activity can be identified.
Period of Implementation: 5 years.
Activity Implementers: Government electrical officials, existing generators, rural farmers interested in developing this economic opportunity.
Cost of Activity: US$ 38,000

- Complete a demand analysis for electricity in the priority selected site over four months - $ 8,000
- Develop plans for alternative energy project and conduct periodic meetings with potential partners over life of the project - $10,000
- Equipment for alternative energy plants including turbines, pipes, transmission wires, batteries, etc. - $20,000

Activity 15. DEVELOPMENT OF TRADITIONAL HANDICRAFTS AND FOODS

Description of Activity: There will be opportunities to produce and sell traditional handicrafts in the Zialiyskiy Alatau as tourism increases in the area. Traditional foods, including the production of mares milk, presents another opportunity for micro-business development in the region. Traditional handicrafts, especially carpets, are currently produced in the area, so experience and expertise from these operations can be shared with individuals interested in undertaking this activity. The current demand for these handicrafts is being met and therefore there is no strong reason to increase supply. However, if more tourists visit the area, demand may grow and opportunities could become available for rural farmers or local residents.

The prospect of having local residents and farmers make traditional foods for tourists or the local market will depend on the increase in tourism in the area. Demand for drinks such as mares milk is not high at the moment, but increased demand by tourists for traditional meals and drinks may also prompt domestic interest.

An analysis of the need for additional handicraft production is the first step, and once the demand has been identified then the options for supplying that demand need to be considered.

Period of Implementation: 3 years.

Activity Implementers: Tourism operators and rural farmers interested in developing this economic opportunity.

Cost of Activity: US$ 30,000

- Complete a demand analysis for electricity in the priority selected site over four months - $ 8,000
- Training local residents on what activities (carpet, mares milk, etc.) have the greatest economic potential and how to enter the market - $18,000
- Equipment for making traditional handicrafts or foods. - $4,000

Recommendations for Dzhungar Alatau

As the Dzhungar Alatau is a more isolated region that the Zailiyskiy Alatau, the development of alternative livelihoods will be more challenging. The areas distance from a major urban center and its existing infrastructure will need to be considered when proposing economic opportunities.

Fruit Farming

The unsustainable farming practices that are currently being used by local farmers living near SMA in Kazakhstan poses a threat to the unique agrobiodiversity in the region. The current practices are being driven by the difficult economic situation that most rural farmers and business people find themselves in. If the quality and quantity of economic opportunities available to rural farmers can be improved in the selected priority sites, it will help reduce the threats to agrobiodiversity.

Activity 16. TRAINING WORKSHOPS FOR RURAL FARMERS TO IMPROVE CURRENT FARMING PRACTICES

Description of Activity: Conduct workshops in rural communities eight times per year. Coordinate this activity with the Dacha farmers association, and rotate the workshops so that the topics of discussion are appropriate for the specific area and time of year. The workshops should describe how individual farmers could modify their farming practices to become less damaging to the wild agrobiodiversity in the area. This would also include training on livestock grazing and animal husbandry practices. Ensure that the workshops are effectively promoted by advertising well in advance.

Potential themes for the workshops could include:

1. Farm Management: appropriate selection of seedlings and trees, organization and management of orchards, inputs and other production enhancers, harvesting and transportation techniques to reduce post-harvest loss, etc. Transportation and post

harvest loss are especially important because of the distance that the product must travel to reach the market.

2. Business Management: development of business plans and long term goals, basic accounting, financing options for business growth, etc.
3. Diversification of Farm Production, Exploitation of Unique Markets: flowers, honey, landscaping plants, medicinal plants, etc.
4. Co-operative Farming: describe the advantages and dis-advantages of working in small groups of 3 – 5 farmers, including cost sharing, organizational structure, etc.

Period of Implementation: 5 years.

Activity Implementers: A number of Kazakh agencies have the experience and expertise to assist the project with this type of training, although with the areas relatively remote location limits the number of potential partners:

1. Zhetysusky Economic Training Institute in Taldykorgan
2. Kazakh Research Institute of Fruit Growing and Viticulture
3. Dacha farmers association

Cost of Activity: Cost is US$ 110,000.

- Equipment and advertising materials prior to workshop ($250) for eight workshops per year for five years. - $ 10,000
- Transportation for 20 rural farmers to attend local workshop for three days ($250) for eight workshops per year for five years - $ 10,000
- 8 workshops per year for five years - $ 90,000

Fruit Processing and Juice Making Industry

The fruit processing industry could offer alternative livelihood opportunities, as the region grows enough raw fruit to supply many different activities. However the remote location of most facilities will make it difficult to develop this industry in Dzhungar Alatau. Therefore it is important that any development of fruit processing activities supported by the full project must have a good business plan. The business plan must clearly demonstrate that there is a market for the product being produced.

Currently there are a number of idle facilities in the Dzhungar area, and the information collected from their owners was that demand was very low for their products. The market reality for the region has changed dramatically over the past decade and activities that were successful in the past, may not succeed in the current market place.

If it is possible to promote fruit processing in the oblast, it could have several beneficial effects including:

- Increasing the demand for raw products, will have a positive trickle-down effect on rural farmers as demand for their raw products increases
- Offer direct alternative livelihood opportunities for local farmers who are interested in pursuing this activity
- Allows the local economy to capture revenues from secondary processing which may have otherwise been captured in other oblasts or outside the country

Activity 17. RE-ESTABLISH FRUIT PROCESSING INDUSTRY

Description of Activity: The few puree and juice making facilities in the area could be the focal point for this activity. Helping these plants re-establish linkages with former buyers in Siberia and other northern regions may help stimulate the industry. Looking to markets in northern Kazakhstan and neighboring Russia will also help minimize competition for the product.

Period of Implementation: 5 years.

Activity Implementers: Selected existing facilities that have the potential to supply products that are in demand.

Cost of Activity: US$ 84,000

- During the first year complete a demand analysis study and create a specific market development plan for selected facilities - $10,000
- Deliver a training program for selected facilities over a four year period - $54,000.
- Equipment for the facilities to upgrade their plants - $ 20,000

Juice Concentrate Plant

At this time a juice concentrate plant in the Dzhungar Alatau is not feasible.

Wine Making Industry

The opportunities for wine making are limited in the Dzhungar Alatau and therefore it is not suggested that they be pursued during this project.

Honey Production

Honey production is a common activity in the Dzhungar Alatau and one that holds good economic potential for rural farmers in the region. As the selected priority site for Dzhungar is known throughout the former Soviet Union for its high quality honey, the region has a natural advantage over other honey producers.

Activity 18. EXPAND APICULTURE INDUSTRY

Description of Activity: Building on this competitive advantage the project should encourage the development of more honey production. As a potential alternative livelihood activity, bee keeping has the advantage of not being labour intensive. Farmers with bee hives can still focus on their fruit growing or other activities. Financing will need to be available to these participants to support their activity. Many factors have an impact on honey quality and training workshops may wish to focus on a few specific activities, such as:

- Location of the hives
- Types of bees
- Collection of honey
- Marketing

Period of Implementation: 3 years to promote the idea and establish some apiculture

Activity Implementers:

- Institute of Botany's Apiculture Specialist
- Rural Farmers
- Astana Beekeepers Association (if it is still functioning)

Cost of Activity: US$ 65,000

- Study of appropriate apiculture techniques in the region - $ 8,000
- Promotion of the alternative livelihood opportunity to rural farmers - $ 10,000
- 12 training programs over three years - $ 27,000
- 500 sets of Beekeeping equipment - $ 20,000

Tourism

As described in Section 3.1.6, a number of general infrastructure improvements in the selected priority site would contribute to the development of a healthy and economically sustainable tourism industry in the Dzhungar Alatau.

Any development must be designed so as not to negatively impact on the environment in the area. Appendix 2 has a more detailed description of how to design tourism activities in a sustainable and environmentally friendly manner.

By far the biggest tourism activity in the Dzhungar Alatau is hunting. The region currently receives more than 300 hunters per year from around the world. Currently, fees are paid by hunters depending on the type of species, but these licensing fees go directly to the GoK budget and are not shared with SPA or other land managers. They are primarily hunting the large mammals (Siberian mountain goat, Red Deer, Bear, etc.) in the northern edge of the mountain

region near Alakol. Information collected from SMA officials in Taldekorgan and Lipzink indicated that hunting may be reaching its sustainable limit, and that studies are needed to determine the ability of the wild mammal populations to support additional hunting.

Activity 19. DEVELOPMENT OF ACCOMMODATION FACILITIES

Description of Activity: The region has very few hotels, and all of them would be located in the larger urban centers. Within the mountains there are a limited number of cabins that are used by hunters. The absence of accommodations makes it difficult to promote adventure tourism and very difficult to promote recreational tourism.

A number of Kazakh owned and operated hotels exist in major urban centers and even within some of the countries SMA. The Project should work with SMA representatives to identify possible locations for tourism accommodations. Once these areas have been identified local residents and hotel owners from the urban centers can be contacted to develop plans to build these facilities. The development of small, low impact facilities such as urts may be a good option as they have the benefit of promoting cultural awareness and are small enough that local residents could actively participate. Information can be shared via quarterly workshops that describe the opportunities to interested investors.

Period of Implementation: 5 years.

Activity Implementers: Participants should include local residents and private sector representatives. The development of accommodations must be integrated into the other suggestions for tourism development, but individual may have specific ideas on good locations based on their knowledge of the area.

Cost of Activity: US$ 22,500

- 10 workshops and associated promotion - $ 22,500

Activity 20. DEVELOPMENT OF ADVENTURE TOURISM

Description of Activity: Adventure tourism should focus on sustainable tourism opportunities such as mountain climbing, white water rafting and trekking. Typically the clients for this tourism will be foreigners and the cost of the activity will be between US$ 4,000 – 6,000. Encouraging more Kazakh based tourism companies to start booking tours to Kazakhstan is a start, but ultimately, international marketing efforts must be made to promote the activity. Development of a national tourism policy as described in Section 3.1.6 would include a description of what type of recreational tourism will be promoted. Before marketing can be undertaken, the following activities should be completed:

- Development of adventure tourism sector plan with input from government, park officials and tourism industry based on the national tourism policy.
- Creation of promotional material that will help Kazakh tourism companies encourage Kazakh tourists to vacation in Kazakhstan.

As mentioned previously hunting is also classified as adventure tourism, but care must be taken when considering an expansion of this activity.

Period of Implementation: 5 years.

Activity Implementers: Government, SMA officials and stakeholders.

- Tourism agencies that are interested in adventure tourism
- SMA officials from Dhzungar Alatau

Cost of Activity: US$ 40,000

- Adventure Tourism Study - $ 10,000
- Development of promotion material - $ 10,000
- Marketing missions outside Kazakhstan - $ 20,000

Activity 21. DEVELOPMENT OF RECREATION TOURISM

As opposed to adventure tourism, recreation tourism focuses on more traditional activities, such as hiking, sight seeing, relaxation, and skiing. These activities can be promoted both internationally and domestically. The potential to increase the number of Kazakh citizens who go on these types of vacations is good. However the basic infrastructure as described at the beginning of this section (3.1.6) is needed before the full economic potential of recreational tourism can be realized.

Description of Activity: Development of a national tourism policy as described in Section 3.1.6 would include a description of what type of recreational tourism will be promoted. A focus should be on encouraging Kazakh citizens to spend their holidays in country. Based on this policy a specific recreational tourism plan can be developed. Following this promotional materials and a marketing campaign can be undertaken.

Period of Implementation: 5 years, of entire life of the project.

Activity Implementers: Local tourism agencies who have an interest in promoting tourism in Kazakhstan as well as the government and the SMA management.

Cost of Activity: US$ 20,000

- Adventure Tourism Study - $ 10,000
- Development of promotion material - $ 10,000

Landscaping Plants and Flowers

The distance from the area to large urban centers such as Almaty and Astana make the development of this industry difficult. The production of flowers may be possible, but landscaping plants are probably not feasible at this time.

Activity 22. DEVELOP FLOWER GROWING INDUSTRY

A number of local farms are already focusing on this activity and sell their product in local markets. A series of workshops on the potential for this type of activity in the areas near the priority selected area will allow interested farmers to investigate this type of alternative livelihood activity.

Period of Implementation: 3 years.

Activity Implementers: Working with interested stakeholders including farms that are currently undertaking the activity and farmers who are interested in the potential business opportunity.

Cost of Activity: US$ 32,500

- Three month study of the potential market for flowers in the region - $ 2,000
- 10 workshops over three years where existing flower and landscaping plant farmers meet to discuss their activities and new farmers can collect information - $ 22,500
- Equipment and plants to start or expand existing operations - $ 8,000

Medicinal Plants

The region has the potential to support the collection and processing of medicinal plants. The more remote areas may contain unique plants that are not commonly found in other regions. One example is the *fritillaria Cirrhosa* plant. This plant is highly sought after in China for medicinal uses. Forest Rangers indicated that Chinese citizens had been arrested after illegally crossing the board into Kazakhstan to collect this plant. The plant processed into extract granules is sold for US$ 15 – US$ 25 per 100 grams.

Activity 23. MEDICINAL PLANT COLLECTION AND PROCESSING ACTIVITIES

Description of Activity: An analysis of the potential medicinal plants in the area would allow local residents who are interested in this activity to learn about what plants are found locally and what there value is. For those individuals interested in this activity training workshops could be

held to show them how to collect and process the plants. Marketing would also be another important topic in the training program.

Period of Implementation: 3 years

Activity Implementers: Local residents and farmers who are currently collecting medicinal plants

Cost of Activity: US$ 37,000

- Complete a six month study of the medicinal plants in the area and their market value - $ 10,000
- 12 Training workshops over three years for interested stakeholders - $ 27,000

Other

Activity 24. DEVELOP APPLE SEED COLLECTION ACTIVITIES

Description of Activity: A small amount of apple seeds were collected for sale by one of the forestry districts. They collected 45 kg of seeds and are looking to sell it to Russia. The project should try to expand on this initial activity by analyzing the potential for the sale of apple seeds and then developing a series of training workshops for interested rural farmers. As this activity is not mechanized, it has the advantage of offering significant employment opportunities for local residents.

Period of Implementation: 3 years

Activity Implementers: Local residents and farmers and the Weilghlentas Forestry Management Office

Cost of Activity: US$ 33,000

- Develop market analysis and marketing plan for apple seed sales - $8,000
- 12 workshops over three years to train local residents and farmers on collection and marketing techniques - $ 27,000
- Equipment for storing and transporting the seeds - $ 5,000

Activity 25. DEVELOP RED DEER BREEDING PROGRAM

Description of Activity: Breeding Red Deer is an idea which was discussed with some SMA officials. The need for this activity is partially driven by the increased pressure on local Red Deer populations from hunting. Appropriate breeding stock would have to be identified and then a training program for the breeders on:

- farm layouts
- handling facility designs
- fencing techniques
- stockmanship
- general farming practices

Funding would also need to be identified for this activity to make it sustainable in the long term.

Period of Implementation: 5 years.

Activity Implementers: Local residents, farmers and SMA officials.

Cost of Activity: US$ 72,500

- eight month feasibility study and identification of appropriate breeding stock - $ 10,000
- 10 workshops over a two year period to training interested residents - $ 22,500
- Work with interested residents as they develop their breeding program over two year period - $ 15,000.

Activity 26. DEVELOPMENT OF TRADITIONAL HANDICRAFTS AND FOODS

Description of Activity: There will be limited opportunity to produce and sell traditional handicrafts in the Dzhungara Alatau as tourism activities will focus more adventure and less on recreational. Traditional foods, including the production of mares milk, presents another opportunity for micro-business development in the region.

If additional tourists visit the area, demand may grow for traditional handicrafts and foods and opportunities could become available for rural farmers or local residents.

An analysis of the need for additional handicraft production is the first step, and once the demand has been identified then the options for supplying that demand need to be considered.

Period of Implementation: 3 years.

Activity Implementers: Tourism operators and rural farmers interested in developing this economic opportunity.

Cost of Activity: US$ 30,000

- Complete a demand analysis for electricity in the priority selected site over four months - $ 8,000
- Training local residents on what activities (carpet, mares milk, etc.) have the greatest economic potential and how to enter the market - $18,000
- Equipment for making traditional handicrafts or foods. - $4,000

Budget Summary for Suggested Activities

The following table is a summary of the budget for each activity.

Table 2. Summary of Budget Estimates

Activity #	Study or Analysis	Training Workshop	Equipment	Transport	Promotion	Total
2	$ 5,000	$ 27,000	$ 23,000			$ 55,000
3		$ 90,000	$ 10,000	$ 10,000		$ 110,000
4	$ 10,000	$ 53,000				$ 63,000
5	$ 40,000	$ 53,000				$ 93,000
6	$ 5,000	$ 27,000	$ 20,000			$ 52,000
7	$ 20,000				$ 15,000	$ 35,000
8	$ 15,000	$ 22,500	$ 25,000			$ 62,500
9	$ 8,000	$ 37,000	$ 20,000			$ 65,000
10		$ 50,000				$ 50,000
11	$ 10,000			$ 10,000	$ 20,000	$ 40,000
12	$ 25,000	$ 25,000			$ 100,000	150,000
13	$ 5,000	$ 27,000	$ 10,000			$ 42,000
14	$ 8,000	$ 10,000	$ 20,000			$ 38,000
15	$ 8,000	$ 18,000	$ 4,000			$ 30,000
16		$ 90,000	$ 10,000	$ 10,000		110,000
17	$ 10,000	$ 54,000	$ 20,000			$ 84,000
18	$ 8,000	$ 27,000	$ 20,000		$ 10,000	$ 65,000
19		$ 22,500				$ 22,500
20	$ 10,000			$ 20,000	$ 10,000	$ 40,000
21	$ 10,000				$ 10,000	$ 20,000
22	$ 2,000	$ 22,500	$ 8,000			$ 32,500
23	$ 10,000	$ 27,000				$ 37,000
24	$ 8,000	$ 27,000	$ 5,000			$ 40,000
25	$ 10,000	$ 22,500	$ 25,000		$ 15,000	$ 72,500
26	$ 8,000	$ 18,000	$ 4,000			$ 30,000
Totals	$235,000.00	$750,000	$224,000	$50,000	$180,000	$1,439,000

ALTERNATIVE LIVELIHOOD ECONOMIC ANALYSIS I: BEE-BREEDING

Bee-breeding is a potentially lucrative activity for rural inhabitants in the mountainous regions of southern Kazakhstan, particularly in the Dzhungar Alatau region, which is renowned for its excellent honey. Bee-breeding is an activity with centuries of history in these mountains, but fell into decline during the Soviet era and has not significantly recovered in the past 10 years. The primary constraints to bee-breeding are start-up capital, which is approximately US$1,500 (see below), access to markets, and knowledge of effective and cost-efficient techniques (particularly in the case of Propolis and Royal Jelly). However, bee-breeding can provide highly attractive incomes in regions with average annual per-capital incomes of US$700-900, and the proposed project is designed to address all of the constraints noted above for this and other alternative livelihood activities.

The following cost-benefit analysis is for activities that would provide full-time employment to two rural inhabitants:

1. Expenses:

1.1. Cost per Beehive (30 beehives):

Beehive		$13
Bee colony		$26
Wax		$4
Frames/feeding rack/medicine	$7	
Other		$5
Total per beehive		$55
Total for 30 beehives		$1650

1.2. General equipment and inventory: $200

1.3. Transport expenses:

Combustive-lubricating materials	$53
Amortization	$8
Salaries	$34
Total	$95

1.4. Salary (1-year):

Beekeeper	$800
Worker	$620
Total	$1420

1.5. Land Rental: $8

1.6. Invoices and miscellaneous (10% of expenses): $337

Total Expenses for Bee-Breeding with 30 Beehives:	**$3700**
Capital Costs (beehive, colony, other, equip./inv.)	$1520
Annual Expenses	$2180

2. Average production levels and income:

Product	Units.	Production per hive	Total production	Purchase price per Kg.	Total Income
Honey	Kg.	40	1200	$1.33	$1580

Flower pollen	Kg.	5	150	$6.67	$990
Propolis	Kg.	0.4	12	$26.67	$320
Royal jelly	Kg.	0.2	6.0	$333.33	$1970
Total					$4860

3. Profits: Year 1: $4860 – $3700 = $1160
Year 2,3,4…: $4860 – $2180 = $2680

Alternative Livelihood Economic Analysis II: Purchasing and Distribution Centers for Agro-biodiversity Products

The absence of an effective system for purchasing wild and cultivated fruits, berries and medicinal plants grown or harvested by the local population impedes the rational use and valuation of ABD resources. During the Soviet era of centralized economic planning, such a system existed, effectively purchasing natural products from the local population and distributing them to processing centers. Since then, this system has disappeared, and most of the processing and distribution capacity for fruit and medicinal products is no longer in operation.

Within the framework of the project alternative, the creation of purchasing and distribution centers is envisioned as specialized private entities recognized by GoK law. The Farmers of Kazakhstan Fund, an active farmers association with experience in developing small and medium sized enterprises, and "Baldyrgan" LTD would take the lead role in developing such centers. Each center would provide local employment to 10-12 full-time employees year round, as well as 25-30 temporary procurement employees at harvest time.

The economic model below is based on processing and distribution of fruits and berries. However, these centers are expected to eventually carry out similar activities for medicinal plants, animal products, poultry, and honey and other bee products. In addition, given the seasonal nature of this work, these centers would also act as transport and processing enterprises for other small enterprises during the autumn, winter and spring months.

1. Expenses

1.1. Staff salary:		
Permanent Staff: 12 ? 12 months ? $133.00 =		$19,152.00
Temporary Staff: 30 ? 2 months ? $67.00 =		$4,020.00
Total =		$23,172.00
1.2. Equipment:		
Auto transport	Jeep (1 ? $4,533.00) =	$4,533.00
2-ton Truck	(3 ? $5,800.00) =	$17,400.00
Boxes	300 ? $1.00 =	$300.00
Bags	2000 ? $0.30 =	$600.00
Computers	2 ? $709.33 =	$1,418.66
Office Equip.	$5,000.00 =	$5,000.00
Total =		$29,251.33
1.3. Office maintenance =		$6.080.00
1.4. Truck Rentals:	6 cars ? 40 days ? $80.00 =	$19,200.00
1.5. Transportation Costs:		
Cars:	3 cars ? 60 days ? $10.00 =	$1,800.00
Truck:	12 mon. ? $80.00 =	$960.00
Total =		$2,760.00
1.6. Resource Usage: 500 men ? 60 days ? $0.35 =		$10,500.00
1.7. Taxes =		$22,086.67
1.8. Purchase of ABD-based products from local population		
Wild and cultivated apples	6,480,000 kg ? $0.033 =	$213,840.00
Apricot	173,000 kg ? $0.066 =	$11,418.00
Wild berries	20,000 kg ? $0.267 =	$5,333.33
Total =		$230,591.33

Sub-Total Expenses:		$343.641.33
1.9. Unpredictable expenses: Sub-total of $343,641.33 x 2.00% =		$6,872.83

Total Expenses

$350,514.16

Start-up Expenses: $27,414.16

Annual Expenses: $323,100.00

2. Income

2.1. Sale of ABD Products

Apples:	6,480,000 kg ? $0.053 =	$343,440.00
Apricot:	173,000 kg ? $0.10 =	$17,300.00
Wild berries:	20,000 kg ? $0.40 =	$8,000.00
Total =		$368.700.00

2.2. Auto Transport fees during autumn, winter and spring months

3 cars ? 8 months ? $266.67 =		$6,400.00
Total Income =		**$375,100.00**

3. Profits

Year 1 activity:	$375,100.00 - $350,514.16 =	**$24,585.84**
Year 2, 3, 4,... activity:	$375,100.00 - $323,100.00 =	**$52,000.00**

Sample Sustainable Enterprises in Project Regions

Some of the most successful examples of small-scale agricultural business and alternative livelihood programs that continue to operate in the project site regions include:

"Clone": A private agricultural firm active in the area of Ile Alatau National Natural Park for many years, it grows and markets selected productive varieties of sweetbrier, *hippohoe* and fruit shrubs. The company's products are used for medicinal extracts and canned foods, and have received international quality certifications from certifiers in Great Britain. The company started as a cooperative of young scientists and teachers of Kazakhstan Agricultural University, and these specialists in forestry realized the economic potential of some forest-based products. They created a nursery and small plantation (dogrose) inside Ile Alatau, started selective breeding, and started selling products (including berries, flowers, herbs, etc.) for the domestic and international market. Clone employs local inhabitants and could increase their size with micro-credit assistance for the purchase of processing machinery. Clone is also eager to find partners and funding to conduct research in agro-biodiversity, to carry out ABD inventories, and to initiate reforestation activities.

NGO "Assa" and Ltd "Alma-Ata" (a member of International Association of Vinegar Experts (IAVE): The IAVE is a local business employing 17 people that produces vinegar from native apple varieties for domestic and international consumption as a food and medicine product (most sales are at pharmacies). The IAVE wants to increase its supply of native apple trees, and is working with Assa (recipient of a GEF Small Grant) to manage a wild fruit tree nursery at a local orphanage that grows native apple seedlings that are then transplanted to areas within the IANNP as part of a reforestation effort in cooperation with park authorities. IAVE has developed plans to process local fruit into fresh fruit juice, but does not have the capital to purchase the necessary processing equipment.

Oblast Society of Bee-Breeders: This is an association of local community honey producers in the Zailiyskiy Alatau that have successfully produced high quality honey for the commercial market. The group is seeking support to secure governmental financing to implement recently enacted legislation that supports bee-breeding, and for micro-credit support for existing producers to expand their operations, and could provide outreach and training services to new honey producers and act as a model for a similar society in the Dzhungar region.

Uygentas: This is a private business that harvests and markets medicinal herbs to Kazakh, Russian and Chinese pharmaceutical companies. They gather wild herbs from the Dzhungar region, in areas adjacent to where the proposed national park would be located. Scientists believe that this wild harvesting is destructive, and the project would work with Uygentas to start nursery/plantation development to replace harvesting of wild plants. Uygentas is a candidate for micro-credit for this nursery development, and to create early stage processing facilities that would increase the percentage of profits that stay within the region.

Agroinprof Service: Based in Almaty, this company is a potential partner for the project for agro-biodiversity research. Agroinprof collects samples of wild varieties of medicinal plants (including goldenroot, Siberian beer root, chamomile and valerian) and then grows them commercially on its own private lands (16 hectares in Zailiyskiy) and on land rented from the regional authorities (50 hectares in Dzhungar Alatau). There is a large growth potential for this market (including herbal teas which they now process and sell), but costs in Kazakhstan are high because there is little

mechanization in the harvesting and processing of these goods, and local producers only capture a small share of the market (e.g. chamomile consumption in Kazakhstan is 50-60 tons/year, but domestic production is only 1 ton/year).

Dastan Farm: This family fruit farm adjacent to the IANNP, with 12 permanent and 80 seasonal staff, grows highly productive apple varieties on the stock of wild apple trees, giving them high resistance to local insects and diseases and the ability to survive extreme local weather conditions. The farm started out decades ago as a scientific research site, and even today grows a wide variety of apples. During its 5 years of operations, no chemical pest/disease control has been used on this profitable farm. It is the best local example of a farm using cultivated varieties grafted onto native trees, getting all the ecological advantages of native trees combined with the commercial characteristics of cultivated varieties. In comparison, most local farms buy apple tree seedlings with cultivated varieties already grafted on, and these seedlings are not tested/bred for appropriate local characteristics. Dastan Farm is a potential partner for agricultural outreach and agro-biodiversity research (especially on cultivated varieties).

Plant Genetic Fund, Ltd: This is the only private scientific-industrial firm studying the sustainable use of mountain agro-biodiversity. The firm together with several other institutions conducted agro-biodiversity studies in the IANNP and adjacent territories. Currently, the Plant Genetic Fund is working with the GoK Institute of Botany and Phytointroduction to study the potential economic value of 155 apple varieties that were collected at different sites and stored on several farms and in ex-situ collections.

Governmental Institutions: Several research organizations in the Zailiyskiy Alatau region can provide valuable services for alternative livelihood activities relating to sustainable use of ABD resources. The Institute of Fruit Breeding, which has an apple research garden, can sell native varieties to local farmers. The Republican Quarantine Introductive Nursery conducts research on native varieties and pests and diseases, and can provide plants to farmers as well as outreach on pest and disease management strategies. The Issyk Arboretum, part of the Ministry of Science and Education, already grows and sells planting materials for fruits and berries to farmers, but could greatly expand their activities. Finally, state forestry enterprises already manage large nurseries and plantations that could be oriented towards producing seedlings critical for ABD conservation and economic production.

ANNEX XII: Alternative livelihoods report: Micro Credit Program to support rural farmers and local residents as they develop alternative livelihoods

1.1 INTRODUCTION

Many of the alternative livelihood activities described in Annex XI identify the need for financial support. Some of these financing needs may be meet with direct grants from the project; however, for the opportunities where local farmers or residents can develop viable alternative livelihoods, the project will establish a micro-credit program to support these activities. Alternative livelihood development programs in Kazakhstan and other central Asian countries have identified limited access to institutional credit and lack of capital funds as a key barrier preventing rural farmers and local citizens from developing business opportunities.[7] The micro-credit established by the project will address this problem, and will be based on the experiences of other rural credit programs in Kazakhstan and other Asian countries.

Micro-credit activities in Kazakhstan over the past ten years have been significant, but only marginally successful. At the policy level, the Government of Kazakhstan has given special consideration to the development of micro-credit programs, including the National Program of Poverty Eradication and Employment Promotion for 2000-2002, and national micro-businesses and SME development programs that are operating as part of the National Poverty Eradication program. At the legal level, a Law on Micro-credit Organizations has been submitted to the Parliament of the Republic of Kazakhstan, but still remains to be acted upon. This law envisages market principles for micro-credit development, more simplified procedures for establishing a micro-credit organization on a non-license basis, and rules defining organizational and legal forms (commercial or non-commercial) for micro-credit institutions, minimum authorized capital levels, credit payment mechanisms, urgency and repayment terms, and other issues.

As of today, approximately 40 micro-credit programs and institutions exist in Kazakhstan, including notably the Kazakhstan Community Loan Fund (KCLF), the Fund for Farmer Support, and Mercy Corps International, as well as international donors, NGOs and rural credit associations that work closely with them. Well-designed micro-credit programs have been proven to be successful in lifting the poorest members of society above the poverty line in many developing countries. In Kazakhstan, if rural farmers living near the selected priority sites are able to generate alternative livelihood opportunities they will be less likely to practice unsustainable farming methods that are threatening mountain agro-biodiversity. Successful and profitable farmers could become supporters of agro-biodiversity conservation. Access to credit is also a limiting factor for larger commercial sized farms and plants in Kazakhstan, and the project should take steps to identify potential financing for these entities. However, the micro-credit described below is targeted at poor farmers and local residents.

Despite a number of successful programs in Kazakhstan, micro-credit is not widespread in the country. Barriers to micro-credit exist in both the bank and non-bank micro-credit sectors. For the former, bankers are not interested in micro-credit because of the high administrative costs, the paucity of small businesses with credit histories, and the lack of low-cost and efficient methods to assess risks of crediting small business projects. As a result, even when banks do extend credit to small businesses, the interest rates are so high as to practically exclude any interest. Regarding non-bank micro-credit organizations, structural impediments such as an insufficient legal and

[7] "Mountain Enterprises for Sustainable Livelihoods", ICIMOD Publications (1998), MEI 98/4

regulatory basis and very high difficulty in getting the necessary licenses from the National Bank limit the number of micro-credit organizations. For those that do exist, these same regulatory issues limit flexibility and responsiveness to market opportunities, while such significant barriers as limited experience among lenders, and lack of understanding of basic market principles among borrowers, further impede widespread use of micro-credit.

1.2 PROJECT PARTNERS – GEF & KAZAKHSTAN COMMUNITY LOAN FOUNDATION

The project has developed a partnership with a successful existing program, the Kazakhstan Community Loan Foundation (KCLF), for implementation of the micro-credit facility. KCLF was created in 1997 by ACDI/VOCA and Winrock International to implement micro-credit for small businesses. KCLF has offices in Almaty, Shimkent, and Taldykorgan (near Dzhungar Alatau), and plans to open a number of additional branches and offices within the next 3 years, including offices in Talgar and Sarkand (sites of the UNDP/GEF project). The KCLF provides loans (average size $250; up to $15,000), primarily for small businesses, mostly for women (80%), and focused on traders and light industry. KCLF has a strong track record on small business support to improve conditions for women and the poor, so much so that it is the only non-governmental organization in Kazakhstan with a license from the National Bank to grant loans. KCLF does not loan to individual farmers, but it will make loans for agricultural processing businesses (even home-based). KCLF loans are based primarily on a group "non-deposit" model, typically involving 5-10 borrowers who meet requirements regarding age, work experience and business strategies.

In addition to start-up funds from KCLF (US$70,000), the project will use GEF funds (US$100,000) to overcome existing barriers to micro-credit and to develop other sources of capitalization for the micro-credit facility during the project term. On the demand side, GEF funds will be used to overcome the barriers that many small rural producers encounter when trying to find financing, for example informational or capacity barriers (e.g. farmers don't know how to approach rural credit institutions). On the supply side, legal, regulatory, policy, and financial barriers affecting micro-credit in general in Kazakhstan (noted in previous section) will be addressed. In addition, project funds will be used to assist in packaging multiple projects into one loan so as to reduce transaction costs. Finally, GEF funds will be used in assisting credit facilities that are not normally capable of distinguishing a biodiversity friendly project from conventional production activities.

1.3 Characteristics of the micro-credit program

Successful micro-credit programs in Asia are all unique, however there are a number of common characteristics. The micro-credit designed for the full project should incorporate some of these ideas, including:

1. Loans should be made to small groups of farmers. Several of the farmers interviewed during the mission suggested that small groups of 3 – 5 farmers would be more successful as they would have the ability to pool resource, share equipment and operate with better economies of scale. It has also been shown in other credit programs that small pier groups create a support network, where concerns and problems can be discussed and the peer pressure from these groups reduces the likelihood that the loans will not be re-paid.

2. The loans should be focused specifically on poor rural farmers and local residents who live in or near the two selected priority sites. Working with these two groups would address one of the key threats to agrobiodiversity. Care should be taken to ensure that wealthier rural farmers do not monopolize the funding, as they will have better resources to apply for the funding. Screening loan applicants to ensure that the income of potential borrowers is under a certain level is one method that helps effectively target the credit.
3. A training and business development centre should be developed that loan applicants must use as a precondition of their loan. The training center should focus on basic business skills (accounting, marketing) and farming practices (crop diversification, off season production). The business development center could be modeled on other successful entrepreneurial development institutes in mountainous areas of Asia. Properly trained staff will be crucial to the success of the center, training programs may be needed to give staff the ability to effectively assist local residents and farmers to develop business opportunities.
4. Incentives for loan repayment so that borrowers are rewarded for timely repayment of the loan. The UNDP group lending modality program has created an incentive by guaranteeing a second loan as soon as the first loan is repaid. The assurance of subsequent loans also helps ensure the sustainability of the credit program over a long period of time.
5. Appropriate interest rates charged on loans such that the lender is able to recover their operating costs. This factor is particularly important if the full project decides to use a local bank as the agency to deliver the credit program. The GTZ micro-credit for SME development uses the KazCommerce Bank to distribute their loans. GTZ and the Bank have reached an agreement where the GTZ supported loans will be lent out at 12% - 16% interest, and not at the Bank's normal rate of 30%.
6. Loans can be used to purchase equipment and to provide operating capital. Some alternative livelihood activities will require new equipment and many of them will require some operating capital. Most of the operating capital will be provided by the farmers and local residents in the form of labour, but they will also need to have some income to get them through the initial start up phase.

1.4 Credit Delivery System

Existing micro-credit programs in Kazakhstan can be broken down into two types. The first is an intermediary-type credit program and the second is a special package program as part of a larger development project. A combination of these two types of delivery systems is another possibility that has been successfully implemented in other Asian countries. The following is a brief description the two systems:

1. Intermediary Credit Program

Using this system the project would act as a liaison between an existing bank or credit institution and the borrowers. The project would identify appropriate rural farmers or local residents who have an interest in developing an alternative livelihood and help develop their ideas. The Bank would be responsible for delivering and administering the loan. Banks typically view loans to rural residents as high risk and are not interested in undertaking the additional work that is required with small loans. The project, acting as an intermediary, would reduce the bank's risk and the amount of work required to administer the loan, thereby making it more attractive for the Banks to lend to rural farmers and local residents. The GTZ uses this delivery system for their SME loan program in Kazakhstan.

2. Micro-Credit Integrated into the Project

Integrating the micro-credit program within the project and administering it outside of an existing financial institution is another delivery option. Integrated delivery programs are most successful when they are part of an overall development program. As the project is creating an integrated program of which the micro-credit is only one portion it has a better chance of succeeding. The UNDP is using this type of delivery system for their micro-credit loans in Kazakhstan.

The credit delivery systems should be based on a bottom up approach. The local residents in the selected study areas should have considerable input in the design of the credit. They should run the program as autonomously as possible and be part of the approval committee that will execute the loan. The more ownership that local residents and rural farmers have in the program the more they will be active and committed participants.

1.5 Suggested Format of the Micro-Credit

The micro-credit for the full project will be implemented as an integrated part of the overall project. Project staff and partners will draw on the experience and expertise of the UNDP staff in Kazakhstan, as they have implemented many credit programs using this delivery mechanism. This mechanism also allows training programs to be integrated into the loan process. The training programs as described in section 3 will be an important part of the overall project. Local businesses and rural farmers may also feel more comfortable approaching the project for a loan than they would be approaching a bank. Small project offices will be established in the two selected priority areas, and a micro-credit officer will be situated in these offices.

The micro-credit officer should form part of an advisory committee that oversees the activities of the credit program. The advisory committee should include representatives from rural farmers and local business as well as a representative from the overall project steering committee. The micro-credit advisory committee will set the specific guidelines for the credit program including aspects such as:

- Minimum and maximum size of each loan
- Timeline for repayment
- Availability of subsequent loans
- Selection process for loan applicants

To sustain an active loan program a central fund of approximately US$200,000 should be established. The exact amount will depend on the number of loans, the size of each loan, the interest charged on each loan and the rate of repayment.

Finally, the goals of the credit program must be clearly defined in order to ensure that the program is targeted to the correct audience. The full project's goal is the in-situ conservation of mountain agro-biodiversity, through improved management of SPAs, and therefore the micro-credit should be designed to reflect this goal. The credit will also address the need for alternative livelihood development, which aims to improve the difficult economic circumstances that local farmers currently face.

1.6 OTHER MICRO-CREDIT PROGRAMS (POTENTIAL FUTURE PARTNERS)

Members of several different credit programs in Kazakhstan meet periodically to share ideas and information on their activities, and these meetings will be an opportunity for the project to gain ongoing lessons about the challenges and successes of micro-credit programs in Kazakhstan. Some of the existing programs include:

1. GTZ: GTZ has a micro-credit program for micro-businesses and SME, but does not consider environmental issues a priority, although there is potential for cooperation on alternative livelihoods. The SME program is not currently active in the project regions, but GTZ reviews its geographic focus on a yearly basis and would be open to proposals from the project for cooperation in Almaty Oblast.

2. Farmer of Kazakhstan Foundation: This organization is an association of farmers throughout Kazakhstan, and helps farmers to set up operations, manage finances and infrastructure, and other technical assistance. FKF has direct experience in both project regions with local authorities and farmers groups. FKF manages seven credit cooperatives around Kazakhstan, all of which provide loans to farmers in the range of US$500-10,000, based on a non-collateral, peer-group lending model.

3. Public Micro-Credit Fund: This is an NGO that, although funded by the national government, specializes in rural lending, particularly for the poorest sectors (especially farmers). It has good support from the government, and the cooperation of local banks (important for both credibility and security). The project could benefit from their existing expertise in rural lending, and also by using them could assist in local capacity development.

4. Mercy Corps International (MCI): Provides individual loans for Almaty and surrounding areas.

5. EBRD: Has an existing micro-credit program, but is mostly focused on large-scale loans.

ANNEX XIII: Focal Point (OFP) endorsement letter

Annex is on file at UNDP GEF Secretariat.

ANNEX XIV: Co-financing letters of Commitment

The Co-financing letters are attached separately.

List of Co-financiers sending the Co-financing letters:

Agroinprof - service
ACDI/VOCA Farmer to Farmer
Baldyrgan
Almaty Oblast Akhimat
Green Salvation
Farmer of Kazakhstan
Jibek Joly
Kazakhstan Community Loan Fund (KCLF)
Government of Kazakhstan - MNREP

ANNEX XV – Detailed project output budget

Project Outputs/Activities	GEF	MEP	Almaty Oblast Akimat	Baldyrgan	Jibek Joly	Green Salvation	Farmer of Kazakhstan	ACDI/VOCA Farmer to Farmer	Kazakhstan Community Loan Fund	Agroinprof Service	Total USD
Outcome 1: Ecosystem-based conservation and management of wild crop relatives at two project sites	***1.415.000***	***1.828.000***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***3.243.000***
1.1: Baseline description of project sites and specific land use categories within each site	160.000	10.000	0	0	0	0	0	0	0	0	170.000
1.2: Establish Dzhungar Alatau National Park and Specially Protected Seed Sites	100.000	900.000	0	0	0	0	0	0	0	0	1.000.000
1.3: Build partnerships with local communities for ABD conservation on adjacent private lands	100,000	0	0	0	0	0	0	0	0	0	100.000
1.4: Sector specific sub-plan development (Scientific Research and Monitoring, Ecological Restoration, Tourism Regulation and Development)	240.000	70.000	0	0	0	0	0	0	0	0	310.000
1.5: Identification and analysis of key management objectives and components for project sites	80.000	10.000	0	0	0	0	0	0	0	0	90.000
1.6: Final management plans assembly, participatory review and agreement	185.000	40.000	0	0	0	0	0	0	0	0	225.000
1.7: Pilot phase implementation of management plan and sub-plans and periodic adaptation to incorporate lessons learned	550.000	798.000	0	0	0	0	0	0	0	0	1.348.000
Outcome 2: Strengthened institutional, technical, and financial framework for ABD conservation	***320.000***	***483.000***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***803.000***
2.1: Conservation agency and SPA institutional restructuring	90.000	237.000	0	0	0	0	0	0	0	0	327.000

2.2: Training and capacity development of managers and staff of SPAs and other conservation institutions.	180.000	153.000	0	0	0	0	0	0	0	0	333.000
2.3: Identification and development of viable long-term financing mechanisms for agro-biodiversity conservation within Kazakhstan.	50.000	93.000	0	0	0	0	0	0	0	0	143.000
Outcome 3: An effective legislative framework for the conservation and rational use of agro-biodiversity resources	***260.000***	***64.000***	***0***	***0***	***0***	***3.000***	***0***	***0***	***0***	***0***	***327.000***
3.1: Develop long-term policy for agro-biodiversity conservation and sustainable use in Kazakhstan	40.000	15.000	0	0	0	0	0	0	0	0	55.000
3.2: Identify key legislative and regulatory changes required at national, SPA and local level to support agro-biodiversity management plans and initiatives	100.000	12.000	0	0	0	3.000	0	0	0	0	115.000
3.3: Develop new or adapted draft national legislation and regulations and local level "by-laws", create clear guidelines and instructions on the practical implementation of legislation, and clarify the rights and obligations of stakeholders	70.000	12.000	0	0	0	0	0	0	0	0	82.000
3.4: Consult with all stakeholders to ensure agreement on legislative and regulatory changes	35,000	10,000	0	0	0	0	0	0	0	0	45.000
3.5: Submit legislation for official review and approval according to required procedures, and undertake lobbying and follow-up to ensure timely results	15.000	15.000	0	0	0	0	0	0	0	0	30.000
Outcome 4: Alternative livelihoods benefiting local communities in project sites, reducing natural resource use pressure on mountain agro-biodiversity	***245.000***	***0***	***300.000***	***960.000***	***800.000***	***0***	***16.200***	***30.000***	***70.000***	***108.000***	***2.529.200***
4.1: Sustainable socio-economic and natural resource use strategy and action plans for local populations at each project site.	20.000	0	0	0	0	0	0	0	0	0	20.000

4.2: Demonstration/pilot projects for alternative livelihood development	55.000	0	0	960.000	800.000	0	0	0	0	108.000	1.923.000
4.3: Long term technical, business and organizational support services for appropriate small-scale farmers and relevant private sector	10.000	0	300.000	0	0	0	10.000	30.000	0	0	350.000
4.4: Development of a micro-credit facility to support sustainable alternative livelihood activities for small-scale farmers and businesses in project sites	100.000	0	0	0	0	0	0	0	70.000	0	170.000
4.5: Work with state agencies to create economic incentives to encourage sustainable use of natural resources and to discourage activities with negative impacts on agro-biodiversity	60.000	0	0	0	0	0	6.200	0	0	0	66.200
Outcome 5. Awareness and support at all levels regarding the values and need to conserve Kazakhstan's mountain agro-biodiversity increased	***530.000***	***112.000***	***0***	***0***	***0***	***15.000***	***0***	***0***	***0***	***0***	***657.000***
5.1: Development of Biodiversity Awareness and Education Centers in each project site to act as focal point for awareness and education campaigns	100.000	50.000	0	0	0	9.000	0	0	0	0	159.000
5.2: Support local NGOs and institutions with relevant interests and objectives (nature clubs, fruit growers associations, etc.) to undertake ABD education and awareness activities	60.000	0	0	0	0	0	0	0	0	0	60.000
5.3: Awareness building and training on the contents and practical application of new/adapted legislation	60.000	0	0	0	0	0	0	0	0	0	60.000
5.4: General public awareness campaign on the importance of Kazakhstan's natural environment and ABD resources	130.000	32.000	0	0	0	3.000	0	0	0	0	165.000
5.5: Local-level awareness campaign for natural resource users on value of ABD resources and carrying capacities of local ecosystems	70.000	20.000	0	0	0	3.000	0	0	0	0	93.000

5.6: Awareness building with important national and local authorities on global values and economic importance of ABD conservation	60.000	10.000	0	0	0	0	0	0	0	0	70.000
5.7: International networking and partnership development for ABD conservation	50.000	0	0	0	0	0	0	0	0	0	50.000
Total	**2.770.000**	**2.487.000**	**300.000**	**960.000**	**800.000**	**18.000**	**16.200**	**30.000**	**70.000**	**108.000**	**7.559.200**

ANNEX XVI: STAP Review

Subject:
Date: Fri, 7 Mar 2003 14:15:11 +0530
From: "M.S. Swaminathan" <msswami@mssrf.res.in>
To: nick.remple@undp.org

MSS/RM/
6 March 2003

Dr Nick Remple

Email: <mailto:nick.remple@undp.org>

Dear Nick,

Thanks for your letter. I have no specific comments on the Kazakhstan proposal.

With warm personal regards,

Yours sincerely,

M S Swaminathan
==========
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ANNEX XVII: Overview of Protected Areas System in Kazakhstan

Kazakhstan's Protected Area system is comprised of different types of protected areas, including National Nature Reserves (zapovednik), National Nature Parks, Nature Reserves (zakaznik), Zoological Parks, Botanic Gardens, etc. (full list below). Of these, the most significant are the nine National Nature Reserves (totaling 8,853 sq. km.) and five National Nature Parks (totaling 8,343 sq. km.). Together, these areas encompass only 0.5% of the country's total landmass, while the total area covered by all types of protected areas is 2.6% of the country. Compared to most other countries, Kazakhstan's Protected Area system is inadequate both in total area covered and in its coverage of representative ecosystems, habitats, and landscapes with their attendant biodiversity.

Because of limited financial support from the Government of Kazakhstan (GOK) budget, protected areas in Kazakhstan have become more successful in recent years in recovering funds generated by internal operations. For example, in the last year Ile-Alatau National Nature Park was able to recover twice as much money from fees and services as it received from state budget financing, while Kokshetau National Nature Park recovered four times more than it received from the state.

Recognizing the constraints of economic decentralization processes and market-based approaches to financing of parks management, the government named protected areas development as one of its priorities in the Republic of Kazakhstan's 2030 Development Strategy. In this regard, the GOK has allocated funds for the establishment of several new protected areas, including the Alakol Reserve and Karkaraminski National Nature Park in 1998, and is now conducting a feasibility study for the establishment of the Ereimentauski Nature Reserve.

In addition, a national plan of protected area identification and development for the period 2000-2030 is under development with the support of relevant ministries and agencies at the national and regional levels. This plan envisions the creation of 14 National Nature Reserves, 13 Nature Parks, 58 Nature Reserves (zakazniks), and 66 Natural Monuments.

Finally, the management structure for the protected area system in Kazakhstan has been significantly streamlined by designation of the Forestry, Fisheries, and Hunting Committee (FFHC) of the Ministry of Agriculture as the ultimate government agency responsible for protected areas issues. FFHC is currently overseeing the development of thirteen new legislative regulations related to PAs, of which five have already been reviewed and discussed by relevant ministries and other stakeholders.

Supplemental Information on the Protected Areas System in Kazakhstan

1. Distribution of Authority for Protected Areas Management

Government:

- Develops general policies and strategic measures for their implementation;
- Develops national programs and presents them to the President of the Republic of Kazakhstan (RoK);
- Supervises the Ministries, Committees, national agencies, and local authorities to ensure compliance with legislation of the RoK;
- Approves lists of protected areas (PAs) of national and international significance;

- Approves schemes of development and location of PAs, procedures on attribution of lands, water, and forests to PAs;
- Establishes the PAs of national significance;
- Defines the procedures and terms of removing inappropriate facilities from PAs as well as procedures and terms of land use in buffer zones;
- Defines procedures for rent of facilities to be used for scientific, training, cultural and recreation purposes;
- Approves regulations on National PA Funds, defines the procedures on payments for PA use and services;
- Approves monitoring procedures;
- Carries out international cooperation and regulates activities of international organizations in PAs.

Ministry of Environmental Protection

- Coordinates the work of ministries, committees, other agencies, local administrations and other interested parties in regards to PA conservation;
- Organizes national environmental expertise and feasibility study of PA development and location schemes;
- Approves regulations for each PA and issues PA passports;
- Approves relevant standards and regulations;
- Records national PA land ownership;
- Organizes national PA inspections;
- Implements international cooperation in this field.

Other Ministries, Committees and governmental agencies

- Prepare proposals for PA development and location schemes for the MEP's approval;
- Organize development of feasibility study on PA establishment, and carries out the national expertise;
- Approve individual policies on PAs and register information for PAs under their authority;
- Supervise the PAs under their authority and ensure implementation of activities in compliance with legislation;
- Monitor the PAs under their authority and provide the data to the MEP;
- Establish protection agencies for PAs.

Local administrations

- Develop and coordinate PA development and location schemes;
- Approves financial support for PAs from the local budget;
- Monitor the operations of PAs located in the region;
- Participate in discussions on establishment of PAs;
- Approves in coordination with MEP the establishment of SPA of the regional significance;
- Ensure land reservation for PAs;
- Ensure financing of activities in PAs of local significance.

2. Types of Protected Areas in Kazakhstan

National Nature Reserve (zapovednik) – 9 areas
National Nature Park – 5 areas
Nature Park
Nature Monument – 26 areas

Nature Reserve Zone – 5 areas
Nature Reserve (zakaznik) – 57 areas
Zoological Park – 3 areas
Botanic Garden – 7 areas
Dendrologic Park
Forests
Water resources of special national and scientific value
Wetlands of global significance
Underground Areas of special ecological, scientific, cultural and other value

3. National Nature Reserves

Four of the existing nine National Nature Reserves are located in mountainous areas of the country: Aksu-Jabagly in Western Tian-Shan, Almaty Reserve on the northern slope of the Zailiski Alatau, and the West Altai and Markakol Reserves in the Southwest Tian-Shan. The Ustyurtski Reserve, located in the southwest slope of the Ustyurtski plateau, and the Barsakelemski Reserve, located near the Aral Sea, are both located in the dry steppes, although they lack the landscapes typical for that those zones. Another area, the Naurazumski Reserve, conserves a unique "sand" pine forest ecosystem. Finally, the Kurgaldgino and Alakol Reserves are wetland areas, and are included on the RAMSAR list of globally significant wetlands.

4. Nature Protection and Resource Use Classifications

Protected areas in Kazakhstan fall under two conservation regimes: reserves (zapovedny) and game reserves (zakaznoi).

- Zapovedny Regime: Forbids any economic or other activities that would result in threats to natural development of PAs and their environmental conditions.

- Zakaznoi Regime: Allows specific (limited) activities during seasonal periods that do not damage PA biodiversity and environmental conditions.

5. Nature Protection and Resource Use Policies in Different PAs

a. National Nature Reserves are under “zapovedny” conservation regime and established to preserve the natural development of rare or unique nature areas including all BD components. In addition to the general rules of PA conservation listed above, within the National Nature Reserve the following activities are forbidden: hunting, fishing, introduction of exotic fauna and flora, collection of natural resources for scientific research without special permission, visiting areas outside those specially designated for visitors. Scientific, training and tourism activities are allowed only within special areas.

b. National State Nature Parks are under varied conservation regimes based on zoning and multiple purpose orientation for natural, historical and cultural objects within the PA. The following zones are distinguished within a SNP:
Zone of “zapovedny” regime;
Zone of “zakazny” regime;
Zone of regulated economic activities;
Zone of regulated tourism and recreation activities;

Zone of services for visitors;
Zone of limited and traditional economic activities;
Zone of administration and operation

6. General rules of PA conservation

Prohibited activities in PAs. The following activities are not allowed in PAs:

- Construction of residential buildings, industrial facilities, agricultural and land reclamation facilities, energy, transport, communication infrastructure, military and other facilities that do not meet the needs/goals of PA operation;
- Storing and utilization of industrial and municipal wastes;
- Pollution of water resources by industrial and municipal wastewater;
- Use of harmful biological and chemical substances and other physical influences on the environment of PAs;
- Exploration and mining activities and construction and operation of other underground facilities;
- Logging of forests, turpentine production, and extraction of other forest products
- Other activities that may result in changing natural landscapes or ecosystem sustainability.

Protection activities in PAs are conducted in accordance with the PA conservation regime, based on scientific recommendations and under supervision of relevant ministries and other governmental agencies. In order to prevent and eliminate harmful environmental impacts, the following protection activities may be undertaken in PAs:

- Prevention and mitigation of natural disasters, prevention and timely detection and mitigation of fires;
- Prevention and mitigation of harmful impacts caused by flooding or water-borne pollutants;
- Protection of plants and timely detection of harmful insect infestations;
- Ensure proper sanitary and epidemiological conditions and veterinary inspections

Rehabilitation activities in PAs are conducted in accordance with the conservation regime of each PA, based on scientific recommendations and under supervision of relevant ministries and other governmental agencies. The following rehabilitation activities are allowed in PAs:

- Land protection, including soil erosion prevention, reclamation;
- Sustaining of favorable regime of water resources, prevention of pollution, and degradation;
- Rehabilitation of forests to prevent erosion processes and improvement of environmental conditions;
- Protection of natural habitats and migration flyways;
- Protection and reproduction of species of animals in danger of extinction.

7. General Use of PA Resources

PA resources can be used for the following purposes:

- Scientific research including inventories and studies of biodiversity, development of scientific reports and conservation measures, studies of natural ecosystem processes and influence of conservation regimes, environmental monitoring, and fundamental research on BD management.
- Awareness and culture, including promoting awareness of BD conservation, environmental protection and sustainable use of natural resources, plants and animals, and historical and cultural monuments. For these purposes museums, exhibitions demonstration sites may be established.
- Training, including training excursions, training sessions, internships.
- Tourism and recreation. For these purposes special sites are created equipped with trails and observation posts, camping sites, parking lots, inns, and other infrastructure. The tourism and recreation activities in SPAs are regulated by conservation regimes.
- Limited/regulated economic and agricultural activities are allowed only within especially bordered areas regulated by the “zakazny regime”. The permission to use SPAs resources is issued either by the Government of RoK or the relevant Ministry. In SPAs only limited activities are allowed, including traditional livelihoods, crafts, and cottage industries.