KAZAKHSTAN
DRYLANDS MANAGEMENT PROJECT (GEF)

GEF Project Document

Europe and Central Asia Region
ECSSD

Date: April 14, 2003
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Project ID: P071525
Focal Area: M

Team Leader: Maurizio Guadagni
Sector(s): General agriculture, fishing and forestry sector (50%), Crops (30%), Animal production (20%)
Theme(s): Climate change (P), Land management (P)

Project Financing Data

[ ] Loan [ ] Credit [X] Grant [ ] Guarantee [ ] Other:

For Loans/Credits/Others:
Amount (US$m): 5.27

Financing Plan (US$m): Source	Local	Foreign	Total
BORROWER/RECIPIENT	2.40	0.00	2.40
GLOBAL ENVIRONMENT FACILITY	3.47	1.80	5.27
LOCAL FARMER ORGANIZATIONS	1.93	0.00	1.93
FOREIGN PRIVATE COMMERCIAL SOURCES (UNIDENTIFIED)	0.00	0.10	0.10
Total:	7.80	1.90	9.70

Borrower/Recipient: GOVERNMENT OF KAZAKHSTAN
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Estimated Disbursements (Bank FY/US$m):

FY	2004	2005	2006	2007	2008	2009		
Annual	0.50	1.10	1.50	1.30	0.67	0.20		
Cumulative	0.50	1.60	3.10	4.40	5.07	5.27		

Project implementation period: 5 years
Expected effectiveness date: 09/30/2003 **Expected closing date:** 03/31/2009

A. Project Development Objective

1. Project development objective: (see Annex 1)

The development objective of the project is to demonstrate and promote sustainable land uses in the marginal dryland ecosystem of a pilot area in the Shetsky *rayon* (a district in the southern part of the Karaganda *oblast* - province). The proposed project is a pilot activity that will test the environmental, social and economic viability of shifting from the current unsustainable cereal-based production system to the traditional livestock-based production system.

In support of this objective, the project – with active participation of local communities – will assist the Government of Kazakhstan to: (i) develop sustainable land use systems; (ii) provide initial service support to producer groups; (iii) improve national capacity to quantify carbon sequestration; and (iv) undertake a broad public awareness campaign and develop a strategy so that project interventions could be replicated in similar areas of Kazakhstan and other Central Asian countries. By promoting sustainable land use practices, the project emphasizes an integrated ecosystem management approach to achieving ecological, economic and social goals that are expected to yield benefits at a local, regional and global level.

Project Global Environmental Objectives

The project's global environmental objectives are: (i) improved knowledge on quantification and monitoring of carbon sequestration under different land use types; (ii) increased carbon sequestration for climate change mitigation, (iii) improved biodiversity; and (iv) control of land degradation.

2. Key performance indicators: (see Annex 1)

Indicators for the achievement of the project's development objectives include, inter alia:

- number of hectares under sustainable use. It will be considered satisfactory if at least 70% of following targets will be achieved:
  - revegetation of abandoned cereal land on 30,000 ha (10,000 ha with direct seeding; 10,000 ha with seeding using conservation tillage and 10,000 ha under acceleration of natural re-vegetation)
  - improved management of degraded pastures and rangelands (e.g. reduced grazing pressures, increased vegetative cover): 50,000 ha
  - provision of 40 water points
- successful demonstration of the alternative land use systems, proving the economic and social feasibility of livestock-based production systems in similar ecosystems;
- increase in number of livestock (from 35,000 animal equivalent units to 70,000); and
- improvement of income and living standards of beneficiary population.

Indicators for the global environment objectives include:

- quantity of carbon sequestered in soil. It is estimated that at least 0.6 million tons will be sequestered over 20 years. Although the five years of project implementation will not be able to cover the whole 20 year period of carbon sequestration, the project will utilize and improve existing models to allow a better estimation of future carbon sequestration as a result

of project supported activities;
- new empirical data on quantity of carbon sequestrated in the continental steppe ecosystem;
- biodiversity conservation;
- reduced soil erosion; and
- reduced recurrence of grasshopper infestations.

B. Strategic Context

1. Sector-related Country Assistance Strategy (CAS) goal supported by the project: (see Annex 1)
Document number: 21607 KZ **Date of latest CAS discussion:** January 16, 2001

Protecting and enhancing the environment is a major challenge identified in the Kazakhstan's Country Assistance Strategy (CAS). The overarching objective of the CAS is poverty reduction and improvement of living standards. It identifies four main areas for investment in support of this objective: (i) contributing to reforming the public sector, (ii) promoting broad-based private sector growth and arresting rural poverty; (iii) supporting the most vulnerable in the population, and (iv) protecting the environment, through among other measures, restoring marginal lands.

A key focus of the Bank's assistance strategy in agriculture and rural development (as part of support for broad-based private sector growth and rural poverty reduction) is to help the Government in its efforts to address the issues of increasing efficiency of agricultural productivity in the farm sector and improving management of natural resources. The CAS includes support for the: (i) ongoing Agricultural Post-Privatization Assistance Project which is supporting the development of financial services for rural enterprises through commercial banks; (ii) Irrigation and Drainage improvement, (iii) Forest Protection Project; (iv) review of the livestock and fisheries sub-sector; and (v) the Agricultural Support Services Project, recently re-named Agricultural Competitiveness Project (ACP) that will promote productivity, quality and export potential of the wheat and livestock sectors. The CAS highlights the proposed project to pilot the restoration of marginal drylands where crop production is not sustainable, and to revert the land to sustainable uses such as pastures and grassland. The project will address the possibilities for recovery of the livestock industry on marginal cereal lands in the central part of the country (Shetsky rayon) and would generate specific knowledge needed to address the CAS priorities of improvement of livestock sector management and enhancing growth and development in the rural areas. The activities proposed under the project respond to the CAS's objective of environmental protection as expected project outcomes include improved biodiversity, increased carbon sequestration and control of land degradation.

1a. Global Operational strategy/Program objective addressed by the project:

The proposed project is consistent with the GEF Operational Program (OP) 12, "*Integrated Ecosystems Management"* which is *aimed at catalyzing widespread adoption of comprehensive ecosystem interventions that integrate ecological, economic, and social goals to achieve multiple and cross-cutting local, national and global benefits*. Project activities have been developed within the overall framework of an integrated ecosystem management approach and facilitate inter-sectoral and participatory approaches to natural resource management planning and implementation. It responds to growing stakeholders' interests in adopting a holistic approach in accordance with national priorities. Investments in rehabilitation and improved management of

rangelands and abandoned lands to restore indigenous vegetation would help in reversing land degradation, improving carbon sequestration, enhancing biodiversity and improving agricultural production.

The proposed project brings synergy between two focal areas within OP12: (i) Climate Change; and (ii) Biological Diversity. The project has implications for climate change mitigation as it will promote carbon sequestration in the project area through increasing the store of carbon in soil and biomass. The methodology/models that will be developed on carbon sequestration under the project will allow predictions of potential carbon sequestration under different land use systems. These models could subsequently be applied to other similar areas within and outside Kazakhstan. Second, through development of sustainable land use systems and improving soil and vegetative cover with native species, the project will protect and improve biodiversity in the Shetsky rayon.

The project also supports the objectives of OP15 (Land Degradation) which emphasizes sustainable land management. The project integrates conservation and sustainable use of land resources into development of drylands, assists people and communities to protect and sustainably manage non-protected and inhabited drylands and builds institutional capacity for addressing land degradation. The expected project outcomes are consistent with the expected outcomes outlined in OP 12 and 15, viz. (i) creation of an enabling environment for implementation and replication of proposed project interventions; (ii) institutional strengthening; and (iii) investments. By emphasizing an integrated multi-focal approach, the project addresses many of the goals of global environmental conventions, including United Nations Convention to Combat Desertification (UN-CCD), United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD).

The Project will provide an opportunity for the GEF to be a catalyst to bring about improved land and natural resource management initiatives. The GEF support will reduce costs and barriers to farmers adopting improved and sustainable agricultural practices. It will help develop mechanisms to move from demonstration level activities to operational projects that restore and improve pasture and grazing land and increase opportunities for rural populations.

2. Main sector issues and Government strategy:

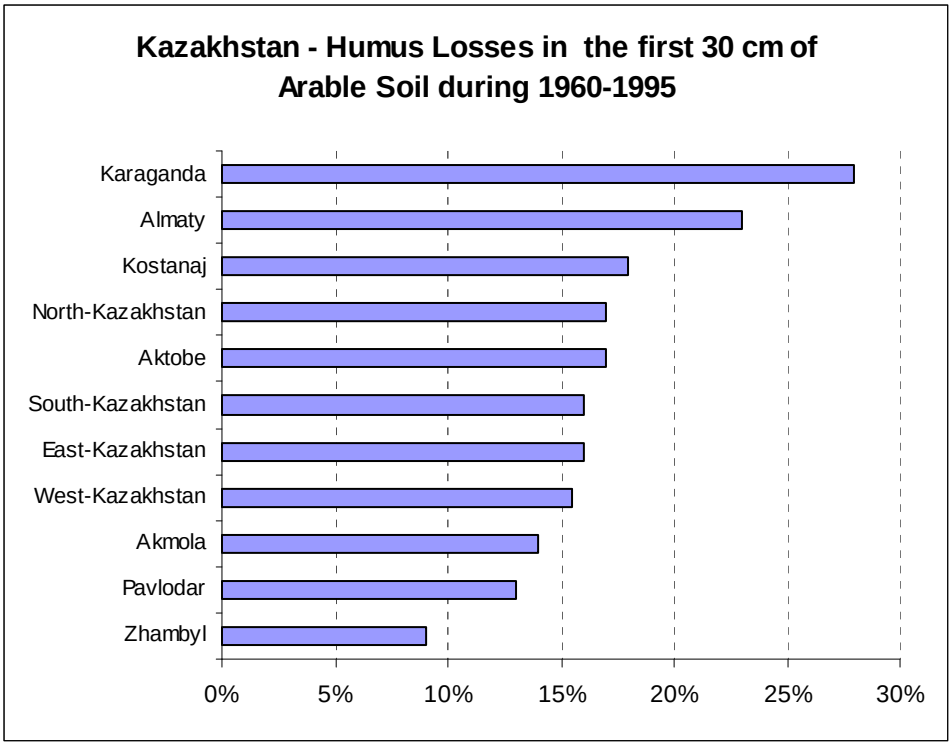
2.1 Sector Issues

Environment. Kazakhstan inherited some of the greatest environmental problems of the post-Soviet republics. The total economic damage from non-rational use of natural resources and environmental pollution is estimated at 20-30% of the GDP (NEAP, 1999). The drying Aral Sea and the Semipalatinsk nuclear testing sites are two of the most notorious environmental disasters.

The *Virgin Land Scheme* also had significant negative environmental consequences. Under this scheme, during the 1950's and 1960's, cereal cultivation was extended to the southern steppe region of Kazakhstan, with the objective of increasing wheat production in the Former Soviet Union. Approximately 35 million hectares were put under cereal cultivation, and an estimated 1.5 million people were relocated. Akmola (now Astana, the capital of the country) was renamed Tzelinograd (the "City of Virgin Land" in Russian language). The Shorthandy research center

near Tzelinograd developed special technologies to allow cereal cultivation in the steppes where precipitation is limited and wind speeds are particularly strong. The two main technologies included conservation tillage and snow harvesting, targeted to reduce wind erosion of snow in order to increase soil moisture.

In order to achieve the overly ambitious pre-set targets, cereal cultivation was excessively extended to the south, in eco-regions where such crop-based production systems are not sustainable. Consequently, unsustainable agricultural practices have led to varying degrees of land degradation in central Kazakhstan. Karaganda oblast, where the pilot project area is located, has suffered the highest losses in soil fertility (measured in terms of humus losses as documented in the following graph).



Some areas are under the threat of desertification which has critical implications both at a global and national level, e.g., climate change and national food security. Degradation of the natural resource base has had a knock-on effect: reduced biodiversity, endangered species, reduced carbon sequestration, poor water quality and supply. Although some of the abandoned marginal cereal-growing lands have undergone natural regeneration, most are dominated by weeds and subject to wind erosion and frequent fires. Soil erosion and fires reduce carbon stocks on the land and result in a subsequent net release of CO2 into the atmosphere, considered to be a major factor in global climate change. The abandoned lands are also prime breeding grounds for locusts which further degrade the lands and can damage croplands in other areas.

Agriculture in Kazakhstan has substantial potential, with total agricultural land in 2001 approximating 90 million ha of which 21 million are arable (1.5 ha/capita). Main agricultural

products include wheat, barley, rice, and livestock products. However, in 1991, agricultural land was estimated at 195 million ha and over the past decade, the loss of over 100 million ha of agricultural lands has had a significant impact on national food security, lost markets and farm and rural household incomes. Since independence, use of arable lands has decreased by 37%; pastures and rangelands by 60%. Nonetheless agriculture continues to be an important sector with 44% of the country's population living in rural areas. The sector is a potentially significant source of non-oil growth, accounting for 9% of the country's GDP.

Since independence, the Government has launched successive reforms in the agricultural sector - price and trade reform, privatization of farms and agribusinesses, and the initial creation of land markets based on fully tradeable long-term leases (instead of full private property). These reforms are aimed at halting uneconomical farming, improving productivity and corporate governance on the remaining farms. All too often, however, privatization was non-transparent and led to poor corporate governance, declining productivity, and reduced access to land by producers. During the past decade, the Government has imposed severe financial constraints on farm enterprises by reducing subsidies and eliminating directed credit programs. It has also supported financial restructuring for nonviable farms and the take over of badly managed, though potentially viable, farms by creditors or strategic investors. The results of these initiatives are encouraging.

However, a significant reform agenda remains, with one of the greatest challenges being in the marginal drylands. Most of these lands (within the steppe region of the country) were productive grasslands and pastures before the Virgin Lands Scheme. The crop-based production system introduced by this scheme became increasingly unprofitable with the introduction of marked-based prices after independence. Given the current transition to a market economy, with strong competition in the world wheat market, there is a growing concern about the efficiency of land resource use, and increasing imbalance between rural and urban living standards, especially in dry regions where risky, weather-dependent cereal production used to provide the main source of income. The low degree of income diversification, decreased farm incomes and increased rural poverty are directly linked to land degradation and decreased productivity in many of these cereal growing areas. Currently, alternate agricultural opportunities are not being realized as the newly formed agricultural enterprises lack adequate funds and machinery, growth of markets (demand) is slow, new farmers lack appropriate entrepreneurial skills, knowledge and information to meet the changing farming needs, and there is resistance to change. To address these issues, the Government in 2003, has initiated a three-year program of intensive support to the rural areas.

Livestock. Most of Kazakhstan consists of dry steppe grasslands, traditionally used for livestock production that around 1990 represented some 60% of agricultural output. The livestock sector has, however, experienced drastic changes during the economic transition of the last decade with the loss of the potential Soviet market. During that time the sector went through a substantial contraction in numbers, especially after 1995 when new private farms as well as rural farm workers destroyed animal stock to pay for debts and farm inputs. Country herd decreased from 35 million heads to 10 million. The outcome to date is a sector with a current animal inventory that is lower than it was at the beginning of the 20th century. It is estimated that today

Kazakhstan has 184.2 million hectares of pasture land; however, only one-fifth (approximately 30 million ha) is being utilized of which 87% is concentrated around village communities. At the same time, urban demand (especially for meat) is increasing, in part fueled by increasing incomes linked to the oil boom. The livestock sector can be regarded as one of the driving forces in rural revival in this country dominated by grasslands with the largest amount of pastures and rangelands per animal unit in the world. The sector also fulfills a social role in providing some security and income to people that remained in the rural areas after the break up of the collectives.

2.2 Government Strategy

After independence Kazakhstan stated its commitment to environmental protection and sustainable development. It is a signatory to most significant environmental conventions and is an active participant in several fora on environmental protection. The long term development strategy of the country - Kazakhstan 2030 -- reflects this commitment. Several actions have been undertaken to begin the implementation of the strategy, including strengthened environmental management (with continuous evolution of the Ministry of Environmental Protection), legislation, and economic instruments, such as introduction of payments for using natural resources. On-farm environmental management is an integral part of the Government's overall development strategy, which is aimed at creating a sustainable enabling environment to fully realize the potential of the agricultural sector. The 1999 National Environmental Action Plan (NEAP) identifies arable lands and pasture conservation as a priority area of intervention. This priority reflects Governmental commitment to combat desertification and is governed in part by the United Nations' Convention to Combat Desertification (UN-CCD). Kazakhstan has not ratified the Kyoto protocol yet as the government is facing the same difficulty as Russia in deciding whether to adopt the status of an industrialized country or a developing country (as a transition economy, Kazakhstan has some parallel characteristics of both groups). In addition, the NEAP also reflects the government's commitment to the UN Framework Convention on Climate Change as well as the UN Convention on Biological Diversity.

Rural development has been declared a key country priority for the next three years. Towards this, several steps have already been taken, including, inter alia:

i. *Budget allocation*. The approved 2003 Republican Budget increased budget allocations for rural development for each of the following four sectors (a) agriculture ($65 mn), (b) rural education ($23 mn), (c) rural health ($19 mln), and (d) rural water supply ($2 mln).

ii. *Institutional Reform*. The Ministry of Environmental Protection and Natural Resources management was reorganized to enhance its focus on the protection of the environment and re-named Ministry of Environmental Protection. Responsibility for natural resources management was transferred to the Ministry of Agriculture (MOA). As a result, the water, forestry, and fisheries committees was brought under the responsibility of the MOA.

iii. *Legal framework*. The Government has drafted three legal proposals with important implications for rural areas: (a) the land code; (b) the micro-finance law and law on credit partnerships, and (c) the forest code. The land code proposes to create full private property for agricultural land, which is of paramount importance for agricultural development. Though the details of the land code proposal could have benefited from broader discussions with civil society and interested groups, it nonetheless provides evidence of the current administration's

commitment to addressing agricultural and rural issues.

The Government's 2003-2005 agricultural development plan aims to focus on food security "through the establishment of an efficient agro-industrial complex with competitive products". The government is formulating a strategy for agricultural development by facilitating access to financial services and provide temporary protection and subsidies. Subsidies are targeted to discourage cereal growing in marginal areas (degraded lands or areas that are not profitable for cereal growing), improve agricultural productivity in favorable areas (arable areas with high rainfall), increase the national livestock population, and increase farm incomes in a sustainable way. In support of this strategy, the Government and the World Bank are jointly preparing an Agricultural Competitiveness Project and Livestock Sector Study with the objective of identifying a sustainable development strategy and suitable government interventions.

3. Sector issues to be addressed by the project and strategic choices:

3. 1 Sector Issues Addressed by the Project

The Project would demonstrate options for mainstreaming environmental issues in the ongoing and proposed reforms of the agricultural sector and would address the following key issues that are specific to the Kazakh steppe as well as to large areas of Central Asia:

Development of sustainable land use in marginal areas. The development of alternate land uses on the marginal cereal growing areas that are economically feasible, socially acceptable and ecologically sustainable is a key activity under the project. The baseline socioeconomic survey undertaken prior to start of project preparation, confirmed the unprofitable nature of wheat production in the project area with yields of about 500-600 kg/ha. It also confirmed the importance of livestock as a source of household income with 98% of the households owning cattle, and over 60% sheep and horses. Milk, cattlemeat and hides are products most commonly sold.

The project will promote the development and expansion of livestock-based production systems by, inter alia, revegetating the abandoned cereal lands with perennial grasses and improving the existing degraded pastures. Currently, the livestock sector in the Shetsky rayon is characterized by: a shortage of good quality winterfeed, poor or broken irrigation systems limiting the production of supplementary feeds, lack of water points in outlying areas for summer grazing which leads to overgrazing near the villages and homesteads, overall lack of livestock management expertise; lack of supporting services (e.g. veterinary services/artificial insemination/seeds), poor markets for livestock products (products are often sold locally, because of transport problems or lack of market information) and inadequate finance/credit. It should be pointed out that after an initial drop in livestock numbers, a limited recuperation started in the Shetsky region. However, in the socioeconomic survey undertaken in 2001 and in subsequent consultative meetings, farmers indicated that lack of winterfeeds and markets were primary problems. The project will address these issues.

Reverse Environmental Degradation and Loss of Biodiversity. Inappropriate land use (cereal growing) has led to land degradation and these lands are increasingly vulnerable to wind and water erosion, frequent fires, locust infestation and loss of bio-diversity. The steppe ecosystem

of Kazakhstan is unique and the fields, fallow land, rangeland, gullies and ravines in the project area serve as storage of the gene pool of the native flora and fauna. Some plant and animal species, such as the red-breasted goose, golden eagle, manul (palla's cat), northern fern, thin poppy, etc. have become extinct over the years and many others are severely endangered. By improving the management of pastures and rangelands, the project seeks to restore and protect the natural habitats of many endangered species. Also, by providing training in rangeland and livestock management, as well as promoting public awareness, the project will broaden understanding of land degradation and related biodiversity issues among the project beneficiaries which will help in protecting and conserving local flora and fauna. The endangered species indicated in the Red Book of Kazakhstan that will be protected under the project include:

Latin name	**Russian name**	**English name**	**Habitat**
Birds			
Rufibrenta ruficollis	Краснозобая казарка	Red-breasted Goose	migratory
Cygnus cygnus	Лебедь-кликун	Hoping swan	migratory
Pandion haliaetus	Скопа	Fish-hawk	migratory
Aquila chrysaetos	Беркут	Golden Eagle	migratory
Haliaeetus albicilla	Орлан-белохвост	White-tailed Eagle	migratory
Falco peregrinus	Сапсан	Peregrine Falcon	migratory
Falco cherrug	Балобан	Sather Falcon	migratory
Grus grus	Серый журавль	Gray crane	migratory
Anthropoides virgo	Журавль-красавка	Demoiselle	nesting
Otis tarda	Дрофа	Create Bustard	migratory
Otis tetrax	Стрепет	Little Bustard	nesting
Larus ichthyaetus	Черноголовый хохотун	Great Black-headed Gull	migratory
Syrrhaptes paradoxus	Саджа	Sandyrouse	migratory
Bubo bubo	Филин	Eagle awl	nesting
Mammals			
Felis manul	Манул	Manul (Pallas's Cat)	hillock lands
Ovis ommon collium	Казахстанский горный баран	Kazakh Argali	Rocky, hillock steppes
Flora			
Asplenium septentrionale (L.) Hoffin.	Костинец северный	Northen fern	hillock lands
Tulipa schrenkii Regel	Тюльпан Шренка	Schrenki's Tulip	steppe
Anabasis turgaica Iljin et Krasch	Ежовник тургайский	Perennial saltwort (Turgai Anabasis)	solonetz
Papaver tenellum Tolm	Мак тоненький	Thin Poppy	steppe
Polyporus rhizophilus (Pat.) Sacc.	Полипорус корнелюбивый	Polyporus	steppe

Diversify income-earning opportunities to raise family incomes and alleviate poverty. This is a primary concern of the government. Without suitable interventions, there will be an increased disparity between urban and rural areas and in consequence a drift of people, especially

the young, to towns. The project site is characterized as a region of poverty where poor economic and social conditions restrict development opportunities. The project will work with other agencies (national and local) to raise incomes from the livestock-based production system envisaged under the project through marketing of livestock products and work on other opportunities for diversifying income sources, such as the possibility of developing medicinal/herbal plants and their products.

3.2 Strategic Choices

Two main strategic choices were made during project preparation. The *first* choice was the decision of addressing land degradation in marginal dryland from among the many environmental problems facing Kazakhstan. This decision was based on the considerable World Bank portfolio of activities in the agricultural sector which has generated useful experience on the linkages between agriculture and natural resource management. Specifically irrigation rehabilitation projects have proven that one of the best ways to address the environmental problems of the Aral Sea is to improve the efficiency of existing irrigation systems, establishing a link between the objectives of environmental protection and tangible benefits for key stakeholders. Kazakhstan does not have any agricultural and/or environmental activity targeted to the dryland cereal-growing areas which, if continued to be neglected, would lead to a further degradation of the already marginalized lands. Thus the proposed project made the strategic choice of designing a multi-focal, cross-sectoral project whose interventions would not only have a positive impact in the pilot area, but could also be replicated nationally and globally in similar dryland ecosystems.

The *second* strategic choice was to propose a relatively large pilot, with a total investment of $9.7 million with a $5.3 million GEF financing, instead of a smaller carbon monitoring activity. This decision was based on the fact that a small carbon monitoring activity could not have tested the socio-economic feasibility of shifting from crop-based production system to the traditional livestock production system. Experience has demonstrated that a few innovative farmers would easily accept such a shift; however, the real challenge lays in having a large share of farmers in one district adopting the proposed shift so that the viability of such a shift could be proven on a scale large enough to demonstrate its potential of replicability.

C. Project Description Summary

1. Project components (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

See Annex 14 for a description of the project area and criteria for selection.

Component 1: Development of Sustainable Land Use Systems (US$5.5 million)

The following activities will be supported under this component:

(i) Revegetation of Abandoned Cereal Lands: This will include: (a) Direct Seeding of perennial grasses; (b) Seeding of perennial grasses using conservation tillage; and (c) Assisting farmers with acceleration of natural revegetation. The project will revegetate about 30,000 hectares of abandoned cereal lands. The project will finance up to 75% of the total cost of establishing new grasslands.

(ii) Management of Degraded Pastures and Rangelands. The project would support a program to

improve the vegetative cover and management of degraded pastures and rangelands in the project area. The activities envisaged under this component are designed to increase productivity of degraded pastures and reduce grazing pressures around villages by restoring 40 watering points that will enable cattle to be summered on more distant pastures. This sub-component will also undertake an analysis of biodiversity losses in the project area and the impact of increased vegetative cover on the biodiversity of the region. Specifically, the project will: (i) underake an assessment of the current biodiversity in the Shetsky rayon; (ii) develop maps of soil and vegetation cover to develop land cover classification; (iii) undertake biodiversity monitoring at selected key sites; (iv) define the physiological and ecological parameters of vegetation for carbon sequestration; and (v) prepare recommendations for biodiversity preservation. This will include field surveys at seventeen monitoring sites of the project area, analyses of results of biodiversity monitoring at the key sites with historical data, analysis of reasons for biodiversity loss, development of actions to preserve biodiversity for specific sites of the project area and creation of maps with types of biodiversity recommended for preservation in the problem sites.

(iii) Validation and demonstration of new technologies The project will support a program of trials and demonstrations within four demonstration zones that are representative of the agro-climatic conditions within the project territory. The objective is to demonstrate the various methods available to plant perennial and annual grasses at the lowest cost with the best return on forage.

Component 2: Initial Service Support to Producer Groups (US$1.3 million)

This component will provide grant financing to assist farmers in the project area to "get started" and transition to improved practices as proposed under the project. In the long run this will likely result in income generation, thereby ensuring sustainability of these practices which largely have inherent global benefits.

The component will provide assistance to producer groups for marketing livestock and agricultural products through establishing village milk collections centers, a regional agricultural market in Aksu -Ayuli (main town of Shetsky rayon) for meat, wool, hides, hay and other similar products produced in the Shetsky region, and local producer partnerships to own and operate the milk collection centers and agriculture market. These activities will involve partnerships and close collaboration with private sector organizations in Karaganda oblast and help in increasing local organizational capacity; creating new jobs in the villages, especially among women; facilitating access to markets for the increased milk and meat production expected from the availability of better feed and improved livestock management; and raising farm incomes. The component will support Livestock and Crop Husbandry Advisory Services for Farmers to assist farmers to introduce best livestock husbandry and fodder cropping practices.

Component 3: Quantification of Carbon Sequestration (US$1.3 million)

This is a target research activity; it is designed to provide assistance for improving knowledge and skills to quantify and monitor carbon sequestration so as to enable the government to meet its obligations under the United Nations Convention on Climate Change. The research effort would be instrumental in identifying the land use management under which sequestration of carbon would be maximum. A quantification of carbon held in soil and vegetation, together with monitoring of carbon sequestration magnitudes and dynamics in the project area, will form a basis for providing reliable estimates of carbon sequestration potential in other parts of Kazakhstan and Central Asia. Thus, this

project can play a pivotal role, not only in Central Asia, but globally, in the development and implementation of an effective carbon monitoring and management system.

The component will provide empirical data on carbon actually stored in soil and soil biomass as a result of project-supported activities. Since the five years covered by the project will not be able to provide empirical data for the whole 20 year period of carbon sequestration, the project will utilize and improve existing models (such as the CENTURY model, which has been used in the Sahel as an example of arid land) to allow a better estimation of future carbon sequestration as a result of project supported activities.

The component will also contribute to build national capacity to generate, on a sustainable basis, site-specific data on carbon stocks (in soil and vegetation) and proceed from these data to measurable impacts on the restoration of natural resources.

Component 4: Public Awareness and Replication Strategy (US$0.9 million)
The component would carry out a public awareness and capacity building activities at the local (Shetsky Rayon), national and regional level and develop a replication strategy so that project interventions could be replicated in other similar dryland ecosystems, within and outside Kazakhstan. The project in all likelihood should be able to demonstrate measurable, tangible benefits within the first two-three years of project implementation which would prove instrumental in spurring the government into considering replication of project interventions in other similar agro-climatic rayons of Kazakhstan.

Replication Strategy: The project would provide for the organization of regional workshops, field trips, training, publication in international agriculture and environmental journals and other activities to promote replication of project activities in other Central Asian countries. The pilot activity will aim to serve as a model to be replicated in these countries, which will help contribute to a reduction in desertification and increased carbon sequestration. The organization of these international events could be part of the assignment of a PR/Media Agency contracted for the purpose.

Component 5: Project Management Unit (US$0.7 million)
The existing Project Preparation Unit will evolve into a Project Management Unit (PMU). The PMU will handle procurement, all financial matters relating to disbursements, maintenance of project accounts and financial monitoring, as well as the monitoring and evaluation of all project activities. The PMU will have overall responsibility for project implementation and will prepare regular monitoring reports. The Project Manager will report to the Chairman of the Project Steering Committee, i.e. the Vice-Minister, MEP.

Component	Indicative Costs (US$M)	% of Total	Bank financing (US$M)	% of Bank financing	GEF financing (US$M)	% of GEF financing
1. Development of Sustainable Land Use Systems	5.53	57.0	0.00	0.0	2.77	52.6
2. Initial Service Support to Producer Groups	1.28	13.2	0.00	0.0	0.31	5.9
3. Quantification of Carbon Sequestration	1.31	13.5	0.00	0.0	0.90	17.1
4. Public Awareness and Replication Strategy	0.85	8.8	0.00	0.0	0.72	13.7

5. Project Management Unit	0.73	7.5	0.00	0.0	0.57	10.8
Total Project Costs	9.70	100.0	0.00	0.0	5.27	100.0
Total Financing Required	9.70	100.0	0.00	0.0	5.27	100.0

Totals might slightly differ due to rounding

2. Key policy and institutional reforms supported by the project:

Pilot activities would lay the groundwork for promotion of policy reforms by the Government of Kazakhstan with regard to a strategy to rehabilitate abandoned or marginal drylands. Project interventions would support the Government to develop a Code for Good Agro-pastoral Practices, including the implementation of land use management plans. Such a code could be a model for dryland areas. The project would also contribute to strengthen national policy and regulatory capacity to meet its various national and international obligations and to correctly asses implications of the Kyoto Protocol ratification.

3. Benefits and target population:

The proposed project would be the first instance where the Government of Kazakhstan is mainstreaming environmental considerations in agro-pastoral practices. The synergy of such an approach will bring about greater benefits vis-à-vis independent agricultural and environmental projects.

Locally and nationally there will be benefits: (i) at the farm level, resulting from the sustainable and fuller use of pastures, rangelands and winter feed areas; (ii) from improved marketing of farm products; (iii) through the establishment of local industries based on renewable natural resources; (iv) capacity building at the administrative level as well as of government and research institutes, etc; (v) increased productivity through improved agro-pastoral practices; and (vi) better maintenance of productive ecosystems, natural habitats and the protection of endangered species.

Internationally: benefits will accrue through: (i) new empirical data on which to base estimations of carbon sequestration; (ii) increased biodiversity; and (iii) carbon sequestration in the rangelands and former arable areas.

Replicability. The proposed project is a pilot activity that will demonstrate alternate sustainable land use systems in a select dryland ecosystem of Kazakhstan. Lessons learnt from this initiative could be applied to other parts of the country as well as countries of Central Asia region that have similar agro-climatic conditions. Thus the project would have a larger geographical impact. Also, the quantification of carbon sequestration estimation under different land use systems will be based on empirical data which has the potential for improving existing models for estimation of carbon sequestration. This will increase the potential to trade carbon credits. The Government of Kazakhstan has not ratified the Kyoto protocol yet but has expressed its interest in such ratification and is working towards it. Once such ratification will be completed, carbon sequestration in grasslands will become eligible for carbon trading and carbon offset (no carbon trading is however proposed under the project).

Target Population. The project site is located in a marginal dryland area where acute poverty

prevails (see Annex 12 for more details on project area.) The area is sparsely populated with an estimated 19,500 people in the eleven sub-districts in the project area. The average household size is 4.2 persons and over 95% obtain a living from farming. These private farmers and rural households are the direct primary beneficiaries of the proposed project. However, since the project is a pilot activity with opportunities for much wider application both nationally and regionally, the ultimate beneficiaries of the project will not be restricted to the Shetsky rayon alone.

4. Institutional and implementation arrangements:

The Ministry of Environmental Protection (MEP) will be responsible for project implementation. Given the important links with agricultural activities, the Ministry of Agriculture will also be involved in project implementation and supervision. MEP will establish a Project Management Unit (PMU), comprising a Project Manager, Financial Management/Procurement Specialist and Administrative Assistant. The existing Project Preparation Unit will evolve into the PMU and will continue to be located in Astana. In addition, a financial management specialist and two technical specialists will be based in the town of Aksu-Ayuli, in the Shetsky *Rayon*. During the summer, the Project Manager will move to Aksu-Ayuli and other administrative staff will assist in the Aksu-Ayuli office as required. This would also help form a strong working partnership with the local administrative staff, local farmers and other stakeholders.

Governance. The implementational arrangements agreed upon demonstrate the project's emphasis on decentralized responsibility for project management. The project emphasizes capacity building of agencies at the local level involved in project implementation as well as farmers which will help not only to build local ownership, but also ensure transparency as well as sustainability of project activities. The project design incoprorates lessons learned to create the best conditions for a good governance of grants awarded to farmers and other beneficiaries under the project. Through the implementation of competitive grant programs in many countries of the region, procedures for procurement, disbursement and financial management of small-value grants have been strengthened and laid out in several training manuals as "good practices" by specialists at the World Bank. Relevant staff in the PMU, as well as local institutions involved with project implementation, will be trained in such "good practices" to ensure that there is a good governance mechanism in place to oversee grant implementation. Regular monitoring provided for under the project will also be instrumental in ensuring good governance of grants under the project.

The following implementation arrangements have been implemented and/or agreed to assure the most adequate project implementation.

Project Steering Committee (PSC). The PSC has already been established by the MEP & MOA and will be responsible for providing project oversight, advice and assistance in resolving issues associated with project implementation. The Committee will consist of eleven members, including, the Vice Minister MEP (Chairperson); Vice Minister, MOA (Co-chairperson); Head of Department of the Ministry of Economy and Budget Planning; Director of Ecological Policy Department of the MEP; Head of Division of the Land Agency; Deputy Akim of Karaganda oblast; Akim of Shetski rayon; Chairperson of Oblast Association of Dairy Enterprises; Director General of Balkhash Sut Dairy Plant; and Chairperson of the Farmer Association of the Shetski Rayon. The PMU Head will act as ex-officio secretary.

Project Technical Committee (PTC). A Project Technical Committee will be established by the government of Shetsky rayon, comprising the head of Farmers' Association (Chairperson); Project Manager; Deputy Akim of Shetsky Rayon; head of Territorial Agency of MOA; a female Farmer; and the two PMU technical specialists mentioned above. The PTC will provide guidance, advice and overview on the technical aspects of the project. (See Organizational chart in Annex 2)

Project Management Unit (PMU). The PMU will handle procurement, all financial matters relating to disbursements, maintenance of project accounts and financial monitoring, as well as the monitoring and evaluation of all project activities. It will coordinate the implementation of activities by the different local and national agencies, including the field agencies of MOA and MEP. The Project Manager will report to the Chairman of the Project Steering Committee, i.e. the Vice-Minister of MEP.

Project Monitoring and Evaluation (M&E). A well-designed monitoring and evaluation system is critical for ensuring the project's timely and successful implementation, and enhancing its impact by a systematic analysis of lessons learned and their effective dissemination. Project monitoring would be carried out by the PMU. In addition, and annual evaluation will be carried out by an independent firm, selected by the PMU in a process similar to the one which was used to prepare the social baseline of the project. Project M&E will be based on the results of such baseline survey, as well as on the agreed target (see Annex 1). The independent consultant will presents the results of its annual evaluation directly to the Project Steering Committee, without previous approval of its report.

D. Project Rationale

1. Project alternatives considered and reasons for rejection:

The alternatives considered were: (i) no intervention; (ii) support an increase in crop production through the rehabilitation of irrigation facilities; and (iii) promote tree planting.

First, the option of no intervention, or self regeneration of the fallow land. Scientists and experts from the Institutes of Land Use Classification Soils, Remote Sensing and Modeling, and Botany have estimated that natural revegetation of abandoned land could take over 50 years and the initial natural vegetation would not serve as suitable animal pasture. The existing institutions and local population are insufficiently equipped to address issues of marginalized drylands and it was deemed appropriate to initiate this project and stem further land degradation and its accompanying adverse impacts. However, the project will allow for natural regeneration of the abandoned cereal growing lands where fifty percent of the area is already under natural vegetative cover; this will provide a benchmark against which project impacts can be measured.

Second, the option of rehabilitation of irrigation facilities. This option was rejected because the World Bank is already working with the Government of Kazakhstan in rehabilitating irrigation facilities through the Irrigation and Drainage Improvement Project, with one irrigation scheme located in the same Schetzy *Rayon*.

Third, the option of promoting tree planting. This is a good alternative to provide carbon sequestration -- and in fact the Government requested support of the World Bank in designing a forestry project. However forestry is not a suitable alternative in the marginal lands of central

Kazakhstan, whose ecosystem is not suitable for forest development.

2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned). Table 2 lists major related projects by all development agencies that are completed, ongoing or planned.

Sector Issue	Project	Latest Supervision (PSR) Ratings (Bank-financed projects only)	
		Implementation Progress (IP)	Development Objective (DO)
Bank-financed			
Sustainable Agriculture and Natural Resources Management	Agricultural Post-privatization Project (APPAP APL-1)	S	S
	Irrigation and Drainage Improvement (IDIP)	S	S
	Northern Aral Sea and Syr Darya	S	S
	Nura River Cleanup (under preparation)		
	Agricultural Competitiveness		
	Forestry Protection and Reforestation		
Other development agencies			
WB/GEF Trans-boundary biodiversity	Biodiversity Conservation (Kazakhstan, Kyrgyz Rep. & Uzbekistan)		
UNDP/GEF	- Integrated conservation of priority globally significant migratory bird wetland habitat; - Renewable energy use for potable water supply; - Program for the implementation of the 1998-2000 strategic plan: ecology and natural resources - Assistance to the GOK in the development of a strategy to implement the conservation of biodiversity - Agro-biodiversity of Alatau - In-situ preservation of mountain agro-biodiversity in Kazakhstan - Revised strategy and action plan to combat desertification of the Republic of Kazakhstan		
USAID GL-CRSP	Turkmenistan, Uzbekistan, Kazakhstan, Tajikistan and Kyrgyzstan: Livestock		

	development and rangeland conservation tools for Central Asia.		
UK: DFID	Central Asia: Impacts of privatization on range and livestock management in semi-arid Central Asia.		
ADB	Water Resource Management and Land Rehabilitation Locust Control Project Rural Development Strategy		
TACIS	Support to Integrated Marketing System		

IP/DO Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)

3. Lessons learned and reflected in the project design:

The main lesson reflected in project design is the importance to link the objectives of environmental protection with tangible benefits for key stakeholders. Other lessons learned from rural environmental and agricultural operations in the regions and reflected in the proposed project include:

- the early involvement of key stakeholders in project preparation, specifically local communities and influential decision makers, is essential in order to ensure ownership and successful implementation;
- where consumptive use of natural resources is an issue, (e.g., grazing, hunting, and use of agricultural land), resource users must be substantively involved in the design of sustainable resource management systems, and effective monitoring and control mechanisms need to be developed and applied;
- decentralized responsibility for project management (e.g., as in the WB/GEF) builds local ownership and sustainability of project activities;
- although national and local institution do have some implementation capacity, training for project related activities such as procurement, disbursement, supervision, financial management etc. is a must; and
- dissemination of information about the benefits of improved environmental management is critical to the widespread adoption of new technologies and practices.
- successful, geographically targeted natural resource management projects can be replicated provided that interventions are well understood by concerned institutions.

4. Indications of borrower and recipient commitment and ownership:

The Government of Kazakhstan recognizes that a holistic approach combining good agro-pastoral practices and ecologically sustainable land use management is the most efficient way to contribute to reducing land degradation and desertification. The Ministry of Environmental Protection (MEP) and the Ministry of Agriculture (MOA) have jointly requested the World Bank assistance, both technical and financial in their efforts to promote this project. A specific demonstration of commitment is that counterpart funding of $80,000 for the calendar year 2003 has already been allocated in the Republican Budget.

The Government has been actively involved with project preparation from the very outset. It established an Inter-Ministerial Working Group in April 2000, under the chairmanship of MEP, to undertake potential site visits and identify a suitable area, propose possible activities for sustainable rangeland management and agree on institutional arrangements for project implementation, including the establishment and composition of a Steering Committee. The Project Preparation Unit has been successfully working to design the project, has prepared a draft project implementation plan, and at least 22 background working papers (see Annex 8 for a complete list). MEP, MOA, Land Resources Management Agency of the Republic of Kazakhstan, Center for Hydrometeorological Monitoring worked together to design the project, and were supported in their efforts by the necessary authorities. Government is enthusiastic about the proposed project and has already initiated measures to ensure its effective implementation.

Also at local level both beneficiaries and local authorities are committed to the project and have confirmed their contribution to project implementation in cash and/or kind (time, labor, etc.). The local officials in Shetsky rayon, including the Akim (mayor) and deputy Akim have enthusiastically endorsed the project. They have provided easy access to farmers, local officials and women's and other interested groups. Likewise, the Akim of Karaganda Oblast (of which Shetsky is a part) has also welcomed the project.

5. Value added of Bank and Global support in this project:

The principal value added of World Bank support is the experience developed in addressing the links between natural resources management and environmental protection. The Bank also has substantial successful experience in supporting improved natural resource management activities in degraded, semi-arid ecosystems. The experience on implementation arrangements has proved important to deliver results on the ground, thus increasing credibility of interventions.

The principal added value of GEF support comes from providing the necessary funds to catalyze a set of coordinated activities, including technical support and counterpart financing, for a priority which could have been overlooked. The GEF will help leverage funds from donors and stimulate a program to generate a larger impact. In this regard, the Global Mechanism (GM) of the UNCCD has already expressed its commitment for parallel cofinancing with regard to the component on carbon seqestration monitoring and the corresponding public awareness and replication strategy.

E. Summary Project Analysis (Detailed assessments are in the project file, see Annex 8)

1. Economic (see Annex 4):

○ Cost benefit NPV=US$ million; ERR = % (see Annex 4)

○ Cost effectiveness

● Incremental Cost

○ Other (specify)

The incremental Cost Analysis compared the baseline scenario with an the GEF alternative scenario. The baseline scenario includes activities that will promote sustainable land uses in the country even without GEF support. The GEF alternative would provide the means (above and beyond the baseline scenario) for meeting the proposed project's goals. The difference between

the total project cost ($9.7 million) and the cost of the baseline scenario ($4.4 million) provides an incremental cost of $5.3 million, which would funded by the GEF. In addition, a quantification of potential benefits in terms of carbon sequestrated was estimated. See Annex 11 for further details.

2. Financial (see Annex 4 and Annex 5):

NPV=US$ million; FRR = % (see Annex 4)

Fiscal Impact:

According to the project financing plan, summarized in the following table, contributions from the Government of Kazakhstan is $2.4 million in five years, or an average of $480,000 per year. An estimated $880,000 of Government contribution is to refund taxes which will be paid under project activities. Some non-bank-financed project inputs will be in kind (use of public facilities as project offices, state programs on veterinary and research, and other support to farmers). The significant oil revenues of the Government, which has also set aside an "oil fund" to compensate for oil price fluctuations, should allow this allocation by the government during project implementation. The following table summarizes the project financing plan.

Financier	US$ million
GEF	5.2
GOK	2.4
Beneficiaries	1.9
Global Mechanisms	0.1
TOTAL	**9.7**

3. Technical:

Several technical analyses were carried out during project preparation. The main results of such analyses were the following:

- identification of the appropriate technologies and species to revegetate abandoned cereal land,
- identification of technology for multiplying Wheat Grass (*Agropyron desortorum*), Russian Wild Rye (*Psathyrostachys juncea*) Sainfoin (*Onobrychis arenaria*) and the bush Teresken Gray *(Ceratrides pappasa*)
- rehabilitation of water points to improve pasture management, reduce overgrazing nearby settlements, and improve livestock productivity during winter
- the possibility of supporting a tree planting activity was dropped because an analysis proved that the technical risks for such activity would be excessively high
- remote sensing and modelling for estimation and monitoring of carbon sequestration
- technologies to provide empirical measurements on quantity of carbon sequestration
- organization of partnerships for milk marketing
- design of the dissemination and replication campaign

4. Institutional:

The existing Project Preparation Unit, which would evolve into a Project Management Unit, has proven to have sufficient capacity to procure and supervise several consultants at the same time, and act as an efficient link with the Project Steering Committee. After strengthening the field office in the Shetzky Rayon (an effectiveness condition, see chapter G1) the institutional capacity for project implementation at the field and national level will be considered adequate. The project builds on the institutional capacity established through ongoing projects in the country, e.g. USDA interventions on carbon sequestration.

4.1 Executing agencies:

The Government of Kazakhstan designated the Ministry of Environmental Protection as the line Ministry with overall responsibility for project implementation.

4.2 Project management:

Overall project management and oversight will be the task of the Project Management Unit, under the Ministry of Environmental Protection. The Project Manager will divide his/her time between the office in Astana and the office established in the Shetzky Rayon (town of Aksu-Ayuli) thereby providing easy access to beneficiaries, stakeholders, implementing agencies and the necessary government officials both at the national and local level.

4.3 Procurement issues:

Goods and services would be procured according to World Bank procedures. An assessment of procurement capacity has been carried out. See Annex 6 for procurement details under the project.

4.4 Financial management issues:

Financial management arrangements are provided in Annex 6. A preliminary assessment has been carried out. On the basis of this assessment a Financial Management Action Plan has been agreed upon between the Bank and the Government of Kazakhstan. This will bring the FM capacity of the government in line with minimum Bank requirements.

5. Environmental: Environmental Category: B (Partial Assessment)

5.1 Summarize the steps undertaken for environmental assessment and EMP preparation (including consultation and disclosure) and the significant issues and their treatment emerging from this analysis.

The environmental assessment was prepared in early 2002 following initial studies in 2000 by local consultants, visits to some of the project sites by international consultants, consultations and correspondence between international and national consultants and discussion between all interested parties, especially people living in the project area.

In summary the EA determined that the impacts of the proposed project are overwhelmingly positive. The various initiatives should halt the degradation of the land, rejuvenate abandoned and pasture lands, improve biodiversity and carbon sequestration, reduce wind and water erosion and increase soil quality:

1. Large areas of the rangelands and grasslands are deteriorating due to overgrazing close to villages and poor management, including uncontrolled fires, in remoter areas. This has reduced the biodiversity on these lands and there is a steady loss of carbon from the

decreased vegetation cover and from the soils. This is compounded by an increase in wind and water erosion because of these practices. This has resulted in a sharp decline in the carrying capacity of the land with a reduced number of farm and wild animals.

2. The abandoned wheat areas are in poor condition due to preponderance of invasive and unpalatable species. This is preventing the re-establishment of indigenous grassland vegetation. It is also leading to a spread of these aggressive species to other areas, including the remaining cereal areas, accelerated by poor farming practices due to a lack of equipment, capital and other inputs.
3. A number of flora and fauna are under threat as a result of these deteriorating conditions. If little or nothing is done to halt this decline, then the area will slowly degrade and reduce its viability even as pastoral land. Some of these rangelands may eventually reach desert status.

Nonetheless the project could cause minor negative impacts if proper precautions are not taken. Areas containing endangered or valuable species may be neglected if too much effort is focused on the abandoned lands, thus critical bio-diversity could be lost. To counter this, special attention will be given to identifying and protecting such areas. The success of the project can lead to a two and a half fold increase in animal carrying capacity. During the winter period, these animals will be confined to cattle sheds or areas near to the homesteads. Manure handling and disposal could be a concern. Steps will be taken to demonstrate the safe handling and storage of manure and its appropriate use on arable and horticultural areas. If methane production from manure is an environmental concern, methods to mitigate this production could be investigated and demonstrated, such as spreading the dung to reduce the temperature and thus curtailing methane production. Methane extraction in a digester is another possibility, but as this is still in the experimental stage in countries with low winter temperatures, this option will not be pursued at present. Another minor concern is the use of Chemical Control Agents (CCA). While it is planned that the project will not finance the purchase of pesticides or other chemicals to control weeds and insect, farmers in the area may use them. The project will offer environmental training in permitted CCAs, their handling storage and use and the disposal of containers. Alternatives to CCAs will be demonstrated such as integrated pest management (IPM). The training will be conducted by specialists in the environment department of MEP, agricultural departments of the oblast and rayon akimats as well as specialists from the Karaganda University.

The environmental management plan has been formulated in coordination with the farming plan through the promotion of environmentally friendly farming practices. The main thrust of the EMP is to return these areas to productive and sustainable grazing lands. Former cereal land will be reseeded with indigenous grasses and other rangeland species. Invasive plant species will be reduced by various management methods. The management of rangelands will be improved by erosion prevention methods, controlled fire management, reseeding, resuscitating distant watering points and protecting areas containing useful or endangered species. The project will increase shrubs and bushes, particularly fodder species. These environmental initiatives will run in tandem with formal and informal environmental training and demonstration for all sectors of the population. Thus, the EMP will help rejuvenate the area by reducing erosion, reversing degradation, enhancing biodiversity and promoting carbon sequestration. It should act as an example for other dryland areas in Kazakhstan and Central Asia.

5.2 What are the main features of the EMP and are they adequate?

The main features of the EMP will be:

- Undertake baseline surveys of biodiversity and carbon stored in plants and soils
- Monitor all project sites for compliance with best environmental practices
- Take farmers to all demonstration sites and provide them with advice and seek their opinions.
- Run training courses for project staff and farmers on the implications and application of the EMP, on integrated pest management
- Encourage schools to undertake inventories of flora and fauna
- Undertake a survey of bio-diversity 'hotspots' and take measures to protect them
- Encourage schools to seek out and protect areas of natural beauty or important bio-diversity sites
- Collaborate with the Ministry of Education to enlarge environmental education in schools
- Encourage shrub planting in areas prone to erosion and to encourage water infiltration
- Promote private nurseries to provide shrub seedlings/cuttings for the project and for sale
- Support the use of renewable (wind) energy to supply water for cattle in remote locations. In relation to this, monitor the ground water around the wells to ensure it is not being depleted

5.3 For Category A and B projects, timeline and status of EA:
Date of receipt of final draft: February 2003

An environmental assessment of project activities has been made and mitigation measure to address possible environmental impacts have been agreed. These are shown in Annex 11.

5.4 How have stakeholders been consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed environment management plan? Describe mechanisms of consultation that were used and which groups were consulted?

From project identification there has been close consultation with the local administration and farmers in the selected project area. This will be an ongoing activity throughout the project implementation.

During the first stage of preparation a baseline survey was carried out. The survey was conducted in two stages. First, rapid rural appraisals were carried out in 11 villages during which in-depth interviews were made with two key people in each village. Subsequently, randomly selected heads of peasant farms, and heads of households were interviewed in depth. Also, two villages were chosen for holding focus group discussions; one in Aksu-Ayuly, the headquarters of the Shetsky district, and the second in Kzyltau, Akmolinski district, which is much more remote. Two focus groups were held in each village, the first comprising members of budgetary organizations, the second with heads and members of peasant farms.

Individual local consultants are also working closely with farmers and rural households in the process of understanding the present systems of agriculture and preparing proposals for the project activities. Many farmers have already agreed to use their land for demonstration purposes. Once the project will be under implementation, it is envisaged that many more farmers will enroll. Out of the 585 peasant farms, it is estimated that at least 400 will volunteer for some kind of project activity.

5.5 What mechanisms have been established to monitor and evaluate the impact of the project on the environment? Do the indicators reflect the objectives and results of the EMP?

A detailed system to monitor project impact on the environment has been developed. This includes baseline surveys, demonstration plans and monitoring programs for biodiversity, carbon sequestration, soil quality, manure handling, and 'best farming' practices. Soil testing will be undertaken and ground water monitored around the wells as laid out in Annex 11. Environmental Management Indicators are reflected in the EMP. These meet the objectives and goals of the Project and comply with international standards.

6. Social:

6.1 Summarize key social issues relevant to the project objectives, and specify the project's social development outcomes.

A baseline socio-economic survey at the village level has been conducted in the project area. The Bank-cleared questionnaire was first tested in pilot interviews in six villages. It was decided to split the interviews into two groups, one covering heads of peasant farms, the other heads of individual households. In each case a random sample of 102 individuals was selected Focus groups were also held in two villages – one at Aksu-Ayuli, the district headquarters, the other in a more remote village which included both men and women in the project area. See Annex 14 for a description of the project area, comprising a summary of socio-economic survey results. The survey evinced the following:

- farmers were keen to move from the crop-based production system to the traditional livestock-based production system. The social feasibility of such a change is based on the fact that all farms already had some ongoing livestock activities. However, the survey drew the attention to the risk of return to the crop-based system in case of significant short-term increases in crop prices. This induced the project design effort to better addressing marketing of livestock products.
- farmers agreed with the suggestion of creating farmer partnerships. The project plans to help farmers to organize six partnerships around the milk collection points.
- information on the availability and quality of machinery confirmed that farmers can effectively participate in project activities and allowed the development of a procurement plan to purchase only the necessary machinery taking into account farmers' possibilities
- farmers expected the Government to assist with seeds, fuel, spare parts and other "subsidies" (as during the Soviet period). To reduce this expectation, the survey recommended the development of a strong communication campaign under component four-public awareness program.
- the importance of integrating women into project activities; the project encouraged women's participation in the planning, design and implementation of project activities to increase impact and ensure success.

6.2 Participatory Approach: How are key stakeholders participating in the project?

During project preparation, key stakeholders, individual farmers, farmer organizations, NGOs, and local officials have been fully consulted in the development of detailed project components. As women are deeply involved in productive labor, such as livestock tending, the project sought to ensure the involvement of women in project preparation. According to the project financing

plan, beneficiaries should contribute to almost 20% of project costs.

6.3 How does the project involve consultations or collaboration with NGOs or other civil society organizations?

Project preparatory activities have been undertaken with full involvement and participation of government counterparts, various research institutions, NGOs and relevant civil society organizations. Extensive consultative meetings were held during project preparation and the input of these groups have helped in the outcome of project design.

6.4 What institutional arrangements have been provided to ensure the project achieves its social development outcomes?

The Project Management Unit will ensure participation of beneficiaries in the implementation of the project. The PMU will monitor and evaluate project progress and measure the impact of project activities against the socio-economic baseline survey undertaken during project preparation. The PMU will undertake a systematic analysis of the impact and achievements of project activities and the results of the M&E activities will be fed back into the implementation process.

6.5 How will the project monitor performance in terms of social development outcomes?

Monitoring will be based on the baseline survey undertaken during preparation phase of the project. Extensive data from communities and villages has been collected and the Project Preparation Unit has developed performance indicators based on Annex 1. A monitoring and evaluation system that will include social indicators has been developed by the PMU which will annually monitor and evaluate project performance through conducting beneficiary surveys. The project will also monitor access to benefits at the household level - in total and disaggregated by gender and age. The results of M&E activities will be fed back into the implementation process as improved practices. A mid-term review will be carried out to assess overall progress. Lessons learned, with recommendations for any improvements, would be used in restructuring the project, if necessary.

7. Safeguard Policies:

7.1 Are any of the following safeguard policies triggered by the project?

Policy	Triggered
Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)	● Yes ○ No
Natural Habitats (OP 4.04, BP 4.04, GP 4.04)	○ Yes ● No
Forestry (OP 4.36, GP 4.36)	○ Yes ● No
Pest Management (OP 4.09)	● Yes ○ No
Cultural Property (OPN 11.03)	○ Yes ● No
Indigenous Peoples (OD 4.20)	○ Yes ● No
Involuntary Resettlement (OP/BP 4.12)	○ Yes ● No
Safety of Dams (OP 4.37, BP 4.37)	○ Yes ● No
Projects in International Waters (OP 7.50, BP 7.50, GP 7.50)	○ Yes ● No
Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)*	○ Yes ● No

7.2 Describe provisions made by the project to ensure compliance with applicable safeguard policies.

An environmental assessment was carried out, and this formed the basis of the Environmental Management Plan (see para. 5 above). The EMP makes provisions to ensure compliance with the EA safeguard policy.

Pest Management. Although farm input use is the farmers' responsibility, the project will use this opportunity to assist farmers to use these inputs in a more safe and responsible way. The project does not plan to finance the purchase of Chemical Control Agents (CCAs) although farmers will continue to use some CCA for their regular farming activities during the life of the project, especially for the control of locusts and hessian flies. The Government of Kazakhstan has recently upgraded its management of the control and oversight regarding use of pesticides with the help of FAO (FAO/TCP/KAZ 0065 (E) "Emergency Program for the Control of Locust Outbreaks"). A new Department of Plant Protection and Quarantine (DPPQ) was established in the Ministry of Agriculture by the Government of Kazakhstan. The project will build on this development. All farmers that use or will use CCA on their lands will be trained in the storage, handling and use of these chemicals as well as with respect to the careful disposal of the containers. The use of appropriate clothing will be encouraged through demonstration. The approved chemicals used are pyrethroids (Kinmix, Fury, Karate), phenyl pyrazoles (adonis) and benzoyl ureas (Dimilin) - all class III chemicals. Farmers may also use chemicals for the control of ticks and other parasites. These farmers will be included in the training in risk preventing; and in the handling, storage and use of control agents. Participating farmers are expected to develop pest management plans that indicate the expected pests and corresponding anticipated control methods.

The project intends to explore alternative methods to chemicals, such as disease-resistant strains (from local wild varieties) and integrated pest management will be demonstrated. Local people may know of natural predators and plants with naturally occurring insecticide properties: such indigenous knowledge should be tapped.

F. Sustainability and Risks

1. Sustainability:

The project has been prepared at the request of the Government. The Government recognizes that a holistic approach combining good agro-pastoral practices and ecologically sustainable land use management is critical to ensure improvements to land degradation and threats of desertification. For this reason, the project, with full participation of relevant ministries, government agencies and local populations has been developed using an integrated ecosystem management approach which will ensure long-term sustainability of project activities.

To ensure institutional sustainability, the PMU will be located in Aksu-Ayuli during part project implementation which will help bring project management to the local level. The MEP and MOA at the national level as well as the local government, agencies and farming communities are in full support of the project and were actively engaged in project preparation. Several scientific institutes, such as the Grain Research Institute, Soils Research Institute and the National Production Center for Land Management which have strong institutional capacity and a proven

track record at the county level will share responsibility for project implementation at the field level and will thus ensure sustainability of the project. To ensure social sustainability, the project has emphasized the early
involvement of key stakeholders in project preparation and implementation, including policy makers,
local public officials and community leaders, farmers, their associations, NGOs. Such involvement will
create a sense of ownership and contribute to social sustainability. In addition, the project would benefit
the farmers by promoting cost-saving yield-enhancing agricultural practices as well rehabilitation of
degraded pastures and grasslands which have the potential to open new markets for the local farmers and
raise household incomes. Such project interventions will ensure financial sustainability. Environmental
sustainability is the key element to project design.

1a. Replicability:

The GEF will not provide additional funds for replication of project interventions outside the project area, except funding a replication strategy to disseminate project benefits. As a result, the catalyzer to provide financial incentives during the initial period of limited private benefits will be missing. Therefore to replicate project activities outside the pilot it will be necessary to identify other sources of similar financial incentives.

During analysis with different counterparts, it was considered realistic that once the medium-term local benefits of the project supported practices are proven, the Government is likely to be willing to put in place the appropriate incentives to encourage widespread adoption of the land use practices supported under the project. Indeed even in the current 2003-2005 agro-food program, state support and subsidies are targeted to those farmers who adopt sound environmental practices (such as conservation tillage where suitable).

Project's activities have been developed to maximize the potential for replicability. A specific component on replication strategy has been developed under the project whereby a public awareness and communication campaign on project activities and benefits will be undertaken to generate interest for replication of project interventions both within and outside Kazakhstan, in countries with similar dryland ecosystems. This will be achieved through national and regional workshops, field trips, training, publication in international agriculture and environmental journals and other similar activities. Such replication activities will be concentrated in the last three/four years of project implementation when there are tangible results on the ground. In addition the project location -- along the Almaty-Astana road -- was selected to increase potential for replication as the site is easily accessible for demonstrations.

2. Critical Risks (reflecting the failure of critical assumptions found in the fourth column of Annex 1):

Risk	Risk Rating	Risk Mitigation Measure

From Outputs to Objective		
Pilot will not be successfully completed	M	Detailed pilot design, with contribution of several experienced national and international agencies
Replication will not be successful (within Kazakhstan and/or in the region)	S	A project component has been designed to specifically address this risk. Potential use of carbon trading and/or availability of oil revenue should facilitate replication of a successful pilot (at least in Kazakhstan.)
Unstable climatic conditions	M	The five years implementation period should allow for some flexibility if climatic conditions prove unusual for one or two years
From Components to Outputs		
Farmers are less willing than planned to accept suggested practices	M	A careful assessment of social feasibility of suggested practices was carried out. The main suggestion was to invest on a public awareness campaign directed to the project beneficiaries
Lack of funding particularly from the private sector	M	Communication campain to ensure involvement of the new Agricultural Credit Partnerships, donors, akimat, and marketing enterprises contribution.
Implementing agencies may be unable to attract and retain qualified staff especially in the field and laboratories.	M	Project will provide training and career development benefits and work towards establishing loyalty in this professional field.
Unsuccessful bush and shrub plantings due to harsh climate	M	Care taken to select indigenous species that grow in the project's agro-climatic zone. Chosen species financially beneficial.
Overall Risk Rating	M	

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N(Negligible or Low Risk)

3. Possible Controversial Aspects:

None

G. Main Conditions

1. Effectiveness Condition

None

2. Other [classify according to covenant types used in the Legal Agreements.]

Board Presentation. Final customization and complete implementation of the accounting software system, including full English language capability, automation of Financial Monitoring Reporting (in accordance with Bank requirements) and final run test

Dated covenants. Hiring of a suitable Financial Management Specialist based in the Shetzky

rayon (district) to separate Financial Management and Procurement responsibilities (currently covered by one consultant) by October 31, 2003.

H. Readiness for Implementation

☐ 1. a) The engineering design documents for the first year's activities are complete and ready for the start of project implementation.
☒ 1. b) Not applicable.

☐ 2. The procurement documents for the first year's activities are complete and ready for the start of project implementation.
☒ 3. The Project Implementation Plan has been appraised and found to be realistic and of satisfactory quality.
☐ 4. The following items are lacking and are discussed under loan conditions (Section G):

I. Compliance with Bank Policies

☒ 1. This project complies with all applicable Bank policies.
☐ 2. The following exceptions to Bank policies are recommended for approval. The project complies with all other applicable Bank policies.

N/A

Maurizio Guadagni	Marjory-Anne Bromhead	Dennis deTray
Team Leader	**Sector Manager/Director**	**Country Manager/Director**

Annex 1: Project Design Summary

KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

Hierarchy of Objectives	Key Performance Indicators	Data Collection Strategy	Critical Assumptions
Sector-related CAS Goal: Rural poverty alleviation	**Sector Indicators:** Improved incomes of project beneficiaries Diverse income sources	**Sector/ country reports:** Agricultural and environmental statistics; field reports	**(from Goal to Bank Mission)** Successful completion of the pilot
Protection of the environment	Successful replication of the pilot	Monitoring system of the replication strategy component	Successful implementation of the replication strategy; Continued economic growth
Project Development Objective: To demonstrate and promote sustainable land uses in the marginal dryland ecosystem of a pilot area in the Shetsky rayon	- Number of hectares under sustainable use - Increase in number of livestock (from 35,000 animal equivalent units to 70,000) - Income increase	Agricultural and environmental statistics; project monitoring reports Household surveys	Farmers are willing to accept proposed practices
GEF Operational Program: GEF Operational Program 12, "*Integrated Ecosystems Management"* which is aimed at catalyzing widespread adoption of comprehensive ecosystem interventions that integrate ecological, economic, and social goals to achieve multiple and cross-cutting local, national and global benefits. OP 15: Land Degradation Control which emphasizes sustainable land management.	**Outcome / Impact Indicators:** Successful demonstration of the alternative land use systems, proving the economic and social feasibility of livestock-based production systems in similar ecosystems	Project monitoring system	Social and economic feasibility of the reconversion from a cereal cropping system to a livestock system

Global Objective:	**Outcome / Impact Indicators:**	**Project reports:**	**(from Objective to Goal)**
Increased carbon sequestration to mitigate climate change	The target of 0.6 million tons of CO2 sequestrated over 20 years	Quantification of carbon sequestration component	
Knowledge on quantification of carbon sequestration	New empirical data on carbon sequestrated in soil and biomass in the continetal steppe ecosystem		Stable climatic conditions (no incurrence of extraordinary droughts during project implementation)
Halting and/or reversing land degradation and the threat of desertification.	Reduced land under ploughing and increased rangelands Increased vegetative cover Increased carrying capacity of the land	Project reports Topographical reports Economic reports Project monitoring system	
Biodiversity conservation by improving and protecting the native flora and fauna of the region	Increased biodiversity in the region Increased sustainability of threatened species	Biodiversity monitoring reports from observation under the seventeen monitoring sites	
Reduced soil erosion	Reduced grasshopper infestations		
Output from each Component:	**Output Indicators:**	**Project reports:**	**(from Outputs to Objective)**
1. Development of Sustainable Land Use Systems			Active collaboration of farmers
Direct seeding on abandoned lands	At least 70% of the target of 10,000 ha is achieved	Project monitoring and reporting system	The Ministry of Environmental Protection has the capacity to implement the project
Seeding using conservation tillage	At least 70% of the target of 10,000 ha is achieved	as above	
Acceleration of natural vegetation	At least 70% of the target of 20,000 ha is achieved	as above	Project incentives are sufficient to motivate

	Validation and demonstration of new technologies in four demonstration plots		farmers to participate in the project
Management of Degraded Rangelands and Pasturelands	Installation of 40 water points in the project area Reduced overgrazing by at least 70% of current levels Increased livestock numbers	as above	
2. Initial Service Support to Producer Groups			
Improved access to market of livestock products	Creation of market in Aksu-Ayuli Establishment of marketing associations	Project monitoring and reporting system	Marketing systems and prices offer sufficient incentive to producers and processors
3. Quantification of Carbon sequestration	New knowledge to quantify and monitor carbon sequestration	Project monitoring and reporting system	Collaborating institutes are effective in implementing project activities.
4 . Replication Strategy and public awareness	Increased awareness and knowledge of sustainable livestock-based production system at local, national and regional level Replication of project interventions within Kazakhstan and other countries of Central Asia	Number of dissemination events: local workshops, conferences, publications recorded by the project monitoring system Project monitoring system Project Steering Committee World Bank supervision	
5. Project Management	Timely implementation of procurement plan Project monitoring and reporting system working effectively	Project monitoring system and World Bank supervision World Bank supervision and Steering Committee	Timely availability of counterpart funds Support from local and national authorities

Project Components / Sub-components:	**Inputs: (budget for each component)**	**Project reports:**	**(from Components to Outputs)**
1. Development of Sustainable Land Use Systems	$5.53 million	Disbursement tables	Effective project management
2. Initial Service Support to Producer Groups	$1.28 million		Timely availability of counterpart funds
3. Quantification of Carbon sequestration	$1.31 million		
4 . Replication Strategy and public awareness	$0.85 million		
5.Project Management	$0.73 million		

Annex 2: Detailed Project Description
KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

By Component:

Project Component 1 - US$5.53 million

Development of Sustainable Land Use Systems.

This will include:

1.1 *Revegetation of Abandoned Cereal Lands* – (a) direct seeding with perennials; (b) seeding program using conservation tillage, and (c) assisting farmers with acceleration of natural revegetation.

1.2 *Management of Degraded Pastures and Rangelands* including – (a) improvements to natural pastures and rangelands; (b) biodiversity monitoring; (c) provision of livestock watering points; and (d) monitoring of livestock enterprises.

1.3 *Validation and demonstration of new technologies*.

1.1 Revegetation of Abandoned Cereal Lands

1.1.1. *Revegetation of Abandoned Cereal Lands through Direct Seeding and Seeding using Conservation Tillage*

The project will revegetate about 20,000 ha of abandoned cereal lands as follows: on the fields recently removed from crop production, the project will provide direct seeding of perennial grasses (10,000 ha); fields abandoned more than three but less than ten years ago and which are under scattered unpalatable species of weedy plants, will be seeded with perennial grasses using conservation tillage (10,000 ha). The project will start the program in three sub-districts (Aksu-Ayulinsky, Shetsky & Koktenkolsky) in 2003/04 and cover all eleven districts by 2006/07; see table below:

Area to be Reseeded

	PY1	**PY2**	**PY3**	**PY4**	**PY5**
Area sown/year (ha.) – direct seeding	500	1500	2500	3000	2500
Area sown/year (ha.) – conservation tillage	500	1500	2500	3000	2500
Total Area revegetated (ha) - cumulative	1,000	4,000	9,000	15,000	20,000
No. of districts - cumulative	3	7	11	11	11
Number of farms -cumulative	10	40	90	150	200

Technical aspects: It is possible to rehabilitate these abandoned cereal lands into hayfields and pastures containing adapted and nutritive species of perennial grasses. Depending on the

landscape and weather conditions, the suggested alternatives can yield from 800-3000 kg dry matter/ha. The main species to be sown will include Wheat Grass (*Agropyron desortorum*), Russian Wild Rye (*Psathyrostachys juncea*) and Sainfoin (*Onobrychis arenaria*). Other revegetation options will be tested under the trial/demonstration program (see section 1.3 below). Seed supplies will be contracted from several sources including, initially, the Karaganda Agricultural Research Institute and private farms known to have seed stocks. The project will give priority to developing seed production on a contractual basis with individual farmers. Seeds will be tested for germination and purity by the Ministry of Agriculture, Seed Inspection Unit.

Criteria for Selection of Farmer Participants: Farmer participants in the revegetation program will need to meet the following criteria:

(i) Main income is from agriculture;

(ii) The farm has unused, abandoned land and appropriate agricultural machinery (or able to access machinery on a custom hire or sharing arrangement), together with a livestock enterprise capable of using additional fodder and/or a demonstrated capacity to sell hay;

(iii) Willingness to sign an agreement under which (a) in return for grant of up to 75% of the cost of reseeding they will provide 25% of the costs in kind, and (b) will commit themselves to subsequent maintenance of the re-sown fields and utilization through livestock.

An initial survey carried out with the assistance of local Akimats indicates that some 152 farmers in the project area meet the above criteria and are interested in participating in the project. The PPU is in discussion with several of these farmers on the revegetation program for 2003. It is expected that up to 200 farmers will participate by the end of the five-year program. In addition, other, larger farmers would be expected to undertake these activities on their own account.

1.1.2. *Revegetation of Abandoned Cereal Lands Through Acceleration of Natural Revegetation*

For lands abandoned more than ten years ago and currently under substantial natural revegetative cover, the project will promote a program to accelerate natural revegetation (10,000 ha). The main elements of the program will include seeding of bare areas, use of phosphate fertilizer to encourage development of legumes and minor mechanical operations to encourage infiltration of precipitation. The program is expected to build as follows:

Area of Ploughed Lands for Acceleration of Natural Revegetation

Project Year (PY):	**PY1**	**PY2**	**PY3**	**PY4**	**PY5**
Area – ha/year	250	750	2500	3000	3500
Total Area – ha (cumulative)	250	1,000	3,500	6,500	10,000
No. of districts (cumulative)	3	7	11	11	11
Number of farms (cumulative)	3	10	35	65	100

Implementation Arrangements: Farmers participating in the revegetation and acceleration of natural revegetation program will receive a grant (in kind and cash) equivalent to approximately 75% of the total cost of establishing new grasslands. In-kind contribution will include fuel and

seed which will be provided up-front. The cost of fuel and seed is equivalent under the two scenarios set out above is 30 – 38% of the establishment costs. An additional cash payment of about $7 per hectare in the case of direct seeding into stubble and $17.60 in the case of conservation tillage, will bring the total value of the project support to about 75% of costs. After allowing for the in-kind contribution of farmers in subsequently maintaining the grasslands in the first two to three years, the farmer share of the cost of rehabilitating abandoned lands rises to 30 – 40% of the total. Technical assistance for the acceleration of revegetation would be provided by the Forage Research Institute. Participating farmers will receive fuel, seed and fertilizer requirements in kind up-front. An additional cash payment of about $4 per hectare will bring the total value of the project support to about 75% of costs.

Seed production for the Revegetation Program (Working Paper 14)
The project will support the development of a seed production system from Project Year 3 (PY3) for the production of good quality seeds of *Wheatgrass, Russian Wild Rye* and *Sainfoin* to supply the revegetation program. The PMU will contract farmers for multiplying seed and will supply them with elite seed obtained from Central Kazakhstan Agricultural Research Institute (CKARI), Karaganda. The seed produced on contract would be tested for germination, physical purity and moisture at the Ministry of Agriculture Seed Inspection Laboratory, Karaganda, and certified accordingly, prior to distribution to farmers participating in the revegetation program. Initial requirements of elite seeds for PY1 and PY2 will be obtained from CKARI.

Cost of production for wheatgrass seed is estimated at the equivalent of about 32 US cents/kg, or 38 US cents/kg after adding a 20% for farmers' management and mark-up. For Russian Wild Rye and Sainfoin the costs with mark-up are estimated at 48 US cents/ kg and 40 US cents/kg, respectively.

1.2 Management of Degraded Pastures and Rangelands
This component would comprise the following activities: (i) introduction of shrubs; (ii) actions to stimulate growth of existing species of shrubs; (iii) monitoring of bio-diversity; (iv) installation of livestock watering points to reduce grazing pressure; and (v) monitoring of livestock enterprises.

1.2.1 *Improvements to Natural Pasture and Rangelands*
This sub-component will include the following activities: (a) to increase productivity of degraded pastures and rangelands, belts of drought-resistant forage plants (mixture of *lucerne* and *wheatgrass* alternated with *sainfoin)* will be planted on 10,000 ha; (b) to reduce grazing pressures around villages, the project will restore abandoned watering points in distant pastures, including establishment of 40 windmills using renewable wind energy to enable cattle to be summered on more distant pastures. Windmills will provide both elevation of water and the electricity for the farm in remote area. These measures will provide watering sources to 53,860 ha of pastures. The cost of establishment of equipment of one cattle watering point is estimated at US$5,446; (c) to protect watering points, shrubs such as Teresken Gray *(Ceratrides pappasa*) will be planted which will also provide additional biomass and improve snow accumulation (9,000 ha). In addition to promoting shrubs, the project will provide phosphate fertilization to stimulate legume development and grazing management. The interventions in this program are

being developed in collaboration with the Forage Institute, Almaty.

1.2.2 *Bio-diversity Monitoring*

The project would provide for the documentation of the current bio-diversity in the project area and regular monitoring over five years. For biodiversity monitoring, 500mx500m plots will be selected. These plots will be representative of the diversity of habitats and main types of soil and vegetation within the pilot project area. Specifically, the project will: (i) underake an assessment of the current biodiversity in the Shetsky rayon; (ii) develop maps of soil and vegetation cover to develop land cover classification; (iii) undertake biodiversity monitoring at selected key sites; (iv) define the physiological and ecological parameters of vegetation for carbon sequestration; and (v) prepare recommendations for biodiversity preservation. This will include field surveys at seventeen monitoring sites of the project area, analyses of results of biodiversity monitoring at the key sites with historical data, analysis of reasons for biodiversity loss, development of actions to preserve biodiversity for specific sites of the project area and creation of maps with types of biodiversity recommended for preservation in the problem sites. The PMU would contract the laboratory of geo-botany of the Botany and Phyto-introduction Institute (Almaty) to carry out the monitoring program.

1.2.3 *Livestock Watering Points*

Distant pastures are under-utilized because of, inter alia, a lack of watering points. Many wells in remote locations are in disrepair and there is a lack of electricity and other services. The project would provide for the installation of up to 40 water-pumping sets in remote locations using renewable wind energy. By demonstrating that wind energy can be used to pump water for farm animals and human needs and provide a limited amount of electricity for lighting and appliances, farming families may be willing to use remoter pastures and thereby increase their earning capacity. Renewable energy is environmentally friendly and can be used in place of diesel pumps. These sites will also be used to plant perennials round the watering points and round the residencies, using the well water to establish the plants in the early years. The PMU would contract an engineering company to carry out the installation program. Large farmers would be expected to provide some of the civil works costs.

1.2.4 *Monitoring of Livestock Enterprises*

An information and recording/analysis system will be set-up on about 20 participating farms to document the impact of the project actions on livestock production and farm incomes (Working Paper 5). The results of this recording system will be fed back to farmers participating in the project to encourage improved livestock management and realization of benefits from additional fodder supplies. The data available should lead to a better understanding of the dynamics of the livestock production systems in the area and, ultimately, provide information to support applications for loans.

1.3 Validation and Demonstration of New Technologies

It is proposed to organize agronomic trials within four demonstration zones which represent large agro-climatic areas of the project territory. The main objective is to demonstrate the various methods available to plant perennial and annual grasses, manage rangelands and accelerate natural revegetation at the lowest cost with the best return. The PMU will sub-contract the

design and supervision of the trial and demonstration program with a research institute. The options are the Grain Institute at Shortandy, Karaganda Agricultural College or the Agricultural Research Institute, Karaganda. The selected institute would be required to locate a technician in the project area to manage the field operations. Also, given the run-down state of farm machinery and equipment in the Shetsky Rayon, it will be necessary for the project to finance the acquisition of selected items of farm machinery for the on-farm trial and demonstration program. This machinery will be held at Aksu-Ayuli and will be under the control of the institute contracted to carry out the field trials and demonstration program.
(See Working Paper 4 for details)

1.4 Financing

The component will be financed by the GEF, project beneficiaries, and the Government of Kazakhstan.

Project Component 2 - US$1.28 million

Initial Service Support to Producer Groups

This component will provide free agricultural inputs to assist farmers in the project area to "get started." This will allow a smooth transition to the improved practices which proposed under the project. Although in the long run such practices will likely result in both income generation and global environmental benefits, in the short run they do not produce benefits, and could also cause a loss. This component will help off-set this loss and provide incentives to producer groups to adopt the proposed practices.

2.1 Assistance to Producer Groups for Marketing Livestock and Agricultural Products

The project will assist farmers to form Producer Partnerships for facilitating access to markets for the increased milk and meat production expected from the availability of better feed and improved livestock management. The development of farmer-managed, local market outlets will add value to farmers' production, raise farm incomes, and allow farmers to invest in order to increase volumes and quality of production to meet effective demand and quality standards.

Specifically, the project will assist farmers to:
(i) establish village milk collections centers;
(ii) establish a regional agriculture market for meat, wool and hides, and other farmer produce from the Shetsky region;
(iii) establish local producer partnerships to own and operate the milk collection centers and agriculture market; and
(iv) develop value added production and processing projects in sectors where there is an opportunity to create addition demand for village produce.

Project support for marketing activities will take place in two phases. The *first phase* (PY1) will establish pilot market linkage/marketing projects to create a model and methodology that can be replicated initially in the project area and ultimately in other parts of Kazakhstan and Central Asia. *Phase two* of the marketing support (PY2-5), will refine the design of marketing activities using lessons learnt, expand to additional projects, and implement value added activities that help the agriculture enterprises meet effective demand, thereby creating new markets for small, family

farmers.

2.1.1 *Milk Collection Centers*

In *Phase I* (PY1) of the project, two milk collection centers will be established in separate rural sub-districts of the Shetsky region - Koktenkol and Nura-Taldi which have been chosen based on the potential for quick, widespread impact and commitment from local and regional stakeholders (local and regional government and private farmers and agribusinesses). An additional four centers will be set up in *Phase II* (PY2-5) of the project. The milk collection centers will collect raw milk from private farmers, test and temporarily store milk, and sell it to local dairies. The cost of equipment for the milk collection centers will be shared between the Balkhash-Sut, the private dairy plant and the farmer partnerships who will receive funds from the project for this.

Benefits: Producer Partnerships owning and operating milk collection centers will benefit in the following ways:

- local organization capacity to sell increased volumes of quality milk to private dairies for cash;
- increase in family farm income;
- economically viable to increase number of dairy cows;
- creation of new jobs in the village;
- new farming and management techniques; and
- new supplies, equipment and technology available to farmers.

2.1.2 *Marketing of Livestock, Meat, Wool, Hides and Hay*

An agriculture market will be set up in Aksu-Ayuli to sell agriculture products from private farmers in the region. Aksu-Ayuli has been chosen as the location because it is centrally located, making it more efficient to point to collect and sell farmer produce. The location of the selected site is just 100 meters from the Almaty-Astana highway. This provides a very visible and accessible location for suppliers (family farms) and wholesale buyers. Development of the market will take place in two stages. During the initial stage, wool, hides and hay will be collected, stored and sold. The second stage will add livestock and other small farmer produce.

2.2 Livestock and Crop Husbandry Advisory Services for Farmers

The project will provide training and technical assistance to promote the development of the *Local Dairy Producer Partnerships and Agriculture Market Partnership* to handle marketing of hay, milk, and livestock products. The Project Technical Council will arrange training in all aspects of setting up a market, including legal issues involved, supplier relations, transportation, sales, marketing as well as financial management, accounting and record keeping by hiring the consultant company. In view of the fact that over 85% of the country's population does not have special agricultural education, there is a need for a training program in more progressive methods of alternate sustainable livelihood. The project would provide for on site three-day training sessions and one-week seminars for a total of up to 500 people at local level. The seminars and training would coincide with the time of demonstration work in the field, so as to show trainees practical illustrations of suitable to local conditions. Local trainers and projects leaders will participate in the training of trainer programs. Training will also include field/site visits to similar enterprises operating in other areas of Kazakhstan and CIS countries. The details of the training

program are presented in the Working Paper 9.

2.3 Financing

The component will be financed by GEF, project beneficiaries and the Government of Kazakhstan.

Project Component 3 - US$ 1.31 million

Quantification of Carbon Sequestration

This is a target research activity which is designed to provide empirical data on carbon sequestered by the proposed technologies. Currently there are no empirical data on the carbon sequestrated by pastures in steppes ecosystems in continental climates. This created significant difficulties in estimating the potential carbon sequestration of the proposed technologies in such eco-systems. The research effort would be instrumental in identifying the land use management under which sequestration of carbon would be maximum. A quantification of carbon held in soil and vegetation, together with monitoring of carbon sequestration magnitudes and dynamics in the project area, will form a basis for providing reliable estimates of carbon sequestration potential in other parts of Kazakhstan and Central Asia. Thus, this project can play a pivotal role, not only in Central Asia, but globally, in the development and implementation of an effective carbon monitoring and management system.

Two main activities are proposed under this component:
Carbon Stock Assessment: Carbon stock (carbon in soil and vegetation) quantification and monitoring. Soil and geo-botany specialists will provide information on existing carbon stock in soil and vegetation under present land use management in four representative project sites. They will continue to monitor the area during the life of the project and provide information on the changes occurring in the carbon stock in soil and vegetation during project interventions. Carbon stocks will be monitored also in areas without project intervention, to quantify the effects of the proposed technology.
Remote Sensing and Modeling: Scaling up of site-specific carbon in soil to the level of the project area, and extrapolating the results to similar areas within Kazakhstan for replicability and the prediction of carbon stock changes under alternative management options. Using satellite imagery, the findings from the sample fields will be scaled up to the entire study area. Since it is estimated that carbon sequestration will continue for 20 years, during its 5 years of implementation the project will not be able to monitor the whole period. Therefore the project will use existing models such as CENTURY to predict carbon sequestration after project completion. Thus the project will engage in research, first relying on conservative forecasts from models to predict carbon sequestration, then adjusting these forecasts upward or downward in light of empirical data. Parameterization of the CENTURY model will be undertaken. Such remote sensing and modelling will be instrumental in identifying the land use management that has the highest potential for carbon sequestration as well as that which would be most economical as well as environmentally feasible, i.e. benefit stakeholders and achieve maximum carbon sequestration.

The project will be conducted in three phases representing different scales for the assessment of soil carbon sequestration. During **Phase I**, a pilot study will be conducted to primarily collect

ground data from selected sites representing different land use types and calibrate models from that through remote sensing which will be used in all phases of the project. In **Phase II,** the study will be extended to the Shetsky Rayon where knowledge acquired in Phase I will be subsequently applied. The regional carbon balance and soil carbon sequestration will be assessed for the Rayon. **Phase III** will test the models developed in Phases I and II on other territories within Kazakhstan and the results will be extrapolated to other similar ecosystems in the region.

3.1 Financing

The component will be financed by the GEF, the Global Mechanism, project beneficiaries and the Government of Kazakhstan.

Project Component 4 - US$0.85 million

Replication Strategy and Public Awareness

4.1 Replication Strategy

The component would carrying out a replication strategy and a public awareness and capacity building activities at the local (Shetsky Rayon), national and regional level. Capacity building at the national level would include disseminating the benefits of newly introduced technologies such as carbon sequestration, biodiversity conservation, sustainable increase of income. The Project Management Unit would undertake such activities in active collaboration with local and national agencies, including NGOs. The project will target the following stakeholder groups:

Primary Stakeholders	Institutional Stakeholders	Other Stakeholders
Individual farmers	Local agencies: Department of Agriculture, Akimat	Mass media
Farming Partnerships	National authorities: Research Institutes, Politicians	NGO'S
Local public officials and community leaders	Regional Institutions:	International Donors: GEF, GM
Local householders		

Public awareness campaign at local level: At the Local Level the public awareness campaign will define the problems and solutions of the project site and make clear the role of the different stakeholders in the project. The project will develop a three-step approach to the public communication strategy and a layering of the message so that the targeted audiences recognize the importance of adopting environment-friendly land use systems for the life of their communities, and all agencies involved as credible and expert resources. The first step involve the identification and recruiting of experts, preparation of materials, etc. The second step will be an informational campaign aimed at raising the interest of the target groups, while the third step will reinforce and consolidate the behaviors suggested and concentrate on replication efforts based on the results achieved.

Public awareness campaign and replication strategy at national level: A broad, nationwide public information campaign will be undertaken to disseminate the benefits of proposed project activities. One of the objectives of the public awareness plan is leveraging or extending the efforts and impact of this public education effort by pro-actively enabling other entities to

connect to this plan and utilize its concepts and messages in their communications efforts. The delivery of the national media campaign will be done by a specialized PR/Media Agency to be contracted under the grant. The Ministries of Environmental Protection and Agriculture will organize additional PR activities and events.

At the **local level**, the project will build capacity in environment-related technical farming skills, in developing alternative income-generating activities in the villages, as well as in community level management of the environment. At the **national level**, the project will build capacity to better manage environmental issues, while at the **regional level** (Turkmenistan, Uzbekistan, and Mongolia, and to a lesser extent Russia and China) the project would promote an inter-change of experiences and thus build capacity in dealing with problems of land degradation in the region.

The project would provide for the organization of regional workshops, field trips, training, publication in international agriculture and environmental journals and other activities to promote replication of project activities in other countries in the region. The pilot activity will aim to serve as a model to be replicated in these countries, which will help contribute to a reduction in desertification and increased carbon sequestration. These activities will be concentrated in the last three years of the project to inform and train the participants on the results achieved. The organization of these international events could be part of the assignment of a PR/Media Agency contracted for the purpose.

4.2 Financing

The component will be financed by the GEF and the Government of Kazakhstan.

Project Component 5 - US$0.73 million

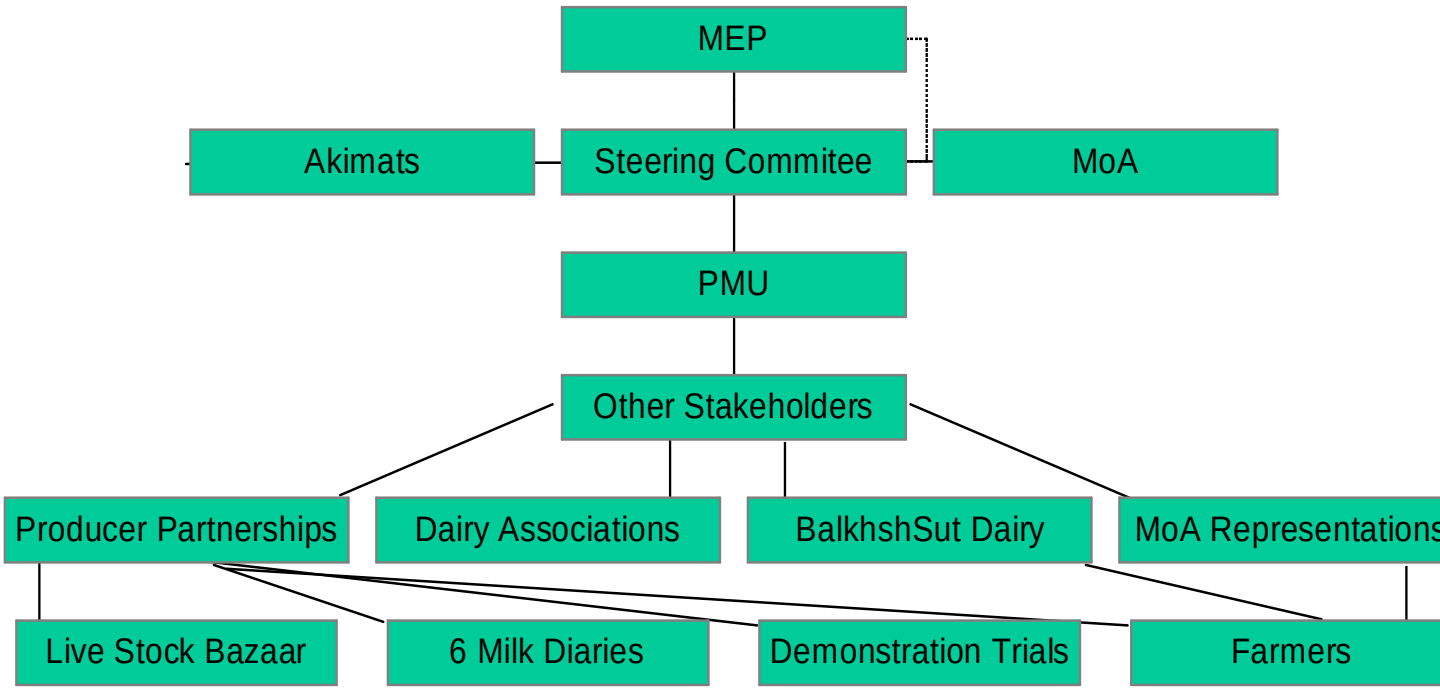
Project Management Unit

The existing Project Preparation Unit will evolve into a Project Management Unit (PMU), comprising a Project Manager, Financial Management/Procurement Specialist and Administrative Assistant. The PMU will be located in Astana. In addition, an accountant and two technical specialists (for the management of abandoned cereal lands and management of degraded pastures and rangelands) will be based in Aksu-Ayuli, in offices and accommodation to be provided by the Akim of Shetsky Rayon. This would also help form a strong working partnership with the local administrative staff, local farmers and other stakeholders. The Project Manager will share his time between the Astana and Aksu-Ayuli offices and the administrative staff will assist in the Aksu-Ayuli office as required.

The PMU will have overall responsibility for project implementation and will handle procurement, all financial matters relating to disbursements, maintenance of project accounts and financial monitoring, as well as the monitoring and evaluation of all project activities. It will coordinate the implementation of activities by the different local and national agencies, including the field agencies of MOA and MEP. The Project Manager will report to the Chairman of the Project Steering Committee, i.e. the Vice-Minister, MEP. The PMU will also be responsible for project monitoring and reporting.

Governance. The implementational arrangements agreed upon demonstrate the project's emphasis on decentralized responsibility for project management. The project emphasizes capacity building of agencies at the local level involved in project implementation as well as farmers which will help not only to build local ownership, but also ensure transparency as well as sustainability of project activities. The project design incoprorates lessons learned to create the best conditions for a good governance of grants awarded to farmers and other beneficiaries under the project. Through the implementation of competitive grant programs in many countries of the region, procedures for procurement, disbursement and financial management of small-value grants have been strengthened and laid out in several training manuals as "good practices" by specialists at the World Bank. Relevant staff in the PMU, as well as local institutions involved with project implementation, will be trained in such "good practices" to ensure that there is a good governance mechanism in place to oversee grant implementation. Regular monitoring provided for under the project will also be instrumental in ensuring good governance.

Organizational Chart



5.1 Financing

The component will be financed by the GEF, the Global Mechanisms, and the Government of Kazakhstan.

Annex 3: Estimated Project Costs

KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

Project Cost By Component	Local US $million	Foreign US $million	Total US $million
Development of Sustainable Land Use Systems	3.98	0.66	4.64
Initial Service Support to Producer Groups	0.99	0.10	1.09
Quantification of Carbon Sequestration and Monitoring	0.50	0.62	1.12
Replication Strategy and Public Awareness	0.53	0.18	0.71
Project Management Unit	0.52	0.09	0.61
Total Baseline Cost	6.52	1.65	8.17
Physical Contingencies	0.65	0.17	0.82
Price Contingencies	0.59	0.12	0.71
Total Project Costs[1]	7.76	1.94	9.70
Total Financing Required	7.76	1.94	9.70

Project Cost By Category	Local US $million	Foreign US $million	Total US $million
Works	0.30	0.00	0.30
Goods	3.73	0.86	4.59
Consultant Services	1.20	0.84	2.04
Training	0.16	0.18	0.34
Operating Costs	2.37	0.06	2.43
Total Project Costs[1]	7.76	1.94	9.70
Total Financing Required	7.76	1.94	9.70

Taxes are approximately US$0.88m.

[1] Identifiable taxes and duties are 0 (US$m) and the total project cost, net of taxes, is 9.7 (US$m). Therefore, the project cost sharing ratio is 54.33% of total project cost net of taxes.

Annex 4- Economic and Financial Analysis
KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

The Incremental Cost Analysis for the project has been prepared and presented in Annex 11.

Annex 5: Financial Summary

KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

Years Ending on June 30

	IMPLEMENTATION PERIOD						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Total Financing Required							
Project Costs							
Investment Costs	1.0	1.7	1.8	1.5	0.9	0.4	0.0
Recurrent Costs	0.3	0.4	0.5	0.6	0.3	0.3	0.0
Total Project Costs	1.3	2.1	2.3	2.1	1.2	0.7	0.0
Total Financing	1.3	2.1	2.3	2.1	1.2	0.7	0.0
Financing							
IBRD/IDA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Government	0.5	0.4	0.4	0.4	0.3	0.4	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Provincial	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Co-financiersGEF	0.5	1.1	1.5	1.3	0.7	0.2	0.0
Beneficiaries	0.3	0.5	0.4	0.4	0.2	0.1	0.0
Global Mechanism		0.1					
Total Project Financing	1.3	2.1	2.3	2.1	1.2	0.7	0.0

Main assumptions:

Annex 6: Procurement and Disbursement Arrangements
KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

Procurement

Procurement Methods (see Table A)
The procurement of goods and works would be conducted in accordance with the Bank's Guidelines for Procurement under IBRD loans and IDA Credits, January 1995, revised January and August 1996, September 1997 and January 1999. Consulting Services and training would be procured in accordance with the Guidelines for Selection and Employment of Consultants by World bank Borrowers, January 1997, revised September 1997, January 1999 and May 2002. The Bank's Standard Bidding Documents; Standard Request for Proposal; etc., will be used. A General Procurement Notice (GPN) has been published in the U.N Development Business in March 2003.

Procurement financed by cofinanciers including the Government of Kazakhstan will be conducted in accordance with the respective cofinaciers procedures.

Responsibility
The MEP would establish a small Project Management Unit (PMU) in Astana, comprising a Project Manager, a Monitoring & Evaluation Specialist, a Financial Management Specialist and a Procurement Specialist, Administrative Assistant and two drivers. The PMU will handle procurement, financial matters relating to disbursements, maintenance of project accounts and financial monitoring, the monitoring and evaluation of all project activities. It will co-ordinate the implementation of activities by the different local and national agencies, including the field agencies of MOA and MEP. The PMU has initially been established as a Project Preparation Unit (PPU) comprising Project Manager, Financial Management/ Procurement Specialist and Office Manager. The Project Manager would report to the Chairman of the Steering Committee, the Vice-Minister, MEP. A Project Technical Committee (PTC) will also be established to help the PMU in technical matters.

Training in procurement according to the bank policies and procedures would be provided during the project launch workshop to the PMU staff. The PMU director and the technical staff of the PPU would also receive training in procurement, enabling them to back up the procurement officer in his/her responsibilities of conducting and coordinating project procurement. The PMU procurement specialist has already attended a procurement training course in Turin, Italy.

Procurement Arrangement
The thresholds by procurement arrangement for each category are summarized below. The allocation of project costs by procurement arrangements are set out in table A, the value of contracts for prior review in table B.

Goods

Goods and equipment estimated to cost US$100,000 each or more may be procured on the basis of ICB. Goods estimated to cost less than US$100,000 each may be procured through International Shopping on the basis of three written quotations from two different countries. Small contracts for supplies and minor equipment estimated to cost less than US$50,000 each may be procured under National Shopping on the basis of three written price quotations from local suppliers. The project contains technical services contracts each estimated to cost less that US$50,000, which will follow the National Shopping procedures.

Direct Contracting. Different kinds of seeds that would be required during the project implementation period are available only from the Karaganda Institute and these would, therefore, be procured on a direct contracting basis. This amount is expected to cost less than US$223,000.

Community participation in procurement. Field operations which include support to farmers to reproduce specific seeds and the procurement by or distribution to other farmers estimated to cost US$1.8 million will be implemented in accordance with a Manual prepared by the PPU under provisions of paragraph 3.15 of the Guidelines.

Consultant Services and Training

Fixed Budget Selection Procedure. Consultant Contract for public awareness campaign and capacity building shall be procured through the Fixed Budget Selection Process (FB).

Selection Based on Consultants Qualifications (CQ). Contracts for consulting services, such as audit services, estimated to cost less than US$100,000 per contract may be procured using the selection based on consultants qualifications (CQ).

Individual Consultants (IC). Consultant services will be procured through Individual Consultant procedures in accordance with Part V of the Consultant Guidelines. The assignments for individual consultants will be advertised when possible, and selection will be made on the basis of comparison of qualifications and experience.

Sole Sourcing. The only provider of consulting services with the required expertise and experience for carbon sequestration estimations including soil sampling, analysis, and modeling, is the Shortandy Institute. This contract, therefore, shall be subject to the sole sourcing process. This amount is expected to cost less than US$143,000.

Training. For other training activities, a detailed training program will be prepared on a six-month basis and submitted to the Bank for approval before implementation.

Incremental Operating Costs

The project will finance a portion of incremental operating costs. Incremental Operating Costs will be procured on the basis of annual budgets to be agreed with the World Bank before implementation.

Procurement methods (Table A)

Table A: Project Costs by Procurement Arrangements
(US$ million equivalent)

Expenditure Category	Procurement Method[1]				Total Cost
	ICB	NCB	Other[2]	N.B.F.	
1. Works	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.30 (0.00)	0.30 (0.00)
2. Goods	1.50 (1.50)	0.00 (0.00)	1.20 (0.80)	1.80 (0.00)	4.50 (2.30)
3. Services Consultant (including audits)	0.00 (0.00)	0.00 (0.00)	1.70 (1.65)	0.70 (0.00)	2.40 (1.65)
4. Training	0.00 (0.00)	0.00 (0.00)	0.40 (0.32)	0.00 (0.00)	0.40 (0.32)
5. Incremental Operating Costs	0.00 (0.00)	0.00 (0.00)	2.00 (1.00)	0.00 (0.00)	2.00 (1.00)
Total	1.50 (1.50)	0.00 (0.00)	5.30 (3.77)	2.80 (0.00)	9.60 (5.27)

[1/] Figures in parentheses are the amounts to be financed by the Bank Grant. All costs include contingencies.

[2/] Figures may not match due to rounding.

Table A1: Consultant Selection Arrangements (optional)
(US$ million equivalent)

Consultant Services Expenditure Category	Selection Method							
	QCBS	QBS	SFB	LCS	CQ	Other	N.B.F.	Total Cost[1]
A. Firms	0.00 (0.00)	0.00 (0.00)	0.85 (0.00)	0.00 (0.00)	0.06 (0.00)	0.00 (0.00)	0.00 (0.00)	0.91 (0.00)
B. Individuals	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	1.16 (0.00)	0.00 (0.00)	0.00 (0.00)	1.16 (0.00)
Total	0.00 (0.00)	0.00 (0.00)	0.85 (0.00)	0.00 (0.00)	1.22 (0.00)	0.00 (0.00)	0.00 (0.00)	2.07 (0.00)

1\ Including contingencies

Note: QCBS = Quality- and Cost-Based Selection
QBS = Quality-based Selection
SFB = Selection under a Fixed Budget
LCS = Least-Cost Selection
CQ = Selection Based on Consultants' Qualifications
Other = Selection of individual consultants (per Section V of Consultants Guidelines), Commercial Practices, etc.
N.B.F. = Not Bank-financed
Figures in parentheses are the amounts to be financed by the Bank Grant.

Prior review thresholds (Table B)

With respect to goods and work, prior review by the bank of procurement documentation will be carried out for :

- All ICB
- First IS and NS contracts (for goods and technical services)

For each contract estimated to cost US$200,000 or more, after the technical proposal has been evaluated, the technical evaluation report will be submitted to the World bank for its review prior to the opening of the priced proposals. For contracts estimated to cost US$100,000 or more, the Bank will be notified of the results of the technical proposals. For contracts with individual consultants estimated to cost US$10,000 or more, the qualifications, experience, terms of reference, and terms of employment shall be furnished to the Bank for its review and approval prior to contract signature. All other contracts will be subject to ex-post review by the Bank.

Table B: Thresholds for Procurement Methods and Prior Review [1]

Expenditure Category	Contract Value Threshold (US$ thousands)	Procurement Method	Contracts Subject to Prior Review (US$ millions)
1. Works			0
2. Goods	>/=100 <100 <50	ICB IS NS	1.500 0.100 0.050
3. Services **Training**	<100 >10 N/A	FB and CQ Ind Bi-annual training program	0.910 1.000
4. Incremental Operating Costs	N/A	Annual Budgets	-

Total value of contracts subject to prior review: 4.060

Overall Procurement Risk Assessment

High

Frequency of procurement supervision missions proposed: One every six months (includes special procurement supervision for post-review/audits)

One every six months during the first year of implementation and then on an annual basis (includes special procurement supervision for post-review/audits). One in five contracts will be subject to Bank's ex-post review.

Section 1: Capacity of the Implementing Agency in Procurement and Technical Assistance Requirements

- The PPU should have a separate qualified and experienced procurement specialist.

- The PPU director, and the procurement staff should attend at least one Bank organized procurement seminar in Kazakhstan or in the region. The PPU procurement specialist should attend a suitable training course in Turin, Italy, organized jointly by the Bank and ILO, within six months of the grant effectiveness.
- The PPU should be responsible for keeping up-to-date project records, including procurement records. A separate file should be opened for each contract package and all procurement correspondence and relevant documents such as draft and final bidding documents, minutes of bid opening, evaluation reports, minutes of contract negotiations, draft RFPs, draft and final contracts, and bids, should all be kept together for each project in the folder
- The PPU should create a computerized procurement monitoring system to keep track of procurement activities and to generate periodic progress reports on procurement activities, which are required to be submitted to the Bank and other concerned government officials and agencies.
- The PPU should prepare a contract approval and signature procedure as well as a contract administration plan and submit it to the Bank for review and acceptance. Any bottlenecks in contract approval procedure and weaknesses and contract administration procedures should be removed.

2. Country Procurement Assessment Report (CPAR) or Country Procurement Strategy Paper
Status: CPAR dated June 2000.

3. Are the bidding documents for the procurement actions of the first year ready by negotiations? Yes

Section 2: Training Information and development on Procurement

4. Estimated date of Project Launch workshop: July 2003

5. Estimated date of General Procurement Notice publication: March 2003

6. Indicate if contracts are subject to mandatory SPN in Development Business: No

7. Domestic Preference for Goods: Yes

8. Domestic preference for Works: No

9. Retroactive Financing: No

10. Advanced procurement: No

11. Explain briefly the Procurement Monitoring System: Procurement implementation progress will be monitored through progress reports and supervision missions. At least one supervision mission every six months during the first year of the implementation and then on an annual basis will include a procurement specialist. She/he will be responsible for updating the procurement plan, and conducting ex-post reviews. His/her findings will be included in the supervision reports for monitoring their implementation.

Section 3: Procurement Staffing

12. Indicate the name of Procurement Staff as part of the Project Team:
Naushad A. Khan, Senior Procurement Specialist Division: ECSSD Ext: 32699

13. Explain briefly the expected role of the field office in Procurement:
The project officer assigned to this project would play an important role of monitoring the procurement process, and also, serve as an intermediary between the headquarters and the PPU. The TTL and the procurement specialist for this project are based in Almaty. They will work closely with the project officer based in Astana to ensure effective and timely implementation of the project.

[1] Thresholds generally differ by country and project. Consult OD 11.04 "Review of Procurement Documentation" and contact the Regional Procurement Adviser for guidance.

Disbursement

Allocation of grant proceeds (Table C)

The allocation of Grant proceeds is in Table C and indicates Bank financing by expenditure category. The Project will be executed over a period of five years during which the full Grant amount of US$5.27 million will be disbursed. Activities under the Project are expected to be completed by September 2008 and the expected closing date for the Project will be March 31, 2009 after which no disbursements will be made.

It was agreed that the Project will initially use traditional disbursement procedures (direct payments, reimbursements and replenishments to the Special Account with full documentation or SOEs) and Financial Monitoring Reports (FMR) that the financial management system might be re-assessed in end-2005 for the eligibility for FMR-based disbursements.

Table C: Allocation of Grant Proceeds

Expenditure Category	Amount in US$million	Financing Percentage
1. Goods	2.30	100% of foreign and ex-factory, and 84% of local
2. Consulting services (including audits)	1.65	Firms 81%, individuals 84% 100% of eligible social charges
3.Training	0.32	100%
4. Incremental Operating Costs	1.00	80% until December 31, 2005 60% thereafter 100% of eligible social charges
Total Project Costs	5.27	
Total	5.27	

Consulting services: includes funds for the public awareness program that might be let as service contracts with NGOs and/or media agencies.
Consulting services can also cover 100% of social charges

Use of statements of expenditures (SOEs):

Statement of Expenditure (SOE) would be used for:

(i) goods estimated to cost less than US$100,000 per contract;
(ii) firms contracts costing less than US$50,000;
(iii) individual consultant contracts costing less than US$25,000;
(iv) training contracts; and
(v) incremental recurrent costs.

Full documentation to support expenditures would be retained by the PMU for the life of the project. This information would be available for review during supervision by Bank staff, and for annual audits, which will be required to specifically comment on the propriety of SOE disbursements and the quality of the associated record keeping. Invoices supporting disbursements against SOEs should be kept for at least one year after the Bank has received the last audit report under the grant.

Special account:

During the period of preparation of the Project, in order to facilitate disbursements, the borrower has opened and maintained a Special Account (SA) with Kazkommertsbank on terms and conditions acceptable to the Bank. When the Project is effective the SA will be kept at a level sufficient to meet payments to contractors, suppliers and consultants. The initial allocation to the SA would be US$200,000 and the ceiling would be US$400,000. Funds from the Special Account will be disbursed for eligible expenditures only, and will be replenished by the Bank upon receipt of the relevant withdrawal applications. Replenishment applications should be submitted on a monthly basis, and must include reconciled bank statements as well as other appropriate supporting documents. The special account will be audited annually by independent auditors and the audit report submitted to the World Bank for review and approval within six month after the end of the Government's fiscal year.

PROJECT FINANCIAL MANAGEMENT

Project Accounting

The PMU is fully in charge of all financial management aspects of the Project. A financial management system (FMSys), including accounting, reporting, planning, budgeting, auditing and proper internal control systems are being developed. The "1C" software system has been procured and will be modified to include budgeting and reporting functions to meet Bank requirements (refer to time bound action plan).

The Bank has defined a time-bound action plan (attached) to specify the steps necessary for further strengthening of procedures and staff development during implementation. The adequacy of the FMS will be monitored by the Bank before Board, before effectiveness, during the first supervision missions and throughout Project preparation and implementation.

The PMU includes the Project manager, financial management / procurement specialist (dual role), secretary/interpreter and driver. The PMU will maintain all documentation related to Project expenditures and keep financial records in accordance with sound accounting practices. The PMU will be mainly responsible for keeping the accounting records of the Project, in charge of all payments, operating the accounting software, handling both the Special Account (SA), and the two Tenge Project Accounts (or TPA - one for Government contributions in Tenge; one to transfer Bank funds from USD SA for local expenditures), prepare all bidding documents, reporting both to the Bank and the Government, planning, budgeting, disbursement and auditing.

During the initial stages of the project, the financial management/procurement specialist will be responsible for the planning, budgeting, consolidation and reporting aspects, handle all financial accounting records, ensure that accounting records are kept up to date in the accounting software and will be in charge of the petty cash arrangements. He/she will also establish permanent contacts with the beneficiaries, the Bank, accounting departments of the relevant ministries, auditors and the Ministry of Finance. As needed, an accountant will be hired as the project activities get underway and will primarily handle the accounting function for the Aksu-Ayuli office activities.

The PMU staff will be responsible for: preparing the bidding documents; receive the offers and evaluate them in accordance with the World Bank regulations; submit the evaluations to the World Bank for no objection; sign contracts in an acceptable format; supervise the works performed by the contractors; certify (jointly with the beneficiaries' representatives) the acceptance of the goods, works and services provided in accordance with the terms of reference and the relevant technical specifications. The payment documents will be prepared by the PMU only after the fulfillment of the above steps. The sole signing authority for the PMU rests with the Chief of Municipal Committee of Environmental Protection.

A financial management consultant company has been appointed to develop the financial management system for the Project, in accordance with the Bank's OP/BP 10.02. The system will feature a customized accounting software fully responsive to the Project needs. The financial management / procurement specialist of the PPU is the primary operator of the software, with the PPU director responsible for authorizing all payments.

The FM consultant company will be assisting the PPU in finalizing the implementation and inputting the final cost estimates in the system. The software manual for "1C" has been provided to the PPU and is used by the financial management / procurement specialist. The financial management manual has been prepared by the financial management / procurement specialist and documents the accounting procedures, internal controls and measures to ensure a segregation of duties (where possible) and avoid potential conflict of interest.

The PPU staff, along with the FM consultant, will develop specific chart of accounts, detailed financial statements, reporting formats and methods, internal control procedures, disbursement and flow of funds arrangements, and assigned staff responsibilities in order to ensure a complete segregation of duties. The PMU will be fully in charge of recording and consolidating all payments, procurement, contracting, disbursement, reporting, accounting, planning, budgeting and auditing relating to the Project. No Project funds can be transferred directly to beneficiaries or any other parties, outside the Project’s documented framework. Detailed accounts will be kept for each Project component and its sub-components. The accounts will also reflect: the status of payment against each contract; utilization of the Special Account (SA) and replenishments made by the Bank; the amounts used from the Government contribution and other donors, and statements of sources and application of funds.

The PMU will maintain the Project accounts on the cash basis of accounting. The PMU will be responsible for preparing FMRs and statements of expenses (SOEs) and submitting them to the World Bank, no later than 45 days after each quarter’s end.

Accounting Software

The features of the financial management software used include, inter alia, customizable chart of accounts, foreign and local currency, English and Russian language, Excel and Word exporting, and integrated FMRs. The software manual is based upon the basic (off-the-shelf) "1C" enterprise package. The FM Manual will include description of the modifications made for specific project aspects.

All project financial and accounting documents will be properly recorded and filed separately by the PMU, keeping a clear linkage with the software records.

The system will be customized to respond to the Project components and specifics and will be able to produce routine reports such as: trial balance, general ledger, balance sheet, income and expenditure statement by sources of funds, cash flow, general journal, suppliers' ledger, various budgets, etc. Also, all the Financial Monitoring Reports ("FMRs") would be produced by the system.

The PMU will keep full accounting records of the Project and the system will allow this to be done by Project components and sub-components as well as by each financing source (World Bank, Government contribution, and other donors as applicable). The PMU will report to the World Bank and to the Government of Kazakhstan.

A detailed FM manual of accounting procedures relevant to the Project has been prepared by the FM / Procurement specialist. The manual documents the accounting procedures, internal controls and measures to ensure a segregation of duties (to the extent possible) and avoid any potential conflict of interest. All accounting entries will be kept in the foreign currency as well as in the Kazakhstani currency, Tenge.

The PMU will prepare reports showing detailed budgeted and actual expenditures, uses of funds by source, summary of withdrawals and statements of progress achieved to date. The format of the Financial Monitoring Reports (FMRs) will be agreed upon and the FMRs will be fully customized and included in the software. If the Government should decide to move to FMR-based disbursement, the system would be expanded to produce other reports, such as cash forecasts and the objectives for the forthcoming quarter and semester.

Project Accounts and Cash Management

The Grant Agreement will be signed by representatives of the World Bank and the Ministry of Economy and Budget Planning (formerly Ministry of Economy and Trade), otherwise known as MOEBP - 'grants recipient/coordinator'. The Government will then assign the Ministry of Environment Protection (MEP; formerly Ministry of Natural Resources and Environment Protection or MNREP) as an implementing agency, giving full rights to the MEP to use the grant proceeds. Based on the Ministerial Order issued, the MEP has already empowered the existing PPU (which is to become the PMU after grant effectiveness) to fully operate and use the grant proceeds. PMU will access the grant proceeds through the Special Account, opened at Kazakhstani commercial bank - Kazkommertsbank. Funds from the SA will also be transferred to the Tenge Project Account, which will allow conversion of USD to Tenge to facilitate payment to local contractors. A separate sub-account in USD will be opened at the Kazkommertsbank to receive the interest from the SA and cover bank charges for the SA.

The beneficiaries (associations of farmers / local civil authorities or Akimat) will contribute in cash or in-kind. The PMU will assign a monetary value to in-kind contributions and will account for it in the project accounting records. Audits will review a sample of in-kind contributions,

comprising their the appropriateness of monetary value estimations.

All sources of financing for the Project will be reflected separately in the accounting system. All the relevant financial accounting documents (invoices, contracts, payment orders, bank statements, etc.) will be recorded and kept at the PMU.

Signing procedures are in place which require the financial management / procurement specialist or PPU director to obtain authorization from the Chief of Municipal Committee of Environmental Protections when operating the above accounts.

With respect to cash management, the PMU will develop sound cash forecasting and monthly planning procedures. Amounts kept in Tenge (both amounts held in banks and cash on hand) will be held at a minimum level to avoid the risk of possible future devaluation.

Flow of funds

As noted above, the PMU must obtain authorization from the Chief of Municipal Committee of Environmental Protection for operating all the above-mentioned bank accounts. Every invoice received by the PMU will be checked for its accuracy prior to submission for authorization and split into the net invoice amount and taxes. The PMU will then execute the payments from each financing source in accordance with the financing agreement.

The beneficiaries will also contribute to the Project, either in cash or in kind. Each beneficiary will sign a financing agreement with the PMU. This will detail the rights and obligations of each party. In case when the beneficiary will contribute in cash, its cash contribution will have to be deposited in a bank account and a bank statement proving this will be attached to the agreement. When the contribution will be in kind the financing agreement will detail the mechanism for quantifying the in kind contribution in monetary terms, and will mention the nature of the in kind contribution (land, labor, raw materials, consumables, transportation, etc).

Once the agreement is signed and the beneficiary's contribution agreed, the PMU will start executing payments for the relevant sub-component activities, as invoices are received from the suppliers. These invoices will be first jointly certified by the PMU and the beneficiary's representatives, in order to ensure that all the relevant goods were delivered, works done and services rendered, as per the technical specifications and terms of reference. In addition, all other Project beneficiaries will be responsible for closely co-operating with the PMU on the financial management aspects of the Project resources, under the respective Project components in which they will participate.

Internal Controls

The PMU will adhere to sound internal control procedures and practices, to ensure that the Project funds are used with economy and efficiency and only for the purposes intended. The PMU will report to the Project Steering Committee and to relevant Vice-Ministers (MEP and MOA) and will inform in a timely manner about Project implementation and progress. The PMU staff structure agreed (manager, financial management / procurement specialist) is perceived as able to ensure a complete segregation of duties and to avoid any conflict of interest. Where

potential conflict of interest exists with dual role of financial management / procurement specialist, the Project Manager will review and approve relevant documentation.

All PMU staff must become familiar with the World Bank regulations (legal, disbursement, procurement, financial management, etc) applicable to their relevant area. A Financial Management Manual has been developed jointly by the financial management / procurement specialist, documenting various types of financial transactions, approval and authorization steps, the flow of documents within the PMU and between the PMU and the beneficiaries, the accounting departments of the relevant ministries and MOF (note: the MOF has not established mandatory obligation to submit reports; PMU submits report on expenditures by component when requested by MOF; report consistent with submission to MEP / MOA), PMU's staff responsibilities and measures ensuring complete segregation of duties, plus other internal control procedures. In addition to the above manual, the PMU must follow the procedures set up in the Project's Operational Manual. The PMU staff will enhance the manuals by documenting the day-to-day internal detailed procedures for each type of activity (such as correspondence handling, contracting and payment procedures, operation of all bank accounts, petty cash procedures, authorization mechanism, reporting, filing, etc.)

Auditing

Annual audits for the project accounts will be carried out in accordance with the *Guidelines for Financial Reporting and Auditing of Projects Financed by the World Bank.* The audit reports will be in a format in accordance with the International Standards on Auditing promulgated by the International Federation of Accountants (IFAC). The audit reports will include a separate opinion on the operation of the Special Accounts and on disbursements made on the basis of SOEs. The audited financial statements, including the audit of the special accounts, and SOEs will be sent to the Bank within six (6) months of the end of the Government's fiscal year.

The PMU will have the project accounts audited (including special and project accounts and all statements of expenditures) in accordance with International Standards on Auditing, by a firm of independent auditors acceptable to the World Bank.

The cost of the Project audits will be financed by World Bank GEF proceeds.

Financial Management Reports (FMR's) for Disbursement

It was agreed that the Project will initially use traditional disbursement procedures (direct payments, reimbursements and replenishments to the Special Account with full documentation or SOEs) and produce FMRs for reporting and management information only and not for disbursement purposes. It was also agreed that the FM system will be re-assessed in end-2004 for the eligibility for FMR-based disbursements. Then, the Borrower, jointly with the Bank, will review the possibility of disbursing on the basis of FMRs.

Financial Management Action Plan

Action	***Responsibility***	***Due date***
Establishment of financial management system		
Final customization and complete implementation of the accounting software system, including full English language capability,	PPU FM specialist and FM	30 Apr 03

automation of Financial Monitoring Reporting (in accordance with World Bank requirements) and final test run.	consultant	

Annex 7: Project Processing Schedule

KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

Project Schedule	Planned	Actual
Time taken to prepare the project (months)	18	32
First Bank mission (identification)	03/10/2000	03/25/2000
Appraisal mission departure	03/15/2003	03/25/2003
Negotiations	06/15/2003	04/11/2003
Planned Date of Effectiveness	09/15/2003	

Prepared by:

See below for World Bank staff and consultants. Consultants from the Project PreparationUnit who contributed to produce the report include: Sadyk Bakhtiyar, John Cole, Keith Openshaw, Agherim Malik, Gulmira Akshatyrova.

Peer Reviewers:

Francois Le Gal (AFTR2)
Benoit Bosquet (ECSSD)
Zharas Takenov (UNDP, Almaty)

Preparation assistance:

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Name	Speciality
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Andrea Pape-Christiansen	Social
Rohan Selvarathnam	Project Costs
Hannah Koilpillai	Disbursement
Kairat Nazhmidenov	Financial Analysis
Marjory-Anne Bromhead	Quality Assurance

Annex 8: Documents in the Project File*
KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

A. Project Implementation Plan

Prepared and ready for discussion with Government of Kazakhstan

B. Bank Staff Assessments

C. Other

Working Papers:

Working Paper 1: Baseline Socioeconomic & Diagnostic Survey. The questionnaires addressed and analyzed the following issues:

- Socio-demographic characteristics of the residents in the project area
- Economic status of the subjects
- Distribution of land and land use
- State of the main directions of agricultural production
- State of production and social infrastructure
- Source of income, income level and quality of life
- State of socio-cultural services for the population
- Perceptions of the innovations related to the project and willingness to participate in the project.

Working Paper 2: Economic Background Data and Overview of Farming Systems in Shetsky Rayon and Project Area
Working Paper 3: Land Use Data for Shetsky Rayon and Project Area
Working Paper 4: Revegetation Program for Abandoned Ploughed Lands & Trial/Demonstration Program
Working Paper 5: Management of Degraded Pastures and Rangelands
Working Paper 6: Seed Production Program
Working Paper 7: Evaluation of Potential Impact of Regeneration Program at Farm-level and Monitoring Program
Working Paper 8: Tree and Shrub Planting & Watering Pasture Program
Working Paper 9: Assistance Program to producer groups for marketing livestock and agriculture products
Working Paper 10: Evaluation, Economical & Financial analysis of different Land Use systems
Working Paper 11: Remote Sensing & Modelling for Monitoring of Carbon Sequestration
Working Paper 12: Quantification and Monitoring of Soil Carbon
Working Paper 13: Monitoring of Bio-Diversity
Working Paper 14: Design of Public Awareness Campaign, Capacity Building & Replication Strategy
Working Paper 15: Oblast & Rayon Forestry Services and Project Management Unit
Working Paper 16: Operational Manual for Revegetation Program

Working Paper 17: Operational Manual for Seed Production Program
Working Paper 18: Operational Manual for organising agriculture partnerships, milk collection centers & agriculture market
Working Paper 19: Operational Manual Assessment of carbon sequestration
Working Paper 20: Financial Management Manual
Working Paper 21: Design of Project Monitoring System
Working Paper 22: Environmental Assessment, Management Plan (EMP) and Incremental Cost Analysis

*Including electronic files

Annex 9: Statement of Loans and Credits

KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

06-Feb-2003

Project ID	FY	Purpose	Original Amount in US$ Millions IBRD	IDA	Cancel.	Undisb.	Difference between expected and actual disbursements[a] Orig	Frm Rev'd
P046045	2001	SYR DARYA CONTROL/NO. ARAL SEA	64.50	0.00	0.00	59.86	2.70	0.00
P065414	2000	ELEC TRANS REHAB	140.00	0.00	0.00	123.91	84.61	0.00
P008499	1999	ROAD TRANSP. RESTRUC	100.00	0.00	0.00	22.86	11.20	0.00
P008500	1999	ATYRAU PILOT WATER	16.50	0.00	0.00	5.06	4.58	0.00
P008503	1998	AG POST PRIV ASST (APL #1)	15.00	0.00	0.00	1.92	1.92	0.00
P008507	1997	UZEN OIL FIELD REHAB	109.00	0.00	0.00	40.03	40.03	20.34
P008510	1996	IRRIG & DRAINAGE	80.00	0.00	0.00	15.76	14.10	0.00
		Total:	525.00	0.00	0.00	269.42	159.15	20.34

KAZAKHSTAN
STATEMENT OF IFC's
Held and Disbursed Portfolio
Jun 30 - 2002
In Millions US Dollars

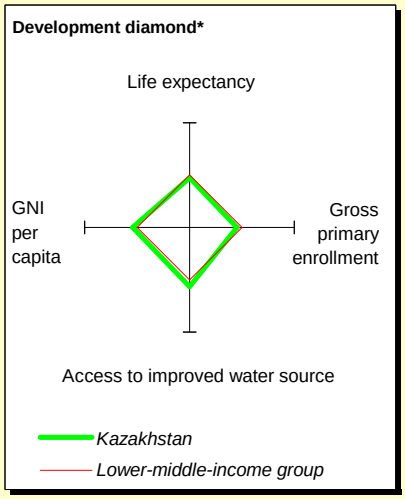
		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic	Loan	Equity	Quasi	Partic
1994/95/98	ABN AMRO Kazak	0.00	2.57	0.00	0.00	0.00	2.57	0.00	0.00
2000	FIOC	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
	IK	7.49	0.00	0.00	0.00	7.49	0.00	0.00	0.00
1998	Kazgermunai	0.00	0.68	30.75	0.00	0.00	0.38	12.71	0.00
1996	Kazkommertsbank	2.50	0.00	0.00	0.00	2.50	0.00	0.00	0.00
1997/99	Rambutya LLP	1.93	0.00	0.00	0.00	1.93	0.00	0.00	0.00
1999/02	SEF CASPI Ltd.	2.50	0.00	0.00	0.00	2.50	0.00	0.00	0.00
2001	SEF Const. Mat	0.87	0.25	0.00	0.00	0.67	0.00	0.00	0.00
1999	SEF LP-GAZ Ltd.	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
2000	SEF NefteBank	0.00	0.00	2.50	0.00	0.00	0.00	2.50	0.00
2001	Sazankurak	14.17	0.00	5.00	0.00	9.17	0.00	5.00	0.00
2000	TuranAlem	5.05	4.95	5.00	0.00	5.05	4.95	5.00	0.00
1999									
	Total Portfolio:	36.51	8.46	43.25	0.00	30.31	7.91	25.21	0.00

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic
2002	Karachaganak	50.00	25.00	0.00	75.00
2000	Agrokaz	3.50	0.00	0.00	0.00
2001	Kazkommertsbk 2	15.00	0.00	0.00	0.00
2001	Ispat Karmet SME	0.00	3.37	0.00	0.00
2002	Astana Tower	5.00	0.00	0.00	0.00
	Total Pending Commitment:	73.50	28.37	0.00	75.00

Annex 10: Country at a Glance

KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

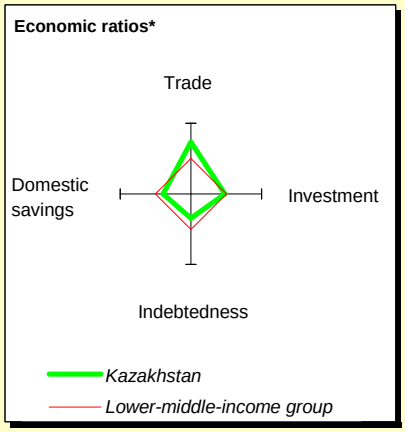
POVERTY and SOCIAL	Kazakhstan	Europe & Central Asia	Lower-middle-income
2001			
Population, mid-year *(millions)*	14.8	475	2,164
GNI per capita *(Atlas method, US$)*	1,350	1,960	1,240
GNI *(Atlas method, US$ billions)*	20.1	930	2,677
Average annual growth, 1995-01			
Population *(%)*	-1.0	0.1	1.0
Labor force *(%)*	-0.1	0.6	1.2
Most recent estimate (latest year available, 1995-01)			
Poverty *(% of population below national poverty line)*	32	..	..
Urban population *(% of total population)*	56	63	46
Life expectancy at birth *(years)*	66	69	69
Infant mortality *(per 1,000 live births)*	19	20	33
Child malnutrition *(% of children under 5)*	4	..	11
Access to an improved water source *(% of population)*	91	90	80
Illiteracy *(% of population age 15+)*	..	3	15
Gross primary enrollment *(% of school-age population)*	97	102	107
Male	97	103	107
Female	97	101	107



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

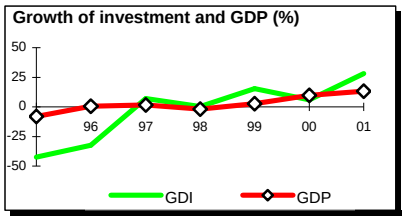
	1981	1991	2000	2001
GDP *(US$ billions)*	..	31.8	18.3	22.4
Gross domestic investment/GDP	..	..	17.9	25.8
Exports of goods and services/GDP	..	..	58.8	46.3
Gross domestic savings/GDP	..	..	27.3	23.4
Gross national savings/GDP	..	..	21.9	18.7
Current account balance/GDP	..	..	2.3	-7.8
Interest payments/GDP	..	..	3.9	3.1
Total debt/GDP	..	..	64.5	64.2
Total debt service/exports	..	..	31.4	31.1
Present value of debt/GDP	..	..	36.6	..
Present value of debt/exports	..	..	63.0	..

	1981-91	1991-01	2000	2001	2001-05
(average annual growth)					
GDP	..	-1.9	9.8	13.2	5.9
GDP per capita	..	-0.9	10.2	13.5	6.0
Exports of goods and services	..	-0.5	32.9	-3.3	7.2

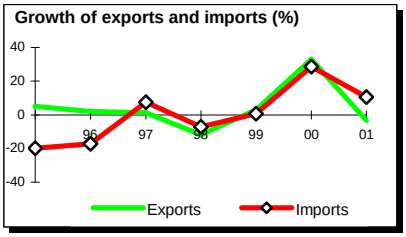


STRUCTURE of the ECONOMY

	1981	1991	2000	2001
(% of GDP)				
Agriculture	..	..	8.6	9.0
Industry	..	..	40.9	38.8
Manufacturing	..	..	18.3	15.6
Services	..	..	50.5	52.3
Private consumption	..	..	57.9	60.1
General government consumption	..	..	14.8	16.5
Imports of goods and services	..	..	49.3	48.7



	1981-91	1991-01	2000	2001
(average annual growth)				
Agriculture	..	-6.2	-3.3	16.9
Industry	..	-5.6	16.4	15.1
Manufacturing	..	..	15.6	14.8
Services	..	3.5	7.4	10.8
Private consumption	..	-2.9	4.1	18.9
General government consumption	..	-4.4	36.7	19.6
Gross domestic investment	..	-10.0	6.0	28.0
Imports of goods and services	..	-6.7	28.6	10.5

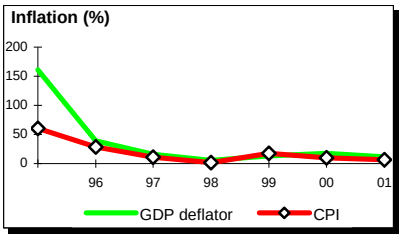


Note: 2001 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

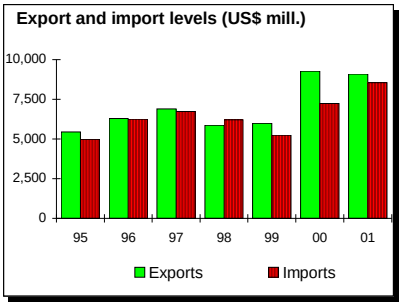
PRICES and GOVERNMENT FINANCE

	1981	1991	2000	2001
Domestic prices				
(% change)				
Consumer prices	..	47.1	9.8	6.4
Implicit GDP deflator	..	96.4	17.4	11.6
Government finance				
(% of GDP, includes current grants)				
Current revenue	..	..	21.8	21.6
Current budget balance	..	..	1.4	2.3
Overall surplus/deficit	..	..	-1.0	-0.9



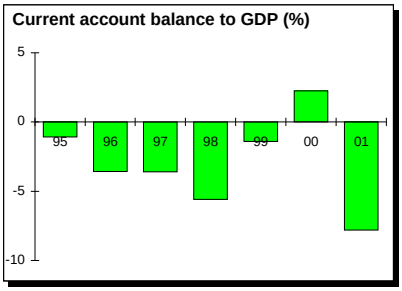
TRADE

	1981	1991	2000	2001
(US$ millions)				
Total exports (fob)	..	..	9,277	9,101
Fuel and oil products	..	..	4,827	4,733
Ferrous metals	..	..	1,178	1,009
Manufactures	..	..	670	1,490
Total imports (cif)	..	..	7,238	8,554
Food	..	..	539	836
Fuel and energy	..	..	572	790
Capital goods	..	..	2,405	2,837
Export price index *(1995=100)*	..	..	..	..
Import price index *(1995=100)*	..	..	..	..
Terms of trade *(1995=100)*	..	..	..	..



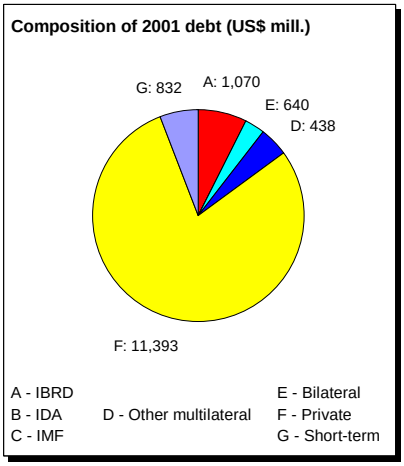
BALANCE of PAYMENTS

	1981	1991	2000	2001
(US$ millions)				
Exports of goods and services	..	..	10,419	10,393
Imports of goods and services	..	..	9,004	11,077
Resource balance	..	..	1,415	-684
Net income	..	..	-1,194	-1,215
Net current transfers	..	..	191	150
Current account balance	..	..	412	-1,749
Financing items (net)	..	..	-271	2,133
Changes in net reserves	..	..	-141	-384
Memo:				
Reserves including gold *(US$ millions)*	..	..	2,096	2,508
Conversion rate *(DEC, local/US$)*	..	5.10E-3	142.1	146.7



EXTERNAL DEBT and RESOURCE FLOWS

	1981	1991	2000	2001
(US$ millions)				
Total debt outstanding and disbursed	..	..	11,805	14,373
IBRD	..	..	1,057	1,070
IDA	..	..	0	0
Total debt service	..	..	3,338	3,331
IBRD	..	..	83	101
IDA	..	..	0	0
Composition of net resource flows				
Official grants	..	..	44	..
Official creditors	..	..	36	34
Private creditors	..	..	868	2,128
Foreign direct investment	..	..	1,250	2,731
Portfolio equity	..	..	0	..
World Bank program				
Commitments	..	..	0	65
Disbursements	..	..	50	114
Principal repayments	..	..	20	47
Net flows	..	..	30	67
Interest payments	..	..	63	53
Net transfers	..	..	-33	13



Additional GEF Annex 11
Summary of Incremental Cost Analysis
KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

Overview

The global environmental objectives of the GEF funded project are to reverse land degradation in the steppe areas of Kazakhstan and other similar dryland ecosystem of the region, improve biodiversity, protect rare or endangered flora and fauna, increase the store of carbon in biomass and soils and develop new knowledge on quantification of carbon sequestration under different land use systems. The five-year project, at a total cost of US$9.70 million, provides an opportunity for the GEF to be a catalyst to promote the successful integration of improved land and natural resource management in the drier regions of the country (and the region). The GEF funding intends to achieve this at a total incremental cost of US$5.27 million. The involvement of the GEF has encouraged other donors to contribute about US$0.10 million. The project has strong enthusiastic support of the local beneficiaries who have pledged an estimated US$1.93 million in cash and kind, with the Government providing the remaining US$2.4 million.

Baseline Scenario

The baseline scenario includes activities that will promote sustainable land uses in the country without GEF support. The government recognizes that these vast rangeland areas are in need of assistance both from an economic and environmental viewpoint. The rural development strategy currently under implementation defines criteria for providing public assistance to rehabilitate only those marginal areas that demonstrate promising potential (if potential is so low that public expenditures cannot be justified, incentives are provided to the resident population to relocate to areas of higher potential). The Shetzky Rayon represents a borderline case, where shifting from the current unsustainable cereal-based production system to the traditional livestock-based production system could provide enough potential to deserve governmental assistance.

Most if not all farmers in the pilot area realize that livestock-based production system is the way forward, but the majority does not have sufficient fund for the investment required. Access to lending services is limited. Local government assistance is limited to providing veterinary services, facilitating access to financial services, and controlling locust infestations. The annual spending by the local government in the farming sector of Shetsky rayon is around Tenge 19 million per year ($124,000). In addition, some of the wealthier farmers, and other rural populations owning under 10% of the land would invest around US$330,000 per year, or US$1,650,000 during the five years of project implementation.

The area receives limited benefits from some *national* initiatives. These include a 3-year government program for: (a) plant support US$28 million; (b) veterinary activities US$17.9 million; (c) preservation and development of elite seed stock and livestock breeding US$10 million; (d) rehabilitation of rural water supply and pipe line systems US$35 million; and (e) improvement of the information system for state land cadastre US$0.7 million. In addition the ADB is financing a US$55 million water resource management and land rehabilitation project and a US$0.7 million locust control project. TACIS is supporting a US$2 million integrated

marketing system. World Bank financed projects for the next five years is expected to be at approximately US$400 million.

The following table summarizes the baseline scenario for the five years of project implementation.

Financier	**US$ (over 5 years)**	**US$ (average per year)**
Government	2,400,000	480,000
Donor-support	100,000	20,000
Private farmers (beneficiaries)	1,930,000	386,000
Total	**4,430,000**	**886,000**

The baseline scenario demonstrates that annual investment in the project area, without GEF funds is about US$4.43 million. This would not be sufficient to allow a shift from the unsustainable crop-based production system to the traditional livestock-based production system on a scale large enough to effect tangible, measurable benefits. The relatively low level of investment would cause substantial marginal lands to be continued to be ploughed resulting in further soil, organic carbon and fertility losses. Also, project incentives under the baseline scenario would be significantly limited and would generate little interest among farmers and pastoralists to adopt sustainable agro-pastoral practices in the project area and/or beyond.

Alternative Scenario

The GEF Alternative would provide the means (above and beyond the baseline scenario) for meeting the proposed project's goals. The GEF alternative has allowed a range of additional activities designed to bring about a large scale conversion of the marginal drylands in Shetsky rayon from the unsustainable crop-based production system to the traditional livestock-based production system. The GEF Alternative includes:

(1) Development of Sustainable Land Use Systems
- Re-vegetation of abandoned wheat land including direct seeding, conservation tillage and acceleration of natural vegetation;
- Sustainable management of degraded pastures and rangelands, through shrub planting and maintenance, installation of livestock watering points in outlying grazing areas, thus opening up these areas to summer grazing; reduced grazing measures around villages
- Demonstrations, including inter alia, reseeding methods, acceleration of natural vegetation, optimal grazing.

(2) Initial Service Support to Producer Groups
(3) Quantification of Carbon Sequestration
(4) Public Awareness and Replication Strategy
(5) Project Management Unit

The estimated total cost of the GEF alternative is US$9.70 million.

Incremental Costs

The difference between the total project cost ($9.70 million) and the cost of the Baseline Scenario ($4.43 million) provides an incremental cost of US$5.27 funded by the GEF. The

following matrix summarizes the incremental costs.

Component/ Sector	Cost Category	US$ Million	Domestic Benefit	Global Benefit
Development of Sustainable Land Use Systems	Baseline	2.77	Increased availability of pasture for more profitable livestock production and reduced grasshoper infestations	
	With GEF Alternative	5.53		Carbon sequestration, biodiversity conservation, and control of land erosion
	Increment	2.76		
Initial Service Support to Producer Groups	Baseline	0.97	Improved livestock production, which becomes more profitable thanks to improved access to markets	
	With GEF Alternative	1.28		Ensures long-term sustainability of project interventions thereby ensuring global benefits over the long term
	Incremental	0.31		
Quantification of Carbon Sequestration	Baseline	0.41	Improved capacity to quantify carbon sequestration with potential to benefit from carbon trading	
	With GEF Alternative	1.31		New empirical data on which to base estimation of carbon sequestration in dry continental steppe ecosystems
	Increment	0.9		
Public Awareness and Replication Strategy	Baseline	0.13	Potential to replicate project activities within Kazakhstan	
	With GEF Alternative	0.85		Potential to replicate project activities outside Kazakhstan
	Increment	0.72		
Project Management Unit	Baseline	0.15	N.A.	
	With GEF Alternative	0.73		N.A.
	Increment	0.58		
TOTALS	**Baseline**	**4.43**		
	With GEF Alternative	**9.7**		
	Increment	**5.27**		

Global Benefits

The main global benefits of the propsoed project include: (i) improved knowledge on quantification and monitoring of carbon sequestration under different land use types; (ii) increased carbon sequestration for climate change mitigation, (iii) improved biodiversity; and (iv) control of land degradation.

While it is difficult to quantify and assign a value to most of these global benefits, the amount of carbon sequestrated under the project, including future potential, can be however estimated. Two independent estimations of carbon sequestration have been undertaken. The first was undertaken by scientists from the "*Kazakh Research Institute for Environment Monitoring and Climate*" (based in Almaty) and the second by members of the Agricultural Research Service of the "*US Department of Agriculture*" (Hydrolab, Agricultural Research Center, Beltsville, MD, USA). Neither estimation is based on empirical measurement of carbon sequestration because such empirical measurements do not exist (thus the need for the proposed project). Both estimations faces two types of uncertainty: (i) amount of carbon sequestrated per hectare as consequence of the various environmentally friendly practices; and (ii) number of hectares where such practices will actually be implemented. Depending from the different assumptions, both estimations lead to similar results: carbon sequestrated by the proposed project could range between 0.6 and 1.2 million tons. Therefore even adopting the most conservative assumptions, carbon sequestrated by the project would be at least 0.6 million tons.

Revegetation of abandoned cereal lands would increase carbon sequestered vis-a-vis a no-action option because it will accelerate the natural process to re-establish an equilibrium among different species. Natural regeneration would take at least 50 years, while revegetation efforts under the project could allow regeneration within 20 years (if land has been abandoned for more than 10 years, benefits are not worth the effort in which case the project will take no action). In addition the management of degraded pastures and rangelands will reduce overgrazing and thus increase the amount of biomass in the soil. This would also increase organic carbon stored in soil, quantified with an average of about 0.024 tons of C per year of soil carbon in reseeded wheat areas etc, or 0.3 t. C over 20 years. On the basis of these assumptions, it is possible to estimate the accumulation of carbon over a period of 20 years. The following table summarizes such estimation for the Schetzy rayon.

Carbon sequestration estimation

Technology	Soil type	C Seques (t/ha/yr) w/o proj	C Seques (t/ha/yr) w/proj	Incr in 20 yrs	Area (ha)	Total (C Tons)	Pct
1.1 Direct seeding	dark-chestnut	0.15	0.8	13	4,000	52,000	8.5%
	light-chestnut	0.1	0.7	12	6,000	72,000	11.8%
1.2.Concervation tillage, seeding of recently abandoned	dark-chestnut	0.15	0.6	9	8,000	72,000	11.8%
	light-chestnut	0.1	0.5	8	12,000	96,000	15.7%
1.3.Acceleration of natural vegetation	dark-chestnut	0.15	0.3	3	4,000	12,000	2.0%
	light-chestnut	0.1	0.2	2	6,000	12,000	2.0%
2.1.Impovments of degradeted pastures	dark-chestnut	0	0.3	6	4,000	24,000	3.9%
	light-chestnut	0	0.2	4	6,000	24,000	3.9%
2.2. Pasture protecting by planting shrubs	dark-chestnut	0	0.3	6	3,600	21,600	3.5%
	light-chestnut	0	0.2	4	5,400	21,600	3.5%
2.3. Overgrazing reduction (increase in number of watering points)	dark-chestnut	0.05	0.15	2	49,600	99,200	16.2%
	light-chestnut	0.03	0.1	1.4	74,400	104,160	17.1%
T O T A L					183,000	**610,560**	100.0%

Convert Total C to total CO2=	2,238,720	
	US$/ton of CO2	**T O T A L**
Value (US$)	2.5	**5,596,800**

Biodiversity Benefits: The steppe ecosystem of Kazakhstan is unique and the fields, fallow land, rangeland, gullies and ravines in the project area serve as storage of the gene pool of the native flora and fauna. Some plant and animal species, such as the red-breasted goose, golden eagle, manul (palla's cat), northern fern, thin poppy, etc. have become extinct over the years and many others are severely endangered. By improving the management of pastures and rangelands, the project seeks to restore and protect the natural habitats of many endangered species. Also, by providing training in rangeland and livestock management, as well as promoting public awareness, the project will broaden understanding of land degradation and related biodiversity issues among the project beneficiaries which will help in protecting and conserving local flora and fauna.

The project will achieve these global benefits by emphasizing and adopting an integrated ecosystem management approach which will also help in achieving ecological, economic and social goals at a local, regional and global level.

Additional GEF Annex 12
Response to Comments Received from GEF Council
KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

The project preparation team was pleased to receive technical comments from the German, Swiss and French teams and addressed these comments in subsequent project preparation work undertaken over the past few months. In-depth discussions on project design, methodology, scope, activities, costs and implementational arrangements were held with the Kazakh counterparts and concerned ministries. The project's overall objective and proposed activities as designed were agreed to be relevant and appropriate; a set of modifications were incorporated in the project document as discussed below.

Briefly, the project components and activities under each component have been revised and are summarized as follows:

COMPONENT	SUB-COMPONENTS	ACTIVITIES
1. Development of sustainable land use systems	**1.1 Management of ploughed lands**	
	1.1.1 Seeding program including: ▪ direct seeding of cereal stubble; and ▪ minimum tillage and seeding of recently abandoned lands.	Assistance to private farms for reseeding up to 10,000 hectares of ploughed lands directly and 10,000 hectares with minimum tillage. Farmers to receive grant for 75% of seeding cost. Project to obtain elite seed from Karaganda research institute with subsequent multiplication to be done by private farmers.
	1.1.2 Acceleration of natural revegetation	Assistance to private farmers for accelerating the natural revegetation on up to 10,000 hectares.
	1.2 Management of Degraded Pastures and Rangelands	
	1.2.1 Improvements to natural pasture and rangelands	Provision for introducing shrubs, improved fertilization and grazing management.
	1.2.2 Bio-diversity Monitoring	Documentation of the current bio-diversity in the project area and regular monitoring over five years.
	1.2.3 Lives tock watering points	Provision of up to 40 livestock watering points using windmills for extending livestock grazing area.
	1.2.4 Monitoring of lives tock enterprises	Monitoring of up to 20 selected livestock enterprises to develop management information.
	1.3 Validation and demonstration of new technologies	Demonstrations to be carried out on farmers' fields to extend use of practices for accelerating natural regeneration of the

		vegetative, seeding practices and management pastures & rangelends.
2. Initial Service Support to Producer Groups		
	2.1 Assistance to producer groups for marketing livestock and agricultural products	Project will assist farmers to organize themselves in farmer associations and to establish: (a) establish six milk collection; and (b) a regional agricultural market for meat, wool and hides and other farmer produce from the Shetsky Rayon.
	2.3 Livestock and crop husbandry advisory services for farmers	Program for strengthening existing akimat and MOA extension services to assist farmers introduce best livestock husbandry and fodder cropping practices. Project to provide staff training plus mobility allowance
3. Quantification of Carbon Sequestration		
	3.1 Carbon Stock Assessment	The project will provide assistance for the determination of carbon stocks in soil and biomass for the four main land use areas in the pilot study area. Project will provide for collection of samples, analysis and interpretation.
	3.2 Remote Sensing and Modeling	The project will provide for calibration of models for each land-use type, scaling up to entire project area using satellite imagery, provide baseline carbon map and prediction of potential carbon sequestration under different land use systems.
4. Public Awareness and Replication Strategy		
	4.1 Public Awareness at Local and National Level.	Project to provide: (a) public awareness campaign to be designed and implemented at local and national level.; and (b) capacity at local level in environment-related technical farming skills, at the national level in better management of environmental issues.
	4.2 Replication Strategy at National and International Level	Provision of regional workshops, field trips etc.
5. Project Management Unit		
	5.1 Project Monitoring	Provision for monitoring and evaluation of project activities.
	5.2 Project Administration	Administration of project.

Thus, the project would focus on the following land use types: (i) ploughed lands that were abandoned a number of years ago – in cases where 50% of the land is already under natural

vegetative cover would be left fallow to allow the growth of natural vegetation; (ii) ploughed land that has been recently abandoned and has a little natural vegetative cover would be subject to sustainable land management through direct re-seeding or minimum tillage seedingwith locally adapted grasses; (iii) lands that are degraded pastures or rangelands would be put under sustianable rangeland management, including controlled grazing.

A considerable amount of information requested by the reviewer is already available in working papers that were prepared by local and international experts. These included eminent Kazakh scientists and experts from USDA (ARS and GL-CRSP) who have vast experience in dryland rehabilitation, including rangeland and grassland rehabilitation and livestock issues. The working papers are available with the Project Preparation Unit. In order to allow the Project Document to remain within the generally prescribed length, details of project information – baseline scenario, revegetation program, activities for sustainable rangeland management biodiversity monitoring, livestock management, etc. – are provided in the working papers which can be made available upon request. Please see Annex 8 for the list of working papers.

Response to German Comments

Main comments

Although the problem of the future of Kazakhstan's vast abandoned cropland in the dry steppe zone is of economic and ecological interest, the DMP fails to develop approaches that are consistent with GEF policies and procedures and that are ecologically and economically sustainable.

Response. The proposed project is consistent with the Operational Program 12, (GEF OP-12) "Integrated Ecosystems Management" which is aimed at catalyzing widespread adoption of comprehensive ecosystem interventions that integrate ecological, economic, and social goals to achieve multiple and cross-cutting local, national and global benefits. The OP facilitates inter-sectoral and particiaptory approaches to natural resource management planning and implementation on an ecosystem scale. By emphasizing integrated ecosystem management and a comprehensive cross-sectoral approach it addresses many of the goals of global environmental conventions, including United Nations Convention to Combat Desertification (CCD), United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). The OP brings synergy to three focal areas (biodiversity, climate change and international waters) as well as land degradation to optimize multiple benefits. It responds to growing stakeholders' interests in adopting a holistic approach in accordance with national priorities.

The project has been prepared under the umbrella of OP 12 and project activities have been developed within the overall framework of an integrated ecosystem management approach to optimize positive ecological, economic and social benefits of activities aimed at restoring ecosystem structure and function. The project also supports the objectives of OP15 (Land Degradation) which emphasizes sustainable land management as inappropriate land use practices are among the main cuases of some global environmental problems. The expected project outcomes are consistent with the expected outcomes outlined in OP 12 and 14, viz. (i) creation of an enabling environment; (ii) institutional strengthening; and (iii) investments.

The project brings synergy between two focal areas within OP12: (i) Biological Diversity; and (ii) Climate Change. Through development of sustainable land use systems the project will protect and improve the existing biodiversity in the Shetsky rayon. The project has implications for climate change as it will assist in determining carbon stocks in soil and biomass in the four main land use areas in the pilot study area and through calibration of models be able to predict potential carbon sequestration under different land use systems. The information and models that will be developed on carbon sequestration are not currently available and it is essential to prove that this pilot methodology could be applied to other similar areas.

The principle of public involvement for project design and implementation has been key in preparation of this project. Information dissemination, consultation and stakeholder participation have been ensured with local populations, including NGOs and the project is facilitating a meaningful role in the elaboration of effective and economic natural resouce management services for both the community and the environment

In sum, the project will have both local and global benefits. The project will promote sustainable ploughed land and rangeland management and income generating activities which will allow improved management of land and vegetation. The more important global benefits will be (i) the information that will be developed on carbon sequestration which could be applied to other similar areas of Kazakhstan and the world with important implications for climate change; (ii) biodiversity protection and conservation; and (iii) and land degradation control.

The global benefits of the project are described as increase in the quantity and quality of fauna and flora - it is not specified which species or ecosystems are meant and, to our knowledge, there are no endangered species that could be protected by the described project.

Response. The steppe ecosystem of Kazakhstan is unique and the fields, fallow land, rangeland, gullies and ravines in the project area serve as storage of the gene pool of the native flora and fauna. The endangered species indicated in the Red Book of Kazakhstan that will be protected under the project, include:

Latin name	Russian name	English name	Habitat
Birds			
Rufibrenta ruficollis	Краснозобая казарка	Red-breasted Goose	migratory
Cygnus cygnus	Лебедь-кликун	Hoping swan	migratory
Pandion haliaetus	Скопа	Fish-hawk	migratory
Aquila chrysaetos	Беркут	Golden Eagle	migratory
Haliaeetus albicilla	Орлан-белохвост	White-tailed Eagle	migratory
Falco peregrinus	Сапсан	Peregrine Falcon	migratory
Falco cherrug	Балобан	Sather Falcon	migratory
Grus grus	Серый журавль	Gray crane	migratory
Anthropoides virgo	Журавль-красавка	Demoiselle	nesting
Otis tarda	Дрофа	Create Bustard	migratory
Otis tetrax	Стрепет	Little Bustard	nesting
Larus ichthyaetus	Черноголовый хохотун	Great Black-headed Gull	migratory
Syrrhaptes paradoxus	Саджа	Sandyrouse	migratory
Bubo bubo	Филин	Eagle awl	nesting
Mammals			
Felis manul	Манул	Manul (Pallas's Cat)	hillock lands
Ovis ommon collium	Казахстанский горный баран	Kazakh Argali	Rocky, hillock steppes
Flora			
Asplenium septentrionale (L.) Hoffin.	Костинец северный	Northen fern	hillock lands
Tulipa schrenkii Regel	Тюльпан Шренка	Schrenki's Tulip	steppe
Anabasis turgaica Iljin et Krasch	Ежовник тургайский	Perennial saltwort (Turgai Anabasis)	solonetz
Papaver tenellum Tolm	Мак тоненький	Thin Poppy	steppe
Polyporus rhizophilus (Pat.) Sacc.	Полипорус корнелюбивый	Polyporus	steppe

Increase in carbon sequestration - the calculation seems to be exaggerated, and it does not consider the self-regeneration of steppes as a comparison line. If the carbon sequestration is to be traded on the world market, the global benefit is not valid!

The carbon sequestration component is a target research activity; it is designed to provide technical assistance for improving the existing knowledge and skills available in the country to quantify and monitor carbon sequestration so as to enable the government to meet its obligations under the United Nations Convention on Climate Change. No carbon trading is envisaged under the project.

While it is difficult to quantify the exact amount of carbon sequestrated under the project, including future potential, estimations can be made based on scientific data. Two independent estimations of carbon sequestration have been undertaken: the first by scientists from the "*Kazakh Research Institute for Environment Monitoring and Climate*" (based in Almaty) and the

second by members of the Agricultural Research Service of the "*US Department of Agriculture*" (Hydrolab, Agricultural Research Center, Beltsville, MD, USA). Neither estimation is based on empirical measurement of carbon sequestration because such empirical measurements do not exist (thus the need for the proposed project). Both estimations faces two types of uncertainty: (i) amount of carbon sequestrated per hectare as consequence of the various environmentally friendly practices; and (ii) number of hectares where such practices will actually be implemented. Depending from the different assumptions, both estimations lead to similar results: carbon sequestrated by the proposed project could range between 0.6 and 1.2 million tons. Therefore even adopting the most conservative assumptions, carbon sequestrated by the project would be at least 0.6 million tons.

Revegetation of abandoned cereal lands would increase carbon sequestered vis-a-vis a no-action option because it will accelerate the natural process to re-establish an equilibrium among different species. Natural regeneration would take at least 50 years, while revegetation efforts under the project could allow regeneration within 20 years (if land has been abandoned for more than 10 years, benefits are not worth the effort in which case the project will take no action). In addition the management of degraded pastures and rangelands will reduce overgrazing and thus increase the amount of biomass in the soil. This would also increase organic carbon stored in soil, quantified with an average of about 0.024 tons of C per year of soil carbon in reseeded wheat areas etc, or 0.3 t. C over 20 years. On the basis of these assumptions, it is possible to estimate the accumulation of carbon over a period of 20 years. The following table summarizes such estimation for the Shetzky rayon.

Carbon sequestration estimation

Technology	Soil type	C Seques (t/ha/yr) w/o proj	w/proj	Incr in 20 yrs	Area (ha)	Total (C Tons)	Pct
1.1 Direct seeding	dark-chestnut	0.15	0.8	13	4,000	52,000	8.5%
	light-chestnut	0.1	0.7	12	6,000	72,000	11.8%
1.2.Concervation tillage, seeding of recently abandoned	dark-chestnut	0.15	0.6	9	8,000	72,000	11.8%
	light-chestnut	0.1	0.5	8	12,000	96,000	15.7%
1.3.Acceleration of natural vegetation	dark-chestnut	0.15	0.3	3	4,000	12,000	2.0%
	light-chestnut	0.1	0.2	2	6,000	12,000	2.0%
2.1.Impovments of degradeted pastures	dark-chestnut	0	0.3	6	4,000	24,000	3.9%
	light-chestnut	0	0.2	4	6,000	24,000	3.9%
2.2. Pasture protecting by planting shrubs	dark-chestnut	0	0.3	6	3,600	21,600	3.5%
	light-chestnut	0	0.2	4	5,400	21,600	3.5%
2.3. Overgrazing reduction (increase in number of watering points)	dark-chestnut	0.05	0.15	2	49,600	99,200	16.2%
	light-chestnut	0.03	0.1	1.4	74,400	104,160	17.1%
T O T A L					183,000	**610,560**	100.0%

Convert Total C to total CO2=	2,238,720	
	US$/ton of CO2	**T O T A L**
Value (US$)	2.5	**5,596,800**

Self re-generation of steppes will serve as the baseline of carbon stock which will be measured prior to the implementation of project activities.

Reduction in wind and water erosion and improvement of water quality - these are not of global relevance

Response. In the Shetsky rayon, low vegetative cover combined with periods of high wind speeds and dust storms as well as low duration rainfall, create conditions conducive to wind and water erosion. Organic matter in dust oxidises rapidly when taken in the atmosphere, releasing carbon (which has been accounted for in the carbon sequestration estimation. In the publication: "Method for Mapping and Treatment of Stony Land Subject to Erosion in Semiarid Regions" undertaken by the Ministry of Agriculture, Israel and Kazakh Academy of Sciences extensive details have been provided on soil erosion and conservation methods. Soil fraction often removed by wind and water erosion tends to be of higher C content than the bulk soil (Lal et al. 1976). It is estimated that 20% of C lost to erosion is emitted to the atmosphere as CO2 (Lal et al. 1998). Erosion control is thus important for optimizing C sequestration which is of important global relevance. Also, wind erosion in the project area is resulting in further degradation of the already poor quality land and is attracting damaging locust populations which are trans-boundary which further underscores the need for erosion control.

There is no detailed analysis of the current situation in the project area and therefore no baseline against which impacts can be measured….The project concept does not contain any justification for the selection of the project site in Shetsky rayon. It lacks a catalogue of criteria for the selection of the project site.

Response. A detailed baseline socio-economic survey was undertaken at the start of project preparation and the methodology and results of the survey are provided in Working Paper 1.

Justification for selection of Project Site in Shetsky Rayon:
Selection criteria: The project activities for the revegetation of abandoned lands will be implemented in eleven sub-districts1 of the northern zone of Shetsky Rayon, Karaganda Oblast, an area of deep rural poverty with unfavorable climatic, social, economic and technological conditions that restrict economic development opportunities. The selected project area meets the following criteria that were agreed between the project identification team and Inter-Ministerial Working Group in June 2000, namely:

(i) two-thirds of the cereal areas are unprofitable for cereal production (less than 600 kg/ha) or are abandoned;
(ii) the soils and landscapes are suitable for introduction of sustainable land use practices, e.g. sown fodder/pastures/rangeland or rehabilitation of natural vegetation;
(iii) average annual rainfall is below 300 mm/year;
(iv) the site is easily accessible for demonstration purposes; and
(v) the project zone is representative of other areas to allow replicability of activities in and outside the country.

Briefly, the proposed **project area** covers some 1.38 million hectares and the bulk of the land is classified as rangeland, much of which is degraded due to a lack of management and frequent fires. Since the Virgin Lands Scheme introduced in the 1950s, there has been a considerable reduction of cropping and at the present time there are 0.52 million ha of abandoned arable lands in Karaganda Oblast alone. It is estimated that over 15 million ha are going out of cereal production in Kazakhstan. The baseline socio-economic survey confirmed the growing importance of livestock as a source of household income with 98% of the households having cattle, and over 60% sheep and horses. However, grazing pressures, especially near homesteads, has resulted in decreasing the quality of rangelands around village communities in the project area. Also, the survey highlighted the difficulties of marketing livestock products in the area due to distance and high cost of transport, as well as the lack of market information available to farmers. Low farm incomes and lack of rural opportunities has made it important to diversify income-earning opportunities in order to raise family incomes and to alleviate poverty. The affected population in the project area is approximately 20,000 people.

The project proposal does not consider all relevant and realistic alternatives.

Response. The project preparation team did consider alternatives:
The option of no intervention on the land was discussed by the project preparation team; however, scientists and experts, some of them from the Institutes of Land Use Classification Soils, Remote Sensing and Modeling, and Botany pointed out that natural revegetation of the

land could take over 50 years and that the type of natural vegetation (often wildgrass) would not serve as the best source of C sequestration as fast vegetative cover. It was agreed that the alternative of not doing anything on the ploughed lands and not controlling the overgrazing around village communities, would increase the severity of land degradation, including severe wind and water erosion, loss of carbon and loss of biodiversity. Also, there is no telling that the local population would allow land in the region to remain fallow. It is possible that such land would be ploughed periodically, particularly in years of good precipitation, and such a practice would lead to a downward spiral of land degradation. However, the project will allow for natural regeneration in some areas which will provide a benchmark against which project impacts can be measured.

Whether investments in Kazakhstan's marginal cereal-growing areas are justified at this juncture. In this regard, land ownership had resulted in farm ownership being vested in individuals who have minimum experience in small-scale or commercial farming. Without providing the small landholders and commercial farmers access to information on sustainable agricultural practices and technology, it was apparent that the new farmers would further degrade the already marginalized lands, compounding the problems of lost biodiversity, low carbon sequestration and the spread of desertification. The existing institutions were ill equipped to address these issues. Moreover, the spillover effects of these unsustainable land use patterns could also have major consequences for the surrounding countries and it was deemed appropriate to initiate this project and stem further land degradation and its accompanying adverse impacts. It was agreed to allow natural regeneration of the abandoned land without reseeding and planting activities in those ploughed lands where 50% of the area is already under vegetative cover.

Develop an integrated, cross-sectoral sustainable land management approach to address the myriad economic, ecological and social issues facing the populations living on these degraded lands.

Given the ecological and economic situation in the area, it was agreed to adopt this alternative as there was an urgent need to assist the populations of the area with income generating activities through sustainable management of the environment. There is an immediate need to bring this rangeland back into more productive and sustainable use to prevent further land degradation and its adverse ecological consequences. Both the national and local Government of Kazakhstan requested assistance to rehabilitate the lands and convert the cereal-based production systems into livestock-based production system (as was the case before the Virgin Lands' Program of the 1950s) to provide the local population a sustainable means of livelihood.

The proposed methodology is weak.

Response. The project has been developed on the basis of the findings and recommendations outlined in the working papers. As mentioned earlier, the working papers were prepared by Kazakh and international experts/scientists (USDA, Global Mechanism, etc) who have vast experience in dryland rehabilitation. The methodology for each component is detailed in the working papers and has formed the basis of the activities described in the Project Document. To maintain the prescribed length of the Project Document, the details of the methodologies are not

described in these documents, but may be obtained from the working papers. The revised project components and activities are provided in Section C of the Project Document.

The budget is not detailed enough.
Response. A detailed budget has been prepared and is provided in Annex 3 of the Project Document.

Other Comments:
The estimated improvement of the farmers' economic situation is not justified because of the weakness of the basic assumptions: Currently the limiting factor for livestock breeding is generally not the deficiency of productive pastures, but financial problems of the farmers, who cannot enlarge their herds.

Response. Currently, the limiting factors for livestock breeding are a combination of the lack of winterfeed, lack of water points in outlying areas for summer grazing, poor markets and inadequate finance. It should be pointed out that after an initial drop in livestock numbers, these numbers have started to increase in the Shetsky region; however, in the socio-economic survey undertaken in 2001 and in subsequent consultative meetings, farmers indicated that lack of winterfeeds and markets were primary problems. A lack of good quality hay and pastureland in the winter months make it difficult to maintain cattle / livestock. The survey highlighted the difficulty of marketing products in the area due to distance and high cost of transport, as well as the lack of market information available to farmers.

To address these, the project will assist in the production of more winterfeed and the establishment of 45 livestock watering points 5-7km from the villages. While the project will focus on the provision of feed and markets, the government of Kazakhstan is arranging to provide credit to the farmers to allow them to purchase good quality livestock which in turn will promote good quality livestock breeding. Also, in late 2001, the Ministry of Agriculture established a state corporation "Mal Onemderi" with the objective to purchase livestock products directly from farmers at fair prices.
In sum, finance, feed and markets are important determinants of livestock numbers and the proposed project will address these issues which will result in better livestock quality and numbers.

The following issues are not indicated in the DMP concept: What is the difference between the livestock carrying capacity of naturally recovered abandoned lands and reseeded land?
Response. The project will examine this issue during implementation.

Naturally recovered abandoned lands often result in rangelands of inadequate quality. Such vegetation is often spiny, poisonous, flimsy and does not have much carrying capacity. On the other hand, abandoned lands re-seeded with perennials that have long roots, have a dual benefit. By increasing biomass both above and below ground, they not only improve the land for pasture/grazing (sometimes resulting in quadrupling the livestock carry capacity) but also help to

conserve carbon in the soil. Also, the project will improve the carrying capacity of existing degraded rangelands.

What species and races of livestock is it intended to breed (this is important in view of their very different impact on vegetation)?
Sheep, cattle and horses are the primary animals in the area.
See Working Paper 4: Revegetation Program for Abandoned Ploughed Lands and Trial/Demonstration Programs.

How is the currently low stocking rate to be increased?
Low stocking rate will be increased by: (a) improving the land's carrying capacity – the stocking rate in the project area is currently 20-22 heads of conventional grown sheep (cgs) per 100 ha. It is estimated that project interventions will help increase the rate to 33-37 cgs per 100ha; (b) improving access to markets so that they can benefit from selling meat, milk and other livestock products; (c) increased incomes generated from selling milk, meat, etc. as well as credit provided by the government will provide purchasing power to increase stocking rate.

What type of livestock breeding systems should be developed?
Improved pedigree of livestock animals is the basis of a sustained livestock-based production system. The project will support measures for breeding improvements based on proved scientific recommendations. Primary focus would be on meat production, so cattle, sheep, and horses will receive top priority. The second priority would be milk production.

For details, see Working Paper 9: Assistance Program to Producer Groups for Marketing Livestock and Agricultural Products.

What is the market situation like for different livestock products in Kazakhstan and outside? How will the growing production of meat, skins, wool, milk etc. influence the producer prices and the economic features of private farms in future? … Assistance to producer groups to improve the marketing of increased milk and meat production. The activity does not indicate the current market situation for the products for which it is intended to increase production.

Response. The livestock sector in Kazakhstan in the past decade was characterized by drastic changes in both supply and demand. Only recently has the livestock population started to increase, and that too only at a subsistence rural household level. The Government's 2003-2005 development plan aims to focus on increasing the marketing of primary and processed livestock farm products in both domestic and foreign markets. There are opportunities for sustainable growth given the significant potential that could be harnessed from Kazakhstan's large underutilized rangeland resources and the growing markets.

According to the information provided by the Ministry of Agriculture in the AgroInform Bulletin of September 2002:

Livestock currently accounts for approximately US$50 million in exports, down from close to US$150 million a few years ago. (During the Soviet period, the two major export goods (meat and wool) were approx one million metric tones each).

Although currently the sector is mainly supplying local markets, in the longer term there could be a potential for exports into neighboring countries of the region where incomes are rising and demand for livestock products is increasing. Participation in these markets (i.e. Russia, China, Middle East) may require specific trade arrangements and or WTO membership.

Major livestock export products during the 1992-2000 period included hides and skins (38%), beef (25%), wool (18%) and mutton and lamb (6%). These exports, apart from wool, were largely claimed to be a result of "dumping" low costs products associated with the downsizing of the inventory.

Currently the three major livestock products are meat (mainly beef and lamb), milk and wool.

In the Karaganda oblast, meat production falls far below demand so that deficit is covered by imported meat and meat products (1/3 comes from other regions of Kazakhstan and the balance from CIS and other countries. The existing capacity for processing raw meat is insufficient in nearly all regions and there exists a high potential for developing meat processing plants.

Commercial milk processing fell from 61% in 1990 to 7.7% in 2001 of total milk production. Processing capacities operate at an average of 25% of total capacity. Poor milk processing units has resulted in imports of large quantities of milk products, especially tinned milk.

In Kazakhstan, there are 31 enterprises for hide processing with a total capacity of 2.7 million conditional hides per year that provides processing of only about 40% of produced raw material.

Only 12 enterprises with a total capacity of 33.4 thousand tonnes per year are processing wool. Deficit is 40%

Shearing and removing hides are done with inappropriate technologies that sharply decreases quality of raw materials and makes them uncompetitive in the domestic markets.

Overall, sour cream, cheese and brynza are competitive in the domestic market. Only wheat flour and cotton fiber are competitive in international markets.

For details, see Working Paper 9: Assistance Program to Producer Groups for Marketing Livestock and Agricultural Products.

The project intends to use herbicides to reduce weeds on the abandoned lands. These herbicides will result in a decrease of the steppe plants that are still or already incorporated in the current vegetation cover. Additionally, environmental pollution of air and soil is to be

expected. Local herbivores (i.e. Citellus, Marmots, etc.) that have already repopulated the fallows will either be poisoned or may starve. This will certainly have negative effects on the predators of these animals as well (i.e. raptors, wolves, foxes, badgers, etc.).

Response. Although farm input use is the farmers' responsibility, the project will use this opportunity to assist farmers to use these inputs in a more safe and responsible way. The project does not plan to finance the purchase of Chemical Control Agents (CCAs) although farmers will continue to use some CCA during their regular farming activities during the life of the project, especially for the control of locusts and hessian flies. The Government of Kazakhstan has recently upgraded it management of the control and oversight regarding use of pesticides with the help of FAO (FAO/TCP/KAZ 0065 (E) "Emergency Program for the Control of Locust Outbreaks"). A new Department of Plant Protection and Quarantine (DPPQ) was established in the Ministry of Agriculture by the Government of Kazakhstan. The project will build on this development. All farmers that use or will use CCA on their lands will be trained in the storage, handling and use of these chemicals as well as with respect to the careful disposal of the containers. The use of appropriate clothing will be encouraged through demonstration. The approved chemicals used are pyrethroids (Kinmix, Fury, Karate), phenyl pyrazoles (adonis) and benzoyl ureas (Dimilin) - all class III chemicals. Farmers may also use chemicals for the control of ticks and other parasites. These farmers will be included in the training in risk preventing; and in the handling, storage and use of control agents. Participating farmers are expected to develop pest management plans that indicate the expected pests and corresponding anticipated control methods.

There are no indigenous tree species. The planting activities would probably be done with non-indigenous species and the long-term success of any tree plantation in the dry steppe zone is doubtful.

During the appraisal mission, the sub-component on tree planting was dropped, so no tree planting activity will be undertaken directly by the Project. However, the planting of locally adapted shrubs and bushes will be supported by the Project.

Public awareness and capacity building activities may be useful, but neither a detailed concept for this activity nor the concrete contents are described.

Details are provided in Working Paper No.14: Design of Public Awareness Campaign, Capacity Building and Replication Strategy.

The PMU should not be regarded as a single project component but is to be described (as additionally done) under "Institutional and Implementation Arrangements"

In most Bank-funded projects, the Project Management Unit is presented as a component of the project.

The description of management and implementation of the project is very vague and insufficient. In particular, the number and composition of PMU staff is poorly justified. The PMU seems to be quite

small for the implementation of such a large scale project. There is no indication of the additional technical staff required.
During the appraisal mission, implementation arrangements were finalized with the local government. Please see Project Document, Section C4.

Budget. ***The DMP concept only breaks down the overall project budget on the four components. A more detailed budget is essential.***
The detailed costs are presented in Annex 3 and 5 of the Project Document.

Incremental Cost Assessment. ***The reviewer questions the assumptions used as the basis for preparing the ICA (see 1.). The global benefits of the GEF course of action are not evident (see 2.).***
As the ICA is a summary of the project proposal, the above arguments are all valid for the ICA.

The Incremental Cost Analysis has been revised and is presented in Annex 11 of the Project Document.

Response to Swiss Technical Comments

Main Concerns

Component 1: Develop alternate land uses ($6.6 million)
The revegetation of large land areas, involving nearly 70% of the peasant farms, seems to be unrealistic; there may be involvement, but what about sustainability? To ensure the engagement of the farm heads, who are normally women, one option may be to organize priority support actions and microcredits on the level of individual households.

Response. The project has been developed to ensure social, economic, financial and ecological sustainability of project activities. During project preparation, key stakeholders, individual farmers, farmer organizations, NGOs, and local officials have been fully consulted in the development of detailed project components. As women are deeply involved in productive labor, such as livestock tending, the project sought to ensure the involvement of women in project preparation. A baseline socio-economic survey at the village level was conducted at the very start of project preparation in the project area where interviews were split into two groups, one covering heads of peasant farms, the other heads of individual households. In each case a random sample of 102 individuals was selected and all focus groups included both men and women in the project area.

Project activities have been developed to provide considerable benefits to farmers which will help ensure their widespread adoption and sustainability both within the project area as well as outside the Shetsky rayon. The shift from the current unprofitable cereal-based production system to the more profitable and sustainable livestock-based production system will provide farmers and beneficiaries with improved household incomes and better living standards. The low-cost, easily-available agricultural technologies being provided to farmers will assist in rehabilitating the degraded lands and their carrying capacity. The increase in numbers and

quality of the livestock and livestock products such as milk, meat, wool and the establishment of a local market where these goods could be sold at competitive prices will act as incentives to farmers in the project area and encourage increased adoption of project activities, both within and outside the project area. Also, the Government is establishing a state corporation, "Mal Onemderi" with the objective of purchasing livestock products directly from farmers at fair prices.

In addition several actions have been adopted in project design to guarantee sustainability:

- existing scientific institutes (such as the Grain Research Institute, Soils Research Institute, the National Center for Land Management, among others) will share responsibility for project implementation;
- the project involvement key stakeholders early in project preparation to increase social sustainability;
- the proposed technology should achieve financial sustainability in a few years; and
- environmental sustainability is the project's may thrust.

For further details, see the attached Project Document, Section F.

Planting activities within the component framework seem to be another crucial problem. Shelterbelts and block plantings are an example of the highly politically initiated campaigns in the Zelina planning during the Soviet era. Training of farmers in nursery techniques will be not sufficient to replace these campaigns; a system of incentives for the farmers must be developed.

Response. Tree planting has been dropped from the project; upon consultations with the primary beneficiaries and other stakeholders, locally adapted shrubs and rangeland species are now being promoted under the project.

The strategies described in the producer groups component seem to be insufficient from the point of view of access to markets. The former Soviet system of transport to market, on the one hand from the kolkhoz and on the other hand for legalized private crop production, was extremely well organized, without any initiative from the individual farmer. The post Soviet waiting syndrome among the local population will hinder market-orientated initiatives, if all activities intended to improve access to market and diversify the product lines are not combined with participatory and initiative-creating tools.

Response. The project has addressed the issue of markets under a new component as detailed in the revised Project Document: "Initial Service Support to Producer Groups".

The market sub-component was developed as an outcome of the consultative meetings held with farmers and other stakeholders in the project area who emphasized the lack of markets as a primary economic concern. With full participation and input of the primary stakeholders, it was agreed to establish an agriculture market in Aksu-Ayuli to sell agriculture products from private farmers in the region. Aksu-Ayuli was selected as the location because it is centrally located, making it a more efficient and effective point for the collection and sale of farmer produce and products. The location of the market site is a mere 100 meters from the Almaty-Astana highway. This provides a very visible and accessible location for suppliers (family farms) and wholesale

buyers. Development of the market will take place in two stages: during the initial stage, wool, hides and hay will be collected, stored and sold; the second stage will add livestock and other small farmer produce.

For further details, see Project Document, Section C and Annex 2; para 2.1.2.

Component 2: Monitoring of Carbon Sequestration ($1.7 mio). The budget of this component is rather high in comparison to the other two. The necessary GIS and remote sensing tools are not described in detail (source of data, soil-/water-parameters, sensors, scales). It seems doubtful that modelling the carbon stock changes under alternative management options on the detailed level proposed really makes sense when seen in the framework of the main objectives of components 1 and 3 . Extrapolating the main carbon sequestration factors in soil and vegetation will not be sufficient, because ecosystem parameters under Central Asian continental steppe climates (e. g. salination of soils) are highly divergent.

Response. The budget of the component on carbon sequestration has been revised downward and is reflected in the revised Project Document as US$1.3 million.

This is a target research activity; it is designed to quantify carbon sequestration in soil and vegetation under different land use systems. The research effort would be instrumental in identifying the land use management under which sequestration of carbon would be maximum. Through re-vegetation of the abandoned cereal lands and rehabilitation of the degraded pastures with deep-rooted perennial grasses as designed under component 1, an ancillary benefit under the project is increased carbon sequestration in soil and biomass in the project area. A quantification of carbon held in soil and vegetation, together with monitoring of carbon sequestration magnitudes and dynamics in the project area could provide reliable estimates of carbon sequestration potential under different land use systems. Through the public awareness and replication program developed under component 3, project activities as well as the information obtained on carbon sequestration could be extrapolated to other parts of Kazakhstan and Central Asia that have similar agro-climatic conditions. Thus, this project can play a pivotal role, not only in Central Asia, but globally, in the development and implementation of an effective carbon monitoring and management system.

See Project Document, Section C and Annex 2 for details on carbon sequestration measurements and monitoring.

Component 3; Capacity Building and Replication ($0.55 mio). This component concerning the budget and the time needed seems to be underestimated. To ensure the sustainability of capacity building and replication activities, the activities proposed under this component must be included from the beginning, not only in the last three years, as planned in the logframe. Incentive mechanisms for extension farmers and consultants from governmental and NGO organisations are recommended to help ensure the success of this dissemination component after the phasing out of the project.

Response. The budget for this component has been increased to US$0.9 million.

While the project will promote capacity-building and sustainability of project activities from the very start of project implementation, replication activities will commence only after the project

has demonstrated tangible benefits on the ground which is expected over the first two years of project implementation. Support for and adoption of project activities in other similar agro-climatic sites of Kazakhstan and other Central Asian countries will be stronger when there are quantifiable positive outputs resulting from project interventions. It can be realistically estimated that revegetation of the abandoned cereal lands and rehabilitation of the pasturelands will start yielding positive economic and ecological results at least a year after project implementation.

Conclusions and Recommendations. It seems evident that during project component design, the key factors for identifying the Shetsky district were not made clear or described in the baseline survey conducted in 2001. Therefore it is recommended that elaboration of these key factors be included in the detailed activity planning for Components 1 and 2. Otherwise, the replication strategy for the other northern Oblast of Kazakhstan would be not successful.

Response. Please see our response above to this similar comment made by the German group.

To ensure the participation in the steering mechanism on the district and local levels, it is recommended that membership on the steering committee be reconsidered. One option adapted to the conditions in the post-Soviet context in Kazakh institutions could be: only 1 member from each ministry (MNREP; MOA); no member from the Academic centre; 1 member from the National agency, 1 international senior consultant or adviser with an agricultural, environmental, or biodiversity background; 1 member from the district and local Akimats; 2 members from farmers / woman associations – altogether 7 members.

Response. The composition of the Project Steering Committee was agreed upon with the Government of Kazakhstan and will consist of eleven members, including, the Vice Minister Ministry of Environmental Protection (Chairperson); Vice Minister, Ministry of Agriculture (Co-chairperson); Head of Department of the Ministry of Economy and Budget Planning; Director of Ecological Policy Department of the Ministry of Environmental Protection; Head of Division of the Land Agency; Deputy Akim of Karaganda oblast; Akim of Shetski rayon; Chairperson of Oblast Association of Dairy Enterprises; Director General of Balkhash Sut Dairy Plant; and Chairperson of the Farmer Association of the Shetski Rayon. The Project Management Unit Head will act as ex-officio secretary.

Conclusion. In conclusion it can be stated that the budget of Component 2 is rather high. The remotely sensed data requirements could be reduced, using existing data from Kazakh and Russian institutions as monitoring tools. It is recommended that a reduced budget be transferred to Component 3, especially to participatory introduced public awareness and replication activities in the villages. Budget exchanges between components 2 and 3 – depending on a necessary detailed rebudgeting – could be an option (for component 3: $1.7 mio; for component 2: $0.55 million)

Response: Please see response to these statements in the preceding paragraphs.

Response to French Technical Comments

The incremental Cost Analysis needs to be explained. It also shows that without project, the financial resources from public funds would be very modest (USD66,000) as with the project, Government will invest USD 2 mln, which seems contradictory with the above statement of low resources.

Response. The Incremental Cost Analysis has been revised and is provided in Annex 11 of the attached Project Document.

It seems doubtful that 400 farmers will invest an average of USD4,500 each

Response. The project scope and costs have been revised; total project cost is US$9.70 million. The project site of 1.38 million ha has an estimated 585 registered farms, with an average farm size of 1,070 ha. Each farm comprises several farmers so that although the project will target 152 farms in the first year of project implementation, the project will directly benefit a larger number of beneficiaries and stakeholders in the project area. Also, the on-farm demonstrations and validation of technologies on farmers' fields as well as rehabilitation of community-level pasturelands will increase the scope of impact of project interventions both within and outside the Shetsky rayon. Such a broad inclusion of direct and indirect beneficiaries under the project allows a reduced average contribution by each farmer towards implementation of project interventions. Moreover, most farmer contribution is in-kind, such as fuel, seeds, and small farm machinery which they are able to afford and are willing to contribute to reap benefits expected from shifting to the more sustainable livestock-based production system.

It should also be explained why GEF is financing 40% of the component #1 which deals with agricultural production.

Response. Component one – development of sustainable land uses - is the primary thrust of the project. It does not deal with agricultural production, but is designed to allow farmers to shift from the current unsustainable cereal-based production system to the traditional livestock-based production system which will result in significant local and global benefits. The global benefits envisaged upon implementation of component 1 in conjunction with other project components include: (i) increased carbon sequestration for climate change mitigation, (ii) improved biodiversity; and (iii) control of land degradation. The incremental cost of removing obstacles to facilitate this move to the more sustainable livestock-based production system has been calculated at US$5.27 million and justifies the higher percentage of GEF financing relative to the other components. GEF funds will promote the introduction, demonstration and dissemination of relevant low-cost technologies which otherwise would not have been made available to farmers. Moreover, as local benefits expected under the project will be not be realized for some years, it is likely that without GEF support the farmers would not adopt the proposed project interventions.

On the other side, the "carbon"aspect is relevant for the GEF, even if the data seems very optimistic.

Response. Please see our response to this comment under the preceding section that addresses comments from the German group.

Additional GEF Annex 13
Environmental Assessment and Environmental Management Plan
KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

Environmental Assessment

The global environmental objectives of this project are to reverse land degradation, to improve biodiversity, protect rare or endangered flora and fauna, increase the store of carbon in biomass and the soils and to maintain if not improve the soil quality. The proposed project aims to significantly expand the adoption of appropriate and environmentally friendly pastoral agriculture and promote sustainable land use practices in the rangeland areas of central Asia.

An environmental assessment was made of the various project activities. In summary, the initiatives should lead to an increase in the quality and quantity of flora and fauna, an improvement to the soil and water quality and an increased carbon sequestration in soil and biomass. In conclusion, this project will have substantial environmental benefits. However, care must be taken to prevent (exotic) invasive and 'weed' species becoming dominant through a careful choice of seed and seedlings and through improved management practices. Also farmers should not be tempted to reverse long-term environmental gains by ploughing grassland. Meetings were held with the farmers and they agreed to a binding conditionality, which prevents them from ploughing rehabilitated grazing land, unless there are exceptional circumstances; these have to be agreed by the local farmers and the MEP. In addition, the project will provide initiatives to increase the availability of feed, especially winter feed and present more opportunities to sell animals, milk, meat etc., thus reducing the need to obtain cash from cereal sales. Through better pasture management, and an increased provision of winter feed, there will be more farm animals. These will be housed in barns during the winter. Thus, manure disposal may cause a problem and so steps will be taken to educate farmers on environmental friendly manure management techniques, especially its use in hay fields. Therefore, mitigation measures are proposed to address the possible (negative) environmental impacts. These are shown in Tables 1. below.

Table 1. Environmental Management Plan for Kazakhstan Project: Environmental Impacts

Issues	Anticipated/Potential Environmental Impacts	Effects on Environment	Actions or Mitigation Measures
Abandoned land reclaimed, range-land management, improved, no land converted back to arable farming	Increased biodiversity and carbon store, potential, reduction of invasive weeds/pests and unpalatable weeds. **Probability of occurrence: Moderate to High.**	More sustainable use of land, greater biodiversity and increased C. storage. More indigenous species.	Formulate binding agreement with farmers & MEP not to plough reclaimed pastures. Provide increased market opportunities for animal products. Reclaim watering points. Provide training in land management.

Soil Quality	With the introduction of better pastoral (and arable) farming systems, soil quality will improve. **Probability of occurrence: High.**	Better productive lands with increased organic matter and carbon sequestration. More microbiological activity.	Undertake soil monitoring of selected areas to establish the effect of better farming systems on soil quality. Farmer training.
Insignificant increase in carbon sequestration	If this occurs then the global impact of the project would be greatly reduced. In turn could affect the whole ecosystem negatively and the anticipated increase in animal off-take will not occur. **Probability of occurrence: Very Low.**	Mitigation measures will increase carbon sequestration and biodiversity. These include reclaiming ploughed areas with local grasses and legumes, improved management of all rangelands, increased grasses & shrubs on all land-use types.	Ensure that species choice is appropriate for land and climate. Ensure that choice of plant species is biased to those that will have a comparative advantage in carbon sequestration. Farmer training. Install systems to measure and monitor C. accumulation.
Biodiversity	Better rangeland management &, conservation measures, fire management, contour planting, erosion protection and snow capture with shrubs. **Probability of occurrence: High**	Increased biodiversity on all land use types. Pressure taken off pastures and rangeland near habitations, thus encouraging plant recovery. Reduction of invasive species.	Observe impacts of new plant and animal populations. Monitor biodiversity. Train beneficiaries in monitoring and sustainable use of species, especially medicinal plants etc.
Manure management	Increased animal numbers may cause a manure storage & disposal problem during the winter **Probability of occurrence: Low.**	Effluent leeches into water system, affects nutrient balance and potable water. Methane venting, (but low in winter).	Correct handling, storage and use Farmer training and demonstration. Possible methane capture & use, but cost may be high.

Environmental Management Plan (EMP)

A. MITIGATION PLAN

Table 2. Mitigation Plan

Component	Potential Issues	Mitigation Measures	Cost	Responsibility
Management of abandoned ploughed land: seeding program & minimum tillage etc.	Inappropriate ground preparation and choice of species, management poor. Over grazing of	Through demonstration and training select correct techniques. Undertake species trials if necessary. Demonstrate pasture management techniques. Public awareness	Included in the project component.	PMU aided by research institute and Akimat officials.

	reclaimed areas.	and replication.		
Improvement to natural pastures and rangelands.	Ground preparation and choice of species inappropriate, management poor. Over grazing of reclaimed areas	Through demonstration and training select correct techniques. Undertake species trials if necessary. Demonstrate pasture and rangeland management techniques. Public awareness and replication.	Included in the project compone nt.	PMU aided by research institute and Akimat officials.
Livestock watering points.	Poorly sited, lack of maintenance, over grazing round watering points. Breakdown of windmills leading to lack of water.	Choose sites carefully, using local knowledge rather than local influence. Provide training in maintenance. Have repair contract with provider. Provide training in rangeland management.	Included in the project compone nt. Maintena nce contract	PMU, contractor, research institutes and Akimat officials.
Increased animal numbers in winter housing facilities.	Insufficient and poor storage facilities for cattle and cattle waste. Inappropriate disposal. Seepage of waste into groundwater and well water supply.	Demonstrate proper housing facilities for cattle that include waste management, storage and disposal. Demonstrate the use of organic fertilizes on pastures/kitchen gardens etc. Take measures to prevent methane venting; examine economics of methane capture and use.	Included in the project compone nt.	PMU aided by research institute and Akimat officials.
Waste disposal problems from agro-industries.	Poor storage and disposal facilities for animal, milk and meat products.	Ensure that new agro-industries comply with laws. Survey existing industries; recommend improved waste storage / disposal. Study economic of waste use.	Included in the project compone nt.	PMU contractor's research institute Akimat officials, MEP.

B. MONITORING PLAN

The PMU will perform regular monitoring and evaluation of project activities. At the micro-level it will supervise the various activities to ensure that they are being undertaken according to the mitigation plan described in 'A' above. Where contractors are involved, the contract should include clauses about conforming to standards workmanship and responsibilities etc.

This pilot project is of global significance. Thus, the collection of information at the macro-level is important. Data will be collected on carbon sequestration, biodiversity and soils. A baseline sample survey of organic carbon in soils and plants will be undertaken at representative sites

throughout the project area. Similarly, a survey will be undertaken of flora and fauna and its quality and quantity. Lastly the soils will be tested for mineral content and organic matter as well as soil depth etc. Carbon will be monitored closely in the soil and plants and will be measured during the growing season for five years. This is described in detail in Annex 2 and the equipment and personnel requirements are given in Section 3.1 of the Cost Tables. Therefore, only a summary will be given here. Biodiversity re-surveys will be undertaken yearly as will the testing of soils. The PMU will be responsible for M & E. In-country specialists will receive additional training if and when required. In addition, local people will be recruited to monitor flora and fauna. Environmental monitoring will be incorporated in the overall project monitoring required by the World Bank as part of project performance. The results of such monitoring will be recorded and maintained by the PMU throughout the project's lifetime.

Table 3.1. Carbon Sequestration Assessment and Monitoring Program
Organic Carbon Assessment in Biomass and Soils

	The Parameter(s)					***Cost***	***Responsibility***
Phase	**What** *is to be assessed?*	**Where** *is it to be assessed?*	**How** *assessed / type of equipment ?*	**When** *is it to be assessed?*	**Why** *Is it assessed (optional) ?*	**Install**	**Operate Install**
Baseline	Carbon storage in plants and soil.	At selected sites and scaled up	Organic C determination of plant and soil samples in lab.	At the start and at set intervals.	To determine C sequestration in biomass and soils.	Use existing facilities plus more equip.	PMU and research institutes.
Construction	N/A		Equipment incl. in project				
Operate	Carbon storage in plants and soil.	At selected sites.	Biomass and soil measured for C content over time.	Plant and soil C measured at set intervals.	To record increase in C storage at different sites.	Included in the project	Included in the project.
Decommission. N/A							

Table 3.2. Biodiversity Monitoring Program
Survey of Plants and Animals

	The parameter(s)					***Cost***	***Responsibility***
Phase	**What**	**Where**	**How**	**When**	**Why**	**Install**	**Operate**

	is to be assessed?	*is it to be assessed?*	*assessed / type of equipment ?*	*is it to be assessed?*	*Is it assessed (optional) ?*		**Install**
Baseline	Plant and animal species and incidence	At selected sites.	Sample surveys and local observations.	At the start and over time.	determine existing and change in plant/ animal numbers.	Use experts, staff and local people.	PMU.
Construction	N/A		Simple survey equipment.				
Operate	Monitor plant and animal No over time	At the same sites.	Sample survey and local observations.	At specific intervals, but in same months.	To record increase in flora & fauna.	As above.	Included in the project.
Decommission.	N/A						

Table 3.3. Soil Monitoring Program

	The parameter(s)					***Cost***	***Responsibility***
Phase	**What** *is to be assessed?*	**Where** *is it to be assessed?*	**How** *assessed / equipment ?*	**When** *is it to be assessed?*	**Why** *Is it assessed (optional) ?*	**Install**	**Operate Install**
Baseline	Soil quality	At selected sites.	Soil sampled in laboratory.	At the start	To determine N, P & K at same time as organic C.	Use existing laboratory facilities.	PMU and research institutes.
Construction	N/A		Equipment incl. in the project				
Operate	Water quality	At selected sites.	Soil sampled in laboratory.	At specific intervals, but in same	To record nutrient content in soil types.	Included in the project.	Included in the project.

				months			
Decommission. N/A							

Originally, the project was going to use pesticides to try and diminish invasive and unpalatable species. But because farmers have difficulty purchasing pesticides and are not familiar with using them, this component has been dropped. In its place mechanical scraping will be tried coupled with phosphate application and reseeding with indigenous species, especially perennial legumes that can out perform the invasive and unpalatable species.

Another potential problem is that the water table at the proposed rehabilitated well sites may be insufficient to permanently supply the cattle during the summer months. This is unlikely, because the wells were in use before collectivization and each well has a potential recharge area of over 10 km2. However, the project and the local officials will monitor the ground water to ensure that it is not being depleted.

C. INSTITUTIONAL STRENGTHENING

1. Equipment Purchases

The PMU will have maps of the 11 sub-districts and these will be used to denote where the sampling will take place or has been carried out. The PMU should have two GPS devices and these will be used to pinpoint the sampling sites etc. Some equipment will be provided by the people undertaking the various surveys or doing analysis in the laboratory; this has been included in the estimated cost. For example, the people undertaking the survey of flora and fauna should have simple equipment, key books and equipment to store plants and animals for identification when necessary. When undertaking assessments of organic carbon in plants, weighing scales and moisture content meters are required, as are specimen bags, etc. This should be provided by the people undertaking the survey, but the PMU should have extra equipment. This list is given in Table 4 below under 'biomass measuring equipment.' The cost is estimated to be US$2,910.

While most of the soil testing will be for soil carbon, testing for other minerals (N & P) and organic material is important and will be done at the same time as testing for organic carbon. Some additional equipment is required such as spades, soil sampler, soil depth meter, plastic bags and other consumables. The cost this equipment is estimated at US$3,530, (Table 4).

A list of the major equipment for carbon stock assessment, including soil analysis is given below. Justification for the equipment is included in the main report and in Annex 2. This new equipment costs US$77,650 and the laboratory will use equipment and consumables valued at US$70,000. Their contract work is valued at US$70,000 and recurrent costs come to US$46,700, giving a total of US$264,350 for this assessment of carbon stock. These costs are elaborated in the Costing Table (Annex 6?). Similarly, the costs for biodiversity monitoring are summarized in Table 4 (US$189,100) and is detailed in the Costing Tables.

The project will also purchase through the tendering system 40 wind mills for water pumping at a cost of about UDS$ 6,000 each, including maintenance and spares for five years. Thus, the total cost will be US$240,000. This will be a trial to se if the pumps are robust enough to withstand

the variable wind speeds. Also, siting of the windmills is important to ensure that there is sufficient wind to enable the pumps to function adequately.

Table 4. Type of equipment for the project

Type of Equipment	Number of units	Unit cost US$	Total Cost US$	Purchase: Local (L) or International (I)
Biomass measuring equipment				
Measuring tapes (50 m)	4	15	60	L
Scales (50 kg)	4	100	400	L
Spring balance (10 kg)	4	25	100	L
Axe	4	10	40	L
Bow saw (with spare blades)	4	25	100	
Compass	4	5	20	L
Camera	4	45	180	L
Clip board	4	2.5	10	L
Consumables (sacks, string, paper, pencils, films incl. developing, etc.)	4 sets for 5 years	500	2,000	L
Estimated total cost for above			**2,910**	
Additional field equipment (soil sampling)				
Spades	4	10	40	L
Camera	2	45	90	L
Soil sampler	2	1,000	2,000	L
Soil depth indicator	2	200	400	L
Consumables (plastic bags, string, paper, pencils, films etc.)	2 sets for 5 years	500	1000	L
Estimated total cost for above			**3,530**	
Carbon stock assessment.				
GPS mapping (handset monitor?)	2	1,400	2,800	I
GPS sampling	1	300	300	I
Computer graphics station	1	4,000	4,000	I
Computer notebook	2	2,500	5,000	I
Plotter	1	7,800	7,800	I
Scanner	1	12,000	12,000	I
Printer	1	400	400	I
Data logger with sensors	3	5,000	15,000	I
Moisture content meters	4	3,000	12,000	I
Soil augurs	3	4,000	12,000	I
Map info professional 6.5	1	2,500	2,500	I

MS office xp professional	1	300	300	I
Coreldraw 10	1	550	550	I
Miscellaneous equipment –lump sum	1	3,000	3,000	I
Sub-total			***77,650***	
Value of Institute equipment (5 years)	Lump sum		***70,000***	
Recurrent costs for 5 years	Lump sum		***46,700***	
Sampling and analysis contract 5 years	Lump sum		***70,000***	
Total, excluding TA			**264,350**	
Wind mills	40	6,000	**240,000**	L
Bio-diversity monitoring				
Tents	Lump sum	3,500	3,500	L
Small equipment	Lump sum	13,000	13,000	L
Sub-total			***16,500***	
Value of Institute equipment for 5 yrs	Lump sum	6,000	***30,000***	
Recurrent costs for 5 years	Lump sum		***142,600***	
T O T A L			**189,100**	

Note. The recurrent cost items are specified in Cost Tables and so are just summarized here.

2. Training/Study Tours

Environmental training will be undertaken at several levels. There will be formal courses for project staff, farmers and other beneficiaries. There will informal discussions during meetings with village groups etc., there will be demonstrations of environmentally friendly practices and there will be site visits to various areas within the project as well as other areas within Kazakhstan. The training will cover land-use planning, environmental management, monitoring and mitigation. Also, farmers with windmill will receive training in their maintenance. As the project proceeds, environmental training will be tailored to the lessons learnt from the project and the changing needs of the beneficiaries. Thus, the following table (Table 5) covers the present proposals, but is subject to change.

Table 5. Proposed Training and Demonstration courses

Type of Training	No	Organization	Job Trainers	Duration (days)	Timings	Venue	Institute	Cost US$ local
Environmental awareness for specific components; reseeding, improvement of natural pastures,	5	Project staff	Implementation staff	One day	In the Spring of each year.	Project area	Consultant and/or MEP	1,000 each for 5 years. (5,000)

handling of pesticides, etc.								
Manure storage, handling and use (Training of trainers). Train beneficiaries.	5	Project staff	Implementation staff	Two days	In the Spring of each year.	Project area	Consultants, MEP	2,000, for 5 years. 10,000.
Environmentally friendly land-use practices. Train staff and beneficiaries. Establish demonstrations	5	Project staff	Staff and beneficiaries	One day	Through-out yr for 5 yrs	Project area	All staff	Part of general budget
Environmental training and demonstration to schools. (try to obtain other funds for nurseries and posters etc.	All schools?	Project staff	Staff, Min Ed. (teachers)	Half day	Through-out year	Project area	Project school teachers	4,000 per year for 5 years. (20,000)
Training in Environmental activities for beneficiaries.	Village	Project staff	Staff	Half day	Through-out year	Project area	Project schools	4,000 per year- 5 yrs.. (20,000)
Training in shrub planting in rangelands	Farms	Farmers	TA specialist	Half-day	Through-out year	Project area	Consultant	Part of TA budget
Carbon stock assessment: workshop: Local.	2	CSA. staff	CSA experts	One week	Year 1 & 5	To be decided	CSA Institute	2,000
Carbon stock assessment: Short course Foreign.	2	R S staff	R S experts	One week	Yr. 1 Yr. 4	To be decided	Foreign R S Institute	14,000
Local remote sensing training: Short course.	1	R S staff	R S experts	Two days	Year 1	To be decided	R S Institute	1,000
Local remote sensing training: Workshop.	2	R.S. staff	R S experts	One week	Year 1 & 4	To be decided	R S Institute	2,000
Foreign remote sensing training: Short course.	3	R S staff	R S experts	Two days	Yr. 1 (2) Yr. 4 (1)	To be decided	Foreign R S Institute	3,000
Foreign remote sensing training: Study tour.	1	R S staff	R S experts	One week	Yr. 2	To be decided	R S Institute	5,000
Training in windmill maintenance	40	Farmers	Contractors	To be decided	Yr 1 to Yr 3	At windmills	Contractors	Incl in contract.

Training in survey techniques. **1**	11	Project staff	Staff	One-day	1 per year for 5 years	Project area	Village/ school; halls	Project cost
Training in survey techniques. To recognize plant and animal species. Train beneficiaries including children to undertake species recognition.	11	Project staff	Staff	One-day	1 per year for 5 years	Project area	Village/ school halls.	Project cost

1. This is required to survey local people to obtain indigenous knowledge. Some beneficiaries can be used as trainers and to locate areas of important and/or rare species.

3. Consultant Services

Consultants and/or staff from the MEP should train project staff in environmentally friendly farming practices when undertaking specific components such as reseeding, improvement of natural pastures, handling, storage and use of permitted pesticides, integrated pest management etc. After this training, project staff will ensure that the various operations are undertaken with minimum environmental damage. Some of the proposed measure are contour ploughing, minimum tillage, using indigenous seeds and seedlings, appropriate time for undertaking ground preparation, avoiding areas of rare, endangered or commercially important plants or breeding grounds for birds etc. Demonstrations will be laid out throughout the project area so that the project staff can take farmers to them and also advise the farmers about appropriate methods, seeds and technology.

Consultancy contracts will be given to agencies within Kazakhstan through the Competitive Grant System. These will be for Biodiversity Monitoring estimated to be about US$190,000 over the five year period and Carbon Sock Assessment (including soil analysis) valued at about US$263,000 over 5 years. The TOR have been drafted by the project management team and will be circulated for comments. In addition there will be foreign and local technical assistance valued at US$93,000 and US$7,500 respectively. And as stated in Table 5 above, there will be training in carbon stock assessment and remote sensing valued at US$28,000.

Technical assistance is required for the shrub nursery establishment, to advise on the planting of belts of grasses and shrubs in rangelands and to provide training and advice to farmers about shrub establishment and tending. A local specialist with experience in these fields will be required for six months each year for five years. The estimated cost for such a specialist is US$1,640 per month including all allowances. Thus the total cost for 5 years is US$49,200.

The windmill contractor will supply training in windmill maintenance to the farmers where the windmills are installed. This is part of the contract cost.

4. Special Studies: None needed.

D. SCHEDULE

The mitigation and monitoring of routine activities are given in Table 5 above for the Trainers. In turn, the trainers will train beneficiaries to undertake the necessary mitigation activities. Monitoring of these activities will be carried out by the PMU or by people designated by them. Biodiversity monitoring and carbon sequestration assessment will be undertaken by specialized agencies such as research institutes. In addition, there will be monitoring of the ground water at the restored wells to ensure that the groundwater is not being depleted. There is a nationwide locust control project. Through project activities, the breeding grounds for locusts should be reduced. The project will monitor this to see if the incidence of locusts decreases.

E. INSTITUTIONAL ARRANGEMENTS

The monitoring of bio-diversity and will be under the supervision of the MEP. In-country specialists will receive additional training if and when required. A baseline survey of plants and animals will be undertaken in year 1 at stratified random sites. Re-surveys at the same sites will occur throughout the project's lifetime. In addition local people will be recruited to monitor flora and fauna species especially birds and large animals. Analysis of results will be undertaken at reputable institutes.

A baseline survey of carbon in biomass and the soil will be undertaken in Year 1 using stratified random sampling techniques. Re-surveying will be undertaken in at specific intervals during the project's lifetime. Soil carbon measurements will be taken during each growing season and used to model sequestration potential. . Analysis of results will be undertaken at reputable institutes and verification will be done by independent organizations. This verification is necessary if Kazakhstan wishes to trade sequestered carbon or use it for offset purposes. In addition measurements will be made of carbon in above and below ground biomass.

Under the MEP/MOA the PMU and especially the PIU would have the overall responsibility for carbon sequestration determination, environmental monitoring, mitigation, and performance. The PMU has developed an implementation plan for carbon sequestration measurement, biodiversity monitoring and soil and ground water monitoring at well sites and collecting and analyzing of all the relevant data. Field technicians will analyze various data and together with laboratory technicians prepare quarterly and annual reports and will send them to the PMU/international consultant for evaluations. Within Kazakhstan there is a government Climate Change Council responsible for all matters dealing with the various related protocols. This council will be fully informed about the purpose of carbon sequestration measurements and seek their advice on reporting methodologies. Similarly, estimates of biodiversity and soil quality etc. will be in conformity to agreed standards. At the end of each year in which measurements took place, all data will be summarized in a usable form for the benefit of stakeholders including the WB, GM, MEP and MOA. These latter bodies will have authority to modify the EMP if necessary as a result of received data/information.

F. CONSULTATION WITH LOCAL NGOs AND PROJECT-AFFECTED GROUPS

The project started to be formulated in 1999. Since then, numerous meetings and discussions were held with government ministries, research institutes and NGOs in Almaty, Astana, Karaganda and Shotandy. Included in the discussions were environmental concerns and the overall positive benefit this pilot project should have on the environment. Three sites were visited as potential areas for the project. After exhaustive consultations, the northern part of Shetsky Rayon was chosen.

Field trips were made to Shetsky Rayon and extensive talks and meetings were held with local officials, farmers' business people, and women groups etc. For example, three Project Meetings held in Astana, between consultants, staff and ministry officials etc. were highlighted on TV. Two press statements were submitted to the MEP for release. Project information was provided to the CCD for publication in UNDP documents. Information has been sent to various international agencies such as CIDA, USAID and ICARDA.

Project and World Bank Staff have made several presentations to 'Environmental' groups. In parallel to these meeting a social survey was undertaken, including attitudes to the environment. All these activities are documented and are on project's files. Talks and discussions are continuing with full participation of the beneficiaries. As a result, an Environmental Assessment was made with the inputs of local people and environmental experts. This assessment was then used to compile this Environmental Management Plan. As this is a pilot project, it is probable that some of the environmental plans will be adjusted (and improved) as lessons are learnt. However, by the end of the project, it is anticipated that farmers within the rayon and neighbouring farmers will adopt many of the project initiatives, leading to sustainable management of the pastures, grasslands and rangelands of the region. Not only that, the GEF project should have a catalytic effect on national and regional initiatives for governments, donors and International lending agencies, including World Bank.

The project will have several other benefits including public awareness, capacity building from the beneficiaries and private firms to government agencies. Training is an important component of the project. Besides giving training in the immediate area, the project will bring people from areas of Kazakhstan and the region with similar climatic conditions. They will receive hands-on training so that they will be able to use this experience to undertake similar initiatives in their own country or area. Thus replication throughout the region and beyond is anticipated. Therefore considerable domestic and global benefits should result from this pilot GEF initiative.

At present, a local consultant is developing PR activities to make the project widely available. Currently, this report is being translated and an action plan will be drawn up to make it available to a wide audience especially the local people, but also NGOs. Thus, the Environmental Management Plan will be made available in country for perusal and discussion, especially by the affected people. Also, it will be made available on the World Bank's Web site.

Additional GEF Annex 14
Summary Description of Project Area
KAZAKHSTAN: DRYLANDS MANAGEMENT PROJECT (GEF)

1. Project activities will be implemented in eleven sub-districts located in the northern zone of Shetsky rayon (district), Karaganda oblast (department). The area is characterized by acute rural poverty where poor soil, climatic, and ecological conditions restrict economic development opportunities. This area was selected according to the following criteria

(i) two-thirds of the cereal areas are unprofitable (less than 600 kg/ha) or are abandoned;
(ii) the soils are suitable for introduction of sustainable land use practices, e.g. sown fodder/pastures/rangeland or rehabilitation of natural vegetation;
(iii) average annual rainfall is below 300 mm/year;
(iv) high levels of poverty;
(v) the site is easily accessible for demonstration purposes; and
(vi) the project zone is representative to allow replicability of activities in and outside the country.

Being located at the cross between steppe and semi-desert, where cereal cropping is marginal, and on the road between the two most important cities in Kazakhstan, Almaty and Astana for demonstration purpose, the Shetzky rayon fits these criteria (see maps in the last annex)

2. **Climate**. The project area lies within two natural zones: steppe and semi-desert. Rainfall in the steppe zone ranges from 250 to 300 mm and in the semi-desert zone from 150 to 250 mm. The climate is acutely continental, with extremely cold winter (extreme of -49 ºC) and relatively hot summers (extreme of +40 ºC). Soil freezes up to a depth of two meters underground in winter. There are 110–185 frost-free days per year and the sum of positive temperatures during vegetation period (> 10 ºC) is 2000–2300 ºC. The whole region is characterized by strong winds (up to 40 meter per second), which cause intense soil erosion and blow away snow during winter time, thus reducing soil absorption of precipitation.

3. **Soils**. The soils range from relatively poor light chestnut soils with low organic matter levels, to dark chestnut soils, which are relatively fertile, well structured and able to retain moisture. The more fertile soils are found in the higher rainfall areas and there is a greater biodiversity of grasses. Most of the lighter less fertile soils are abandoned or under pasture and grassland.

4. **Population and infrastructure**. Total population in the eleven districts is about 19,500 contained within some 3,368 families living in 34 villages. The villages are connected by paved roads, primary schools are available in all villages and in the lager villages there are secondary schools. There are several medical care facilities and small rural clinics. Most retail trade is carried out by small, privately managed stores. Distances to the Oblast capital Karaganda vary between 90 and 190 km.

5. **Land Use**. After the peak of Virgin Lands Scheme at the end of the 1960s, there has

been a gradual reduction of cropping and an unregulated invasion of weeds on lands no longer used in agricultural rotations. At the present time there are 0.5. million ha of abandoned arable lands in Karaganda Oblast alone. The unchecked weeds have spread into adjacent cultivated areas. The unused lands overgrown with weeds are not suitable for pastures and hayfields and the process of grassland restoration through natural succession can take more than 50 years.

6. The proposed project area covers some 1.38 million hectares and the bulk of the land is classified as rangeland, much of which is degraded due to a lack of management and frequent fires. The make up of land use as at December 2001 is shown in Table 1 below; see Working Paper 3 for a detailed breakdown of land use and ownership by category.

Table 1: Land Use in the Project Area (December 2001)

Land Use	Land Use Category									
	Farmers' Land		Other Farmers Land		Village Land		Reserved (Akimat) land		Total	
	Ha	%	Ha	%	Ha	%	Ha	%	ha	%
TOTAL AGRICULTURAL LAND, of which:	617,261	98.6	101,272	99.4	206,257	95.3	392,095	90.2	1,317,287	95.5
a. Rangeland/agricultural grassland 1	550,654	88.0	93,748	91.7	204,287	94.4	374,398	86.1	1,223,087	88.7
b. Farmed land	66,607	10.6	7,926	7.7	1,970	0.9	17,697	4.1	94,200	7.1
Arable land	26,341	4.2	4,789	4.7	36	0.0	2,132	0.5	33,298	2.4
Hayfields	13,947	2.2	1,644	1.6	1,934	0.9	434	0.1	17,959	1.6
Unused/fallow	26,319	4.0	1,493	1.4	-		15,077	3.5	42,889	3.1
Perennial crops	-		-		-		54	0.0	54	0.0
Nonfarm LAND 2	8,951	1.4	598	0.6	10,195	4.7	42,533	9.8	62,277	4.5
TOTAL	626,212	100	102,272	100	216,452	100	434,628	100	1,379,564	100

Source. Shetsky rayon branch of the Oblast Land Resources Management Committee.
Note. 1. Out of the 1,223,087 ha. of rangeland, 86,086 ha. are classified as improved, and 20,429 ha. semi-improved.
Note. 2. Nonfarm land includes: forest reserves; bushes; marshes; water bodies; roads; urban areas; etc.

7. Currently, the area of ploughed land is around 33,300 ha, which is less than 20% of the 180,000 land ploughed at the peak of the Virgin Land Scheme (Working Paper 3, Table 2). This means that almost 150,000 ha of previously ploughed lands have been abandoned during the past twenty to thirty years. Land has been abandoned with a stronger pace after the collapse of the Soviet Union, because the increase of input costs made farming unprofitable in this marginal environment. The recuperation of natural revegetation on abandoned land is slow due to strong winds; natural bushes which provided wind protection in natural conditions have difficulty to

compete with weeds which have a more rapid growth. The period for total recuperation of initial balance across different species ranges from 40 to 60 years.

8. Total area under pastures and grassland is around 1.2 million hectares, including 0.8 million hectares with a stable source of good quality pasture. However, livestock movement is limited by lack of drinking water: more than 80% of pasture zone depends on artificial water sources, including 310 well points and 79 shaft wells. Often these water points do not operate due to the absence of water lifting equipment and lack of power supply. Over 300,000 hectares of valuable pastures cannot be used given lack of watering points. Only those pastures adjacent to settlements are being used, causing over-grazing around the villages and absence of pasturing intervals, these lands are losing their productivity and being gradually abandoned. The more productive distant pastures are not used since they lack watering points for the cattle.

9. **Farm structure**. There are 585 farms registered in the project area, most of which comprise more than one farming family. The average farm size is 1,070 ha, but 45% of farms have an average area of 300 ha, see Table 2 below.

Table 2: Farm Size Distribution

Size category (ha.)	No. of farms	Percentage of farms	Total area (ha.)	Percentage of area	Average size (ha.)
Less than 500	264	45	78,490	12	297
500 – 1000	155	27	105,241	17	679
1000 - 2000	95	16	136,307	22	1,435
2000 - 5000	52	9	150,954	24	2,903
Above 5000	19	3	155,220	25	8,169
Total/average	585	100	626,212	100	1,070

Source. Shetsky rayon branch of the Oblast Land Resources Management Committee.

10. Almost half the farms have an area of less than 500 ha. The project will concentrate on improving the pastures and rangelands on these farms, while at the same time giving advice and demonstrating improved pastoral practices to all interested farmers, especially those within the project area.

11. **Livestock Numbers**. At present, there are about 25,000 cattle, including 6,500 dairy cows, 23,000 sheep and 10,600 horses in the project area. In 'Animal Unit' (AU) terms this is equivalent to a total of about 33,000 (an animal unit is the equivalent of a full-grown 500 Kg cow plus a calf). This represents one AU per 50 ha. Under improved rangeland, the potential carrying capacity is one AU each 20 ha., or about 2.5 times more livestock than there is at present.

12. **Household Survey**: A baseline socioeconomic survey has been carried out in the project area in July/August 2001, covering a sample of 102 households and 101 heads of private farms. The survey showed that some 25% of the farms are handled by a single family, while another 45% have 2 – 5 families working together. The survey confirmed the importance of livestock as

a source of household income with 98% of the households having cattle, and over 60% having sheep and horses. Milk, cattle meat and hides are the products most commonly sold. Potatoes and vegetables grown on household plots are almost totally consumed by the family, as are some of the milk and meat products, particularly those from sheep and goats. The survey highlights the difficulty of marketing products in the area due to distance and high cost of transport, as well as the lack of market information available to farmers. The survey also confirmed the unprofitable nature of wheat production with yields of about 500-600 kg/ha. Sometimes the large distances between homes and land, both arable and pasture, is also a factor leading to abandonment of land. Unemployment is high and there is a tendency for the younger people to move out of the area.

13. This annex is a summary of the following working papers:-- Working Paper 1: Baseline Socioeconomic & Diagnostic Survey; Working Paper 2: Economic Background Data and Overview of Farming Systems in Shetsky Rayon and Project Area; Working Paper 3: Land Use Data for Shetsky Rayon and Project Area. (For more details, please refer to the original working papers available in both English and Russian).