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PROJECT DOCUMENT
ON A
PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND
IN THE AMOUNT OF US\$2.35 MILLION TO THE REPUBLIC OF KAZAKHSTAN
AND
IN THE AMOUNT OF US\$1.0 MILLION TO THE KYRGYZ REPUBLIC
FOR
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

June 15, 2009

Central Asia Country Management Unit
Sustainable Development Sector Management Unit
Europe and Central Asia Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective December 2008)

Currency Unit	=	Kyrgyz Som (KGS); Kazakhstan Tenge (KZT)
KGS 40.9	=	US\$1
KZT 150.4	=	US\$1
US\$.....	=	SDR 1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AISP	Agricultural Investment and Services Project
AK	Aiyl Kenesh, legislative assembly at village level in the Kyrgyz Republic
AO	Aiyl Okmotu, village administration in the Kyrgyz Republic
AR-AM	Afforestation/Reforestation - Approved Methodology (CDM approved to assess carbon sequestration)
AR-AMS	Afforestation/Reforestation - Approved Methodology for Small-scale projects
ARIS	Community Development and Investment Agency partly financed by the World Bank Village Investment Project
ARPPF	Access Restriction Policy and Process Framework
CATBP	Central Asia Transboundary Biodiversity Project
CBO	Community Based Organization
CDM	Clean Development Mechanism
CDSO	Community Development Support Officer
CI	Conservation International
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNRM	Collaborative Natural Resources Management
DFID	UK Department for International Development
DOE	Designated Operational Entity (see footnote 7 at page 11)
ERPA	Emission Reduction Purchase Agreement
ESA	Environmental and Social Assessment
FAO	Food and Agriculture Organization
FHC	Forestry and Hunting Committee of the Republic of Kazakhstan
FLEG	Forest Law Enforcement and Governance
GEF	Global Environment Facility
GIS	Geographic Information System
GPS	Global Positioning System
Ha	Hectare
IFAD	International Fund for Agricultural Development
IUCN	International Union for Conservation of Nature
JCSS	Joint Country Support Strategy
LH	Lezkhoz (State Forest Enterprise)
LIC	Local Investment Union Executive Committee
LIU	Local Investment Union
LSGBs	Local Self-Government Bodies
LULUCF	Land Use, Land-Use Change and Forestry

METT	Management Effectiveness Tracking Tool (previously Management Effectiveness Score Cards, a tool to track management effectiveness of protected areas)
MIS	Management Information System
MPG	Micro-Project Group
NTFP	Non Timber Forest Products
OM	Operational Manual
PAs	Protected Areas
PM&E	Participatory Monitoring and Evaluation
PPL	Public Procurement Law
PPP	Public-Private Partnership
SAEPF	State Agency for Environmental Protection and Forestry of the Kyrgyz Republic
SI	Swiss Inter-cooperation
SOE	Statement Of Expenditures
tCO ₂ e	Metric tons of carbon dioxide equivalent
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VER	Verified Emission Reduction
VIC	Village Investment Union Executive Committee
VIP	Village Investment Project (in the Kyrgyz Republic)
VIP-2	Second Village Investment Project
WWF	World Wildlife Fund

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TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

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I. STRATEGIC CONTEXT AND RATIONALE

A. Country and sector issues

1. The Tien Shan mountain range covers most of the Kyrgyz Republic, southern Kazakhstan, and smaller areas of Uzbekistan, China, and Tajikistan. This territory plays an exceptional role in conserving biodiversity and maintaining environmental sustainability in Central Asia. In 2004, Conservation International (CI) identified the Tien Shan range as a “biodiversity hotspot” based on the high numbers of endemic¹ species and the significant level of threat—the concentration of species in Western Tien Shan is 63 times higher for birds and 37 times higher for mammals than the average for Central Asia.
2. The Tien Shan is an oasis surrounded by vast arid and semi-desert plains particularly to the north, producing conditions conducive to high biological diversity. Ecosystems range from glaciers to deserts creating exceptional habitat diversity and endemism in a relatively small part of Central Asia. Winds that travel undisturbed for long distances over the steppes are lifted by the Tien Shan range causing concentrated precipitation; the area is characterized by a continental climate with enormous temperature variations that range from -50 C to above 40 C. Tien Shan residents and surrounding populations in both countries derive livelihoods, energy, and water from the range, and enjoy recreational activities, as do the growing numbers of overseas visitors. The range is crucial for agro-biodiversity and is home to a striking array of wild ancestral landraces of commercialized crops, in particular, valuable fruit and nut trees such as apples, and walnuts, among others.² The Tien Shan range also plays a key connecting role in the distribution of Asian mountain fauna such as the globally endangered snow leopard. Thus, the area justifies continued attention to biodiversity conservation through site-specific and regional approaches.
3. The Tien Shan’s importance for biodiversity conservation is also recognized at a national level. The percentage of Protected Areas (PAs) in the Tien Shan range (10.6 percent) is higher than the average of the two countries (7.5 percent). Table 1 below summarizes the importance of PAs in the region.

Table 1 – Areas under Protection

Country	Total country area (km ²)	PA Number	PA Area (km ²)	% of country
Protected Areas in the countries (reserves and parks)				
Kazakhstan	2,724,900	18	210,152	7.7
Kyrgyz Republic	199,900	17	9,317	4.7
Total	2,924,800	35	219,469	7.5
Protected Areas Covered by the Project				
Kazakhstan		5	5,695	0.2
Kyrgyz Republic		7	2,633	1.3
Total		12	8,328	0.3

4. Unfortunately, threats to the Tien Shan’s unique biodiversity—habitat destruction, overgrazing, poaching, unregulated game hunting, and excessive firewood extraction— are accelerating and an even greater threat is posed by the long-term effects of global warming, which could radically alter the environment and biota. At the same time, in both countries, protection regimes are undermined by institutional weaknesses such as reduced funding for staff salaries and patrolling; and the effects manifest at all levels—strategic planning, day-to-day management, research, and combating illegal activities.

¹ For the purpose of this report, endemic is used to denote a species that is naturally present in a particular geographic region.

² Almaty, the name of the commercial capital of Kazakhstan, means “father of apples.” Some tulips also originated in this mountain range, and some species are endemic (because of this, the Kyrgyz unrest during spring 2005 was called the “tulip revolution”)

5. **Rural Poverty.** The Kyrgyz Republic is a predominantly agrarian society; two-thirds of the population live in rural areas and the 2005 World Bank Poverty Assessment estimated that 43 percent of people live in poverty. The incidence of rural poverty is 51 percent compared to 30 percent in urban areas and in the more populous south, poverty levels are considerably higher. In Kazakhstan some 15 percent of people live in poverty according to the 2004 World Bank Poverty Assessment, although non monetary dimensions of poverty (such as poor housing conditions) affect 27 percent of people, and some 22 percent of rural people are poor, compared to 10 percent in urban areas.

6. **Forest Use in the Kyrgyz Republic.** Forest ecosystems provide environmental services and economic benefits to local people. Forests contribute to biodiversity protection by providing habitat for threatened species and reducing water and wind erosion. Forests are integral to the livelihood systems of rural people, including access to firewood, timber and non-timber forest products, such as nuts, berries, fruits, and medicinal herbs.

7. The importance of forests to rural livelihood is particularly evident in the walnut forests around Jalalabad, in the southern Kyrgyz Republic, where more than 100,000 people live in villages within or at the periphery of walnut forest and depend on its resources for their daily subsistence. For example, the annual walnut harvest yields between 16 to 32 percent of total household revenues (Schmidt 2007). However the high population density poses a significant threat because overgrazing and illegal cutting are common, and firewood consumption often exceeds forest productive capacity.

8. The Kyrgyz Republic now has around one million ha of forests, half the amount it had prior to World War II and before unsustainable logging, overgrazing, fuel-wood collection, and fires depleted the forested areas. The 2007-08 energy crisis increased fuel-wood collection because poor people lacked alternatives for household heating. According to statistics from the United Nations Food and Agriculture Organization (FAO), the value of coniferous sawnwood imported by the Kyrgyz Republic in 2006 was approximately US\$9 million (according to local experts this may be underestimated), compared to US\$2 million in 2000. Therefore reforestation, afforestation,³ and improved forest management are important socio-economic and environmental objectives for the Government of Kyrgyz Republic, as stated in the recent Country Development Strategy.

9. However, state efforts to develop forests are insufficient. From 1998 to 2003, the State Forest Program forested some 16,400 ha, but with an average survival rate of barely over 10 percent. Furthermore, 16,400 ha represent less than two percent of the total potential reforestation area, which exceeds one million ha. Low survival rates are due to three main factors—lack of financial resources, inadequate technical assistance, and quantitative targets without quality indicators. To implement the State Forest Program, the Kyrgyz Government covers only personnel administrative costs, not investment costs for plantation establishment. The low budget allocation of US\$25-45 /ha is unrealistic; and no resources have been allocated for village-level reforestation, where potential for reforestation is high.

10. Governance of natural resources is usually challenging. According to Transparency International, “*There is important evidence to suggest that corruption is a key factor contributing to the degradation of renewable natural resources.*” In the Kyrgyz Republic and Kazakhstan, where overall governance and institutions are weak and corruption appears to be widespread, illegal activities include, *inter alia*, illegal logging, timber theft and smuggling, trade of illegal wood or endangered species, unauthorized forest

³ Reforestation refers to reestablishing forest where trees were recently removed (according to the Clean Development Mechanism (CDM), the area should not have been forested since December 31, 1989). Afforestation refers to converting land to forest that has not been forested before (for longer than 50 years, according to UNEP/ UNFCCC).

conversion, and poaching. The exact magnitude of these activities cannot be known. The Kyrgyz Republic is part of the Improving Forest Law Enforcement and Governance (FLEG) initiative that is supported by the World Bank, IUCN, and WWF. Both countries ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

11. In the Kyrgyz Republic and Kazakhstan, resource users are accustomed to Soviet-era top-down, centralized decisionmaking and are resistant to community-based collaboration. Collaborating with local communities in forest and pasture use commonly takes the form of a long-term lease, which has several drawbacks including: (a) participation in planning and decisionmaking continues to be limited and is largely controlled by the Lezkhozes (LHs, State Forest Enterprises)—not shared with resource users or other stakeholders; (b) an unrealistic focus on forest preservation and reforestation rather than a more comprehensive strategy of sustainable forest management; (c) working collectively is limited to small numbers of households that are already linked by kinship ties and proximity; and (d) stakeholders, such as Aiyl Okmotus (AO, village administration) officials, women’s councils, etc., have accused LHs staff and forest rangers of abusing their power—allocating forest leases based on kinship ties or personal relationships, favoring previous lease holders or wealthy and influential households. Given the challenge of changing these entrenched attitudes and behaviors, the project will introduce Collaborative Natural Resources Management (CNRM) in activities where conditions are suitable, such as in collaboration with the Community Development and Investment Agency partly financed by the World Bank Village Investment Project (ARIS-VIP) and the small grants for ecotourism.

12. **Climate Change in Central Asia.** According to the Assessment and Design for Adaptation to Climate Change ([ADAPT](#)), the estimated climate change effects in the project area (Kazakhstan and the Kyrgyz Republic) are the following:

- *Mean annual rainfall:* moderate increase (15 to 30 percent) could lead to changes in biodiversity and ecosystem functions
- *Consecutive dry days:* Kyrgyz Republic: significant increase (>20); Kazakhstan: no significant change (-10 to + 10)
- *Mean annual temperature:* significant increase (> 1.5° C). Boreal forests are highly sensitive to climatic stress—as mean annual temperatures rise, organic decomposition increases, deciduous forests expand, and land use changes, affecting agriculture
- *Runoff:* no significant changes (-15 to 15 percent)
- *Maximum 5-day precipitation (rainfall extreme events):* moderate increases (25 to 50 mm)

B. Rationale for Bank involvement

13. World Bank involvement is justified by the following: (a) the proposal will build on the experience of the Central Asia Transboundary Biodiversity Project (CATBP); and (b) the Bank has the capacity to develop a carbon finance scheme through the BioCarbon Fund, and thus address the main shortcoming of the CATBP—limited financial sustainability. The table below compares the two projects.

Table 2 – Comparison of the CATBP and the Proposed Project

Recently Closed Central Asia Transboundary Biodiversity Project (CATBP)	Proposed Tien Shan Ecosystem Development Project
Focused on biodiversity conservation in a few protected areas	Emphasizes activities in productive landscapes outside of protected areas—improved management of forests, hunting, and eco-tourism in parks
Relatively small area concentrated on five PAs (one was created under CATBP) in the <i>Western</i> part of the Tien Shan (3,449 Km ²)	Larger area of 8,328Km ² of 12 PAs, including strict nature reserves and parks in all the Tien Shan range in two participating countries

PA administration funded primarily through public budget transfers	Reforestation, afforestation, and carbon trading will generate sustainable revenue thereby improving the financial sustainability of the State Agency for Environmental Protection and Forestry of the Kyrgyz Republic (SAEPF)
Limited financial sustainability, particularly in the Kyrgyz Republic	Development and implementation of a carbon trading scheme based on reforestation and afforestation in the Kyrgyz Republic will increase financial sustainability of SAEPF and will help mitigate Climate Change (CC)

14. The **BioCarbon Fund** targets projects that sequester or conserve greenhouse gases in forests and agro-ecosystems to mitigate climate change. The Fund’s objective is to foster the role of Agriculture, Forestry, and Land Use (AFOLU)⁴ in the carbon market and Clean Development Mechanism (CDM), thereby extending carbon market benefits to the rural, poorest areas, and the local environment. The World Bank BioCarbon Fund has been pivotal in developing the forest carbon market.

15. The proposed project is consistent with all strategic documents of the two implementing countries and the region.

- One of the four pillars of the Joint Country Support Strategy⁵ (JCSS) for the Kyrgyz Republic is ensuring environmental sustainability and natural resource management.
- The forth pillar of the Kazakhstan Country Partnership Strategy aims to ensure sustainable growth through an environmental focus that emphasizes regional issues.
- The Biodiversity Strategy for Europe and Central Asia supports investments for forestry and biodiversity conservation.

C. Higher level objectives to which the project contributes

16. The project has three global objectives—contribute to biodiversity conservation, sustainable forest management, and climate change mitigation. These objectives are consistent with the Focal Area Strategies and Strategic Programming for GEF-4 as outlined below.

- **Biodiversity:** To catalyze sustainability of protected area (PA) systems:
 3. Strengthening terrestrial PA networks
- **Sustainable Forest Management:** To protect globally significant forest biodiversity and to promote sustainable management and use of forest resources:
 2. Strengthening terrestrial PA networks (same as #3 above)
 3. Management of LULUCF as a means to protect carbon stocks and reduce greenhouse gas emissions
 7. Supporting sustainable forest management in production landscapes

17. The Millennium Ecosystem Assessment identified the most important direct drivers of biodiversity loss and degradation of ecosystem goods and services as habitat change, climate change, invasive alien species, overexploitation, and pollution. The GEF is proposing a framework strategy for sustainable forest management (SFM) that will draw from the biodiversity, land degradation and climate change focal areas.

⁴ Previously known as, Land Use, Land-Use Change and Forestry or LULUCF.

⁵ The JCSS is a combined effort of five development partner: the Asian Development Bank (ADB), the Swiss Cooperation (SC), the UK Department for International Development (DfID), the World Bank Group (WBG) and the United Nations Agencies

II. PROJECT DESCRIPTION

A. Lending instrument

18. Project financing would include Global Environment Facility (GEF) grants of US\$2.35 million for Kazakhstan and US\$1.0 million for the Kyrgyz Republic; parallel financing of \$8.0 million from the International Fund for Agricultural Development (IFAD), associated with a carbon finance operation; and a Japanese Policy and Human Resources Development (PHRD) grant for climate change of US\$626,120 to finance project preparation and implementation (PHRD closing date is December 10, 2011).

B. Project development objective and key indicators

19. The Project Development Objective is to contribute to improving ecosystem management and sustainable forestry in the project areas of Kazakhstan and the Kyrgyz Republic. The Global Environmental Objectives are: (a) improving biodiversity conservation; and (b) contributing to climate mitigation by sequestering carbon dioxide in forests in the Kyrgyz Republic.

20. The above objectives will contribute to poverty reduction by increasing local peoples' access to forest benefits such as fruits, nuts, fuel and construction wood, forage, employment generation, and revenues from carbon trading and tourism (see Table 6 at page 15). The project will contribute to national environmental and social benefits for the two countries—newly forested areas will not only improve soil conservation and biodiversity protection by providing habitats for threatened species, but also generate revenues that will increase the financial sustainability of protected areas. Finally, the carbon trading scheme will contribute to increasing revenues, expanding knowledge, and developing a replicable carbon trading model for the region. The large majority of these benefits, however, will materialize after project closing, creating a monitoring challenge.

21. The project builds on the experience of the Central Asia Transboundary Biodiversity Project and covers the Tien Shan region of the Kyrgyz Republic and Kazakhstan, including most of the Kyrgyz Republic and southern Kazakhstan, along the border.

22. Key indicators:

- Contribution to sustainable forestry as reflected in area of 13,950 ha reforested or afforested
- Threat Reduction Assessment Index (TRA Index) in 12 Protected Areas stabilized
- Verified Emission Reduction (VER) sold (a crucial measure of forest sustainability)
 - 179,000 tCO₂e at project closing in 2014
 - 500,000 tCO₂e by 2017 (when the BioCarbon Fund will close)

C. Project components

23. The project comprises the following three components:

24. ***Component A. Strengthening Biodiversity Conservation in Protected Areas and Productive Landscapes*** (approx. cost US\$6.9 million; GEF Grant: US\$2.02 million for Kazakhstan and US\$1.0 million for the Kyrgyz Republic). The component will strengthen biodiversity conservation in the Tien Shan region of the Kyrgyz Republic and Kazakhstan by strengthening management in 12 PAs through building technical capacity, investing strategically in PA infrastructure, supporting local efforts to reduce threats to biodiversity in and around project PAs, increasing public awareness, and promoting sustainable tourism. The component will include the following three sub-components.

25. ***Sub-component A.1. Protected Area Management.*** This sub-component will finance PA management planning, monitoring, capacity building, transboundary management, and facilities.

26. *Sub-component A.2. Conservation in the Broader Landscape through Small Grants in Kazakhstan.* This sub-component will finance small grants for local groups and organizations directly linked to threats or opportunities for biodiversity protection around PAs, aiming to: (a) improve opportunities to conserve biodiversity; (b) reduce threats to biodiversity; and (c) integrate conservation into the broader landscape. Small grants could finance eco-tourism guest houses, yurts (traditional nomads houses), handicrafts, wildlife information programs, bird watching and other similar activities.

27. *Sub-component A.3. Sustainable Tourism Promotion.* This sub-component will support the development and implementation of public awareness and information campaigns to boost support for biodiversity conservation, generate interest in the region’s natural and cultural heritage, and raise awareness about national obligations associated with international conservation treaties. The sub-component will include public awareness programs, CITES campaign, and UNESCO World Heritage Site nomination activities.

28. **Component B. Forestry and Carbon Trading in the Kyrgyz Republic** (approx. cost US\$14.35 million; IFAD Grant: US\$7.1 million). The GEF Grant is not allocated for this component to avoid the risk that GEF grant funds could be used for activities that will generate carbon trade revenue.

29. *Sub-component B.1. Afforestation and Reforestation.* This component will contribute to forestation activities on 13,950 ha of marginal land to (a) mitigate climate change by sequestering greenhouse gases in forests; (b) develop a carbon trading mechanism to raise revenues from carbon sequestration; (c) recreate habitat for biodiversity; and (d) generate local benefits such as fuel and construction wood, fruits, nuts, forage, and other non-timber forest products, and environmental benefits such as wind breaks and retention of snow charges for neighboring agricultural lands to reduce water and wind erosion, and reclaim agricultural land compromised by waterlogging, salinity, and erosion.

30. The sub-component will be implemented through three arrangements:

- **Community Development and Investment Agency (ARIS):** reforestation and afforestation by communities and private investors in Aiyl Okmotus (village administrations) and private lands in collaboration with ARIS/VIP, which has a methodology for local planning and management of resources.
- **LEZKHOZES:** forestation by State Owned Forest Enterprises or Lezkhozes (LHs) in State Forest Fund land; and
- **Public Private Partnerships (PPP):** forestation by private investors in State Forest Fund land

31. Table 3 below summarizes areas planned to be forested, disaggregated by fast-growing or rapid-production species including elm, poplar, willow, and fruit trees such as almond, apple, apricot, cherry, peaches, pistachio, pear, plum, seabuckthorn, and walnut, etc.; and slow-growing species such as juniper, pine, spruce, saxaul, and others.

Table 3 – Forestation Plan by Implementation Arrangement (Ha)

	ARIS	LEZKHOZES	PPP	Total	Share %
Fast-growing species	6,150		1,770	7,920	57
Slow-growing species	130	5,900	0	6,030	43
Total	6,280	5,900	1,770	13,950	100
Share in %	45	42	13	100	

32. Forestation will be carried out in steps: first, each site will be assessed so the most appropriate native tree species can be selected; next, plantations will be established; and finally, silvicultural

interventions undertaken. Some LHs nurseries will be improved to prepare seedlings. Short-term benefits include generating employment in some of the poorest rural villages. Given the low cost of manual labor, the technologies adopted will be simple and suitable for local conditions and most planting/transplanting will be done using hand tools. The project will finance tractors, ploughs, horses, fencing materials, and nursery equipment. To avoid the risks associated with monoculture, multiple species will be used in reforestation activities. (Table 4)

Table 4 – Estimated Area to be Forested by Department and Species (ha)

Department Species	Chui	Talas	Issyk-Kul	Naryn	Osh	Jalalabad	Batken	Total Country
Poplar	2,000	1,000	1,000	1,000	500	500	250	6,250
Fruit trees	300	120	60	120	80	60	50	790
Willow	150	60	30	60	30	30	20	380
Elm	200	80	40	80	40	40	20	500
Spruce	200	0	900	900	0	0	0	2000
Juniper	50	0	200	200	150	100	300	1,000
Pine	50	100	300	50	0	0	0	500
Walnut	0	0	0	0	50	200	0	250
Pistachios, Almond	0	0	0	0	300	350	350	1,000
Saxaul	0	0	0	0	0	0	1,000	1,000
Others	40	40	40	40	40	40	40	280
TOTAL	2,990	1,400	2,570	2,450	1,190	1,320	2,030	13,950

33. *Sub-component B.2. Validation and Monitoring of Carbon Sequestration.* In November 2008, the Government of the Kyrgyz Republic estimated that forestation of 13,950 ha with the mix of species shown above in Table 4, would sequester around 500,000 tCO₂e by 2017 (500,000 VER), mostly by poplar, the fastest-growing species. On December 18, 2007, the BioCarbon Fund and the Project Entity signed a Letter of Intent for 500,000 tCO₂e, to be verified according to the Clean Development Mechanism (CDM) of the Kyoto Protocol.

Table 5 – Summary of Estimated Carbon Sequestration

Species	Area (ha)	Timber Mean Annual Increment (m ³ /ha), years 1-10	Carbon Mean Annual Increment (tCO ₂ e/ha), years 1-10	Net Carbon by 2014 (tCO ₂ e)	Net Carbon by 2017 (tCO ₂ e)	Net Carbon by 2023 (tCO ₂ e)
Poplar	6,250	13.12	14.23	173,057	487,069	1,260,848
Elm	500	0.23	0.42	84	521	4,266
Willow	380	4.32	5.89	5,678	12,565	28,622
Other	6,820	-	-			not accounted for
TOTAL	13,950	-	-	178,819	500,155	1,293,736

34. In the Kyrgyz Republic, participatory approaches have been developed and tested for more than a decade, and were integrated in the national forest concept in 2004. A legal framework for Collaborative Forest Management (CFM) is in place and new regulations on the procedures on forest plot leasing and use were adopted in 2007 (see Annex 17: Collaborative Natural Resource Management).

35. *Sub-component B.3. Improved Forest Management.* This sub-component contributes to improving the management of existing Walnut Fruit forest by: (a) continuing and expanding “Collaborative Forest Management” activities (CFM) in the Walnut Fruit Forest in the southern Kyrgyz Republic to improve the protection of this unique livelihood system; and (b) providing technical assistance and capacity building to LHs and private sector. This sub-component will build on the experience generated under the Swiss Forestry Support Programme (KIRFOR).

36. **Component C. Project Management** (approximate cost US\$1.6 million; GEF grant: US\$0.33 million for Kazakhstan, IFAD: 0.9 million for the Kyrgyz Republic). Overall coordination of project activities and the fiduciary aspects of project management will be handled by the State Agency for Environmental Protection and Forestry (SAEPF) of the Kyrgyz Republic and the Forestry and Hunting Committee (FHC) of Kazakhstan. The FHC of Kazakhstan is implementing a new Forest Protection and Reforestation Project with IBRD financing, and fiduciary responsibilities will be handled initially by the existing project unit. In addition the project will collaborate with the Community Development and Investment Agency/Village Investment Project (ARIS/VIP) in the Kyrgyz Republic for forestation by communities in Aiyl Okmotu (village administration) land.

D. Lessons learned and reflected in the project design

37. The Central Asia Transboundary Biodiversity Project (CATBP) provided several lessons (see [Implementation Completion and Result Report](#)). The main lesson learned is that public interest and financing for long-term environmental objectives are very limited. Financial sustainability was a challenge so the project’s “Risk to Global Environment Outcome” was rated “Substantial.” The proposed project specifically addresses the sustainability challenges by (a) supporting eco-tourism, a revenue-generating activity based on natural resources; and (b) introducing forestation (i.e., reforestation and afforestation) and carbon trading to develop revenue-generating activities that also have significant potential for environmental benefits.

38. The Aral Sea Water and Environmental Management Project (also financed by the GEF) and more recently the Central Asia AIDS Control Project proved that regional projects are challenging to manage in a way that sustains ownership and commitment from each country. The CATBP successfully mitigated these problems by establishing strategic coordination at the regional level and implementation at the national level as much as possible. A National and Transboundary Steering Committee provided strategic guidance and coordination, while national PIUs implemented project activities (see Annex 6: Implementation Arrangements). These arrangements were facilitated by a shared language and history as Former Soviet Union entities. However, including countries such as China, that share Tien Shan, may have been too challenging and created significant implementation risks. Based on this lesson learned, the proposed project (a) includes only Kazakhstan and the Kyrgyz Republic; and (b) intends to implement at the regional level *only* activities that require transboundary coordination.

39. Two important lessons from the Forest Protection and Reforestation Project in Kazakhstan are the following: (a) Central Asian climatic conditions can significantly reduce time available for transplanting, and (b) participatory reforestation requires a suitable legal framework. Climatic conditions in the Kyrgyz Republic are expected to be less challenging because the variety of species, altitudes, and climatic regions covered by the project will allow a longer planting season. Also, a legal framework for Collaborative Forest Management (CFM) is already in place in the Kyrgyz Republic; participatory approaches have been developed and tested for more than a decade, and were integrated in the national forest concept in 2004; and new regulations on procedures for forest plot leasing and use were adopted in 2007. (Annex 17: Collaborative Natural Resource Management).

40. Finally, the proposed project will benefit from lessons learned in exchanging experiences with the Moldova Soil Conservation Project, which has reforested and afforested more than 20,000 ha since 2002,

and developed a carbon trading scheme that is generating revenue even without external investment. The project will use lessons learned in neighboring countries about developing carbon trading mechanisms in the voluntary market, for instance, by developing a carbon trading scheme to help increase adoption of conservation agriculture in Kazakhstan.

E. Alternatives considered and reasons for rejection

41. One alternative considered including the larger Tien Shan region (including China, Uzbekistan, and Tajikistan). However, given the challenges of implementing regional projects, it was decided to concentrate the project in the two countries with a stronger relationship: Kazakhstan and the Kyrgyz Republic.

42. Another alternative considered was implementing individual projects in each country but that would have precluded unique benefits that are likely to result from improving coordination between two countries that share approximately 1,000 km of a mountainous ecosystem, including a network of contiguous natural protected areas. Experience shows that enhanced regional cooperation can significantly improve management of transboundary issues, to the benefit of all parties. Some examples are: (a) monitoring globally endangered migratory species along transboundary habitats is more effective than national monitoring. For instance, the Tien Shan represents the most northwestern mountain range where the snow leopard⁶ is present. The border between Kazakhstan and the Kyrgyz Republic is at the most northern extreme of this mountain chain, right at the margin of snow leopard's range. Therefore this transboundary area is uniquely positioned to monitor numbers and habitat changes and provide an early warning of risks to species' population for habitats to the south; (b) regional destinations can attract more tourists; and (c) regional cooperation is likely to expand benefits from carbon trading because the experiences in the Kyrgyz Republic have significant potential to be replicated in the large agricultural area of Kazakhstan, where conservation agriculture could also reduce greenhouse gas emissions.

43. Finally, to sharpen the focus of the proposed project and reduce implementation risks, some project activities considered during project preparation were excluded, even when additional GEF funds could have been available. Examples of these considered activities include: (a) glacier monitoring to improve estimates of climate change impacts on regional water flows; and (b) interventions in biological corridors.

III. IMPLEMENTATION

A. Partnership arrangements

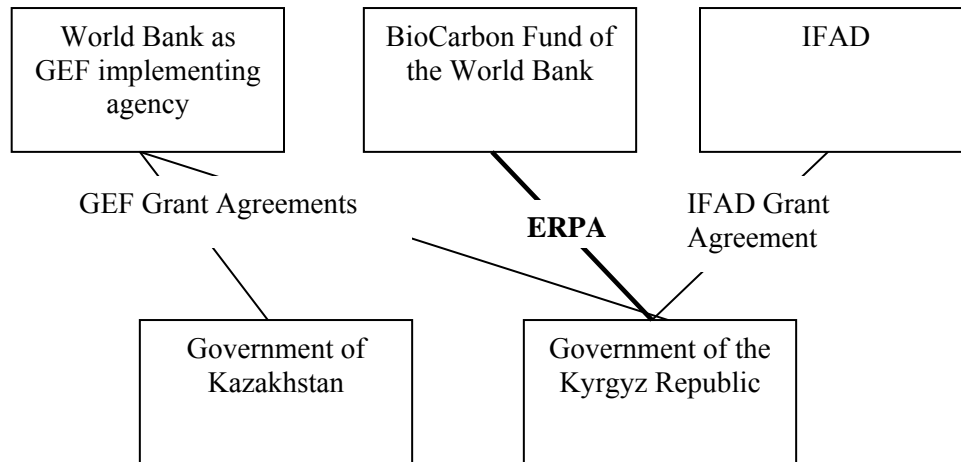
44. The Global Environmental Facility (GEF) will be the largest financier of component (a) Strengthening Biodiversity Conservation in Protected Areas and Productive Landscapes; while the International Fund for Agricultural Development (IFAD) will be the largest financier of component (b) Reforestation and Carbon Trading in the Kyrgyz Republic, with a grant of US\$8.0 million.

45. The separation of GEF and IFAD financing by component aims to reduce the risk of using GEF grant funds for activities that will generate carbon trade revenue from the BioCarbon Fund (so-called "double dipping"). The BioCarbon Fund and the State Agency for Environmental Protection and Forestry of the Kyrgyz Republic (SAEPF) signed a Letter of Intent to purchase 500,000 VER for not less than US\$4.15 each (total: US\$2,075,000) and allowed up to US\$200,000 in advance for project preparation and up to US\$120,000 for project supervision.

⁶ In the Bonn Convention on Migratory Species, the snow leopard is the only carnivore listed in Appendix 1 which includes migratory species that are in danger of extinction throughout all or a significant proportion of their range.

46. The above financing arrangements will require three separate international financing agreements in addition to the Emission Reduction Purchase Agreement (ERPA). (Figure 1)

Figure 1 – International Legal Agreements



B. Institutional and implementation arrangements

47. The project will be implemented by the State Agency for Environmental Protection and Forestry of the Kyrgyz Republic (SAEPF) and the Forestry and Hunting Committee (FHC) of Kazakhstan. Since July 2008, the Kyrgyz State Agency has been developing a project unit, supported by a Japanese PHRD grant. The Kyrgyz unit will be responsible for overall coordination, including oversight of activities in Kazakhstan. The unit includes a coordinator, procurement specialist and financial manager, an international technical specialist, and support staff.

48. The FHC will be the implementing agency for Kazakhstan. This agency is under the Ministry of Agriculture, and has only two departments, forestry, responsible also for biodiversity protection in protected areas, and hunting. Financial management functions will be handled by the PCU for the Forest Protection & Reforestation Project in Astana.

49. Reforestation and afforestation activities are to be carried out through communities, village organizations such as Aiyl Okmotus, and individuals, and will be implemented through the Community Development and Investment Agency of the Kyrgyz Republic (ARIS), adopting their standard and tested procedures for investment selection, financing, implementation, disbursements, and monitoring.

C. Monitoring and evaluation of outcomes/results

50. Project monitoring and evaluation activities will be the direct responsibility of the Project Implementation Units (PIUs), which may contract consultants to support these functions. PA management effectiveness will be monitored against two main indicators that also provide a standard of international comparison: (a) Threat Reduction Assessment, which produces the Threat Reduction Assessment Index (TRA Index), a summary indicator of the degree to which a project has succeeded in reducing site-specific conservation threats; and (b) the Management Effectiveness Tracking Tool. To monitor the impact of eco-tourism development activities, the number of visitors per year to a PA will be used. These three indicators should be adopted as standard monitoring practice to be carried out regularly by the two governments, including after project closing; training will be provided to create sustainable monitoring capacity.

51. **Monitoring forestation activities.** To monitor the benefits of forestation activities is challenging since most benefits will materialize after project closing. Indicators such as area reforested, employment generated, and carbon sequestered will be used as a proxy for these future benefits. When possible, as in the case of employment, monitoring will be disaggregated according to gender and poverty level of beneficiaries. Carbon trading generates revenues only after the carbon has been sequestered, which happens when trees grow. Therefore, carbon trading requires an accurate and reliable monitoring system to produce evidence that carbon has been sequestered. However, monitoring also provides continuous feedback on forest status, encouraging improved operation and maintenance of newly established forests, which is typically the most challenging element of forestry investment, since it requires commitments that exceed project duration.

52. **Clean Development Mechanisms monitoring.** By designing the CDM activities as a portfolio of small-scale projects, simplified small-scale methodologies can be applied for baseline assessment and monitoring. The CDM Afforestation/Reforestation activities are described in the Carbon Finance Project Design Documents (PDDs, currently under preparation). There will be around ten PDDs prepared to cover the different Oblasts and to ensure that the small-scale methodologies can be applied (e.g. A/R AMS0001 and A/R AMS0005). In compliance with CDM requirements, the PDDs provide detailed information, such as a reforestation schedule of all specific sites defined according to a geo-referenced map, expected net carbon sequestration, and monitoring plan. The PDDs will be subject to validation, i.e., the documentation is reviewed and random samples of sites are assessed by a Designated Operational Entity (DOE).⁷

53. The PIU in SAEPF will monitor carbon sequestration, based on the validated CDM monitoring plan. Permanent and temporary sample plots, established to measure tree growth, will be randomly audited and sampled for indicators including growth parameters, survival rates, biodiversity, and forest health, among others. The monitoring system will use the project database and GIS platform, established by PDD requirements.

54. Initially, the BioCarbon Fund will purchase VERs based on the PIU internal annual monitoring and the resulting SAEPF reports and according to the Emissions Reductions Purchase Agreement (ERPA). The monitored net carbon benefits and their alignment with the validated project design will be verified, i.e., determined retroactively by a DOE at the end of the first commitment period in 2012 and subsequently every five years. The DOE conducting verification will not be the same one hired for validation. Depending on verification results, subsequent years' ERPA may be adjusted and verification procedures can be adapted for VERs produced in excess of the ERPA to be signed with the BioCarbon Fund, depending on the state of the voluntary carbon market at that time. Although the project has the objective to achieve CDM registration, the BioCarbon Fund will buy VERs even before registration. There may be delays in the registration process, but after validation, this will not affect the project. Thus a lengthy registration process may lead to delays but not to a loss of carbon payments.

55. Payments for carbon sequestration will be performance-based, i.e., project participants are eligible to receive carbon credits only after carbon has been sequestered (i.e., forests have grown) according to the validated PDD and confirmed by the internal monitoring system. This is a major incentive for improved maintenance and protection of trees that bodes well for forest sustainability.

56. For activities on Aiyl Okmotu lands and managed by ARIS, the above scheme will be complemented by a system of participatory monitoring and evaluation implemented by ARIS community

⁷ Designated Operational Entities are international auditors, accredited by the CDM Executive Board, and acting as an intermediary for project and carbon certification.

institutions, mainly the Local Investment Union Executive Committee (LIC). Community institutions will develop detailed procedures to monitor and supervise community micro-project implementation and social mobilizations, supported by technical capacity building. During the social mobilization an independent village-level Monitoring and Evaluation Group will be established. For activities implemented on Goslesfund lands, LHs will monitor, evaluate, and report, complemented by the PIU internal monitoring team and external auditors, if appropriate.

D. Sustainability and Replicability

57. The carbon finance scheme embedded in the project will generate a long-term revenue stream from VER sales; most carbon revenue will be realized after project closure because the tree increment will be relatively low during early years. The revenue potential will provide a strong incentive to maintain the carbon finance scheme after project closing. Finally, the project relies on existing administrative and organizational structures (ARIS and Aiyl Okmotu), increasing the likelihood of continuity of activities that facilitate forest sustainability. The carbon revenue will also help to sustain project activities in Protected Areas (PAs) since the forestry agency is also responsible for PA management.

58. The project has a renewable 20-year crediting period for CDM activities. After Project closure in 2014, the potential carbon revenues and therefore the incentive to continue the carbon trading scheme and the monitoring unit, will be much more significant as trees will have reached their growth peak. Part of the revenue will need to be reinvested to maintain the scheme, including the monitoring unit. Specific funds were allocated at the end of the project to support access to the voluntary market. Currently the voluntary market trades VERs (according to the CDM), therefore the same certification approach can be applied, but certifications for additional standards (Climate, Community and Biodiversity Alliance Standard CCBA, or Voluntary Carbon Standard VCS, etc.) could be added to increase the value of VERs.

59. The project will be implemented in Kazakhstan and Kyrgyz Republic, but has potential for replication in the region. Voluntary carbon markets may allow replication and scaling-up in neighboring countries and/or similar sectors, such as carbon trading schemes for conservation agriculture in Kazakhstan, whether or not there is a follow up to the Kyoto Protocol. To achieve this, the project will highlight knowledge management and dissemination by providing training to increase awareness and capacity to benefit from carbon trading based on agriculture, forestry, and land use (AFOLU) projects.

60. While carbon trading revenues provide incentives for sustainable tree planting, tree planting by itself, particularly on Aiyl Okmotu lands has potential for replication in the country and region, depending on ecological conditions. The project will raise awareness among rural people about the potential early benefits of tree planting, including forage production and income from fast-growing plantations and orchards, and contribute to building skills for small-scale tree-planting activities.

E. Critical risks and possible controversial aspects

Please see below separate tables for Kazakhstan and the Kyrgyz Republic.

Kazakhstan

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating of risk⁸</i>	<i>Mitigation measures</i>	<i>Rating⁸ of residual risk</i>
I. Sector Governance, Policies, and Institutions				
Governance	Environmental issues attract limited public attention and therefore limited controls	S	Increase public awareness about environmental management, including the benefits of natural resources	S
II. Operation-specific Risks				
Technical/design	Attention to biodiversity protection outside protected areas is now insufficient to achieve project objectives of strengthening biodiversity protection	S	Ensure investments outside of strictly protected areas. Increase strategies for neighboring community involvement, such as small grants, to increase the benefits and build support for PAs among surrounding population	M
Implementation capacity and sustainability	Limited implementation capacity due to difficulty attracting and retaining qualified staff affects most of the World Bank portfolio	S	Provide a training budget for the PIU in anticipation of high consultant turnover	S
Financial management	Bank-financed Forest Protection and Reforestation Project is still developing FM capacity. Current financial management arrangements are moderately unsatisfactory. Rigid budgeting procedures create implementation difficulties	H	Hire a dedicated FM specialist for project unit in Astana, who will be supported by the financial manager in Bishkek. Accounting system to be upgraded to cope with additional requirements.	S
Procurement	Overall procurement environment in the country is unsuitable for effective procurement.	H	Follow Bank procurement procedures, including the related ex-ante or ex-post reviews. Further procurement training will be provided for procurement staff. Bank's Anticorruption Guidelines (October 15, 2006) and the transparency and disclosure provisions of the Bank Procurement and Consultant Guidelines (May 2004, revised in October 2006) will be enforced. Bank will also scrutinize implementation supervision including site inspections of goods and works.	S
Social and environmental	Potential negative impact of small civil works	M	Implement Environmental and Social Management Plan and	L

⁸ Rating of risks on a four-point scale – High, Substantial, Moderate, and Low - according to the likelihood of occurrence and magnitude of potential adverse impact.

safeguards			supervise the plan	
Other	Macro-economic factors could increase costs	M	Increase Government co-financing	L
III. Overall Risk (including Reputational Risks)				S

Kyrgyz Republic

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating of risk⁹</i>	<i>Mitigation measures</i>	<i>Rating⁹ of residual risk</i>
I. Sector Governance, Policies and Institutions				
Governance	Environmental issues attract limited public attention and therefore limited controls	S	Include public awareness activities	S
II. Operation-specific Risks				
Technical/design	Legal process to change use of marginal arable land into land for orchards and plantations was recently suspended due to food security concerns. The suspension was lifted, but future reoccurrences are possible.	S	Conduct legal review with LARC and ARIS	M
Financial Management	FM capacity built under the CATBP no longer exists, and the implementing agency lacks adequate financial management capacity	S	Experienced financial manager has been hired to establish satisfactory financial management system for the project	M
Procurement	Project agency's procurement capacity is low	H	Provide training for procurement staff. Bank's Anticorruption Guidelines (October 15, 2006) and the transparency and disclosure provisions of the Bank Procurement and Consultant Guidelines (May 2004, revised in October 2006) will be enforced. The Bank will scrutinize implementation supervision including site inspections of goods and works	S
Social and environmental safeguards	Risk of conflict to access resources such the use of land or water for forestry rather than pasture	M	Environmental and Social Management Plan and Natural Resource Access Restriction Policy and Process Framework supervision	L
Other	PDD validation and registration may be delayed or not be approved by the CDM Possible reoccurrences of civil	M	The Biocarbon Fund will share risks The country team will work intensively with	L

⁹ Rating of risks on a four-point scale – High, Substantial, Moderate, Low, - according to the likelihood of occurrence and magnitude of potential adverse impact.

	disturbance		implementing entities to flexibly adjust implementation plans.	
III. Overall Risk in the Kyrgyz Republic (including Reputational Risks)				M

Overall Project Risk in the two countries (including Reputational Risks)				S
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^a Rating of risks on a four-point scale – High, Substantial, Moderate, Low - according to the likelihood of occurrence and magnitude of potential adverse impact.

F. Loan/credit conditions and covenants

Conditions for Grant Effectiveness

- Adoption of the Project Operational Manual, including baseline indicators.

Disbursement Conditions

- No disbursement will be made for works, goods, and small grants to Kazakhstan until the Astana Project Implementation Unit has selected a suitable coordinator, financial manager, and procurement specialist;
- No disbursement for small grants for Kazakhstan will be made until the Astana Project Implementation Unit has developed an acceptable small grant manual; and
- No disbursement will be made for forestation activities until existing plantation norms of the Kyrgyz Republic are revised.

Financial Management Covenants

- PIUs within SAEPF and FHC will maintain a financial management system, including accounts and records sufficient to monitor sources and uses of funds for project implementation.
- Un-audited Interim Financial Reports (IFRs) will be submitted to the Bank no later than 45 days after the end of each quarter. The IFRs will cover all sources of funding, including two GEF grants, IFAD grant, two governments, and beneficiaries in the two countries
- The project financial statements for each country will be audited annually by independent auditors (one per each country), under terms of reference acceptable to the Bank. Audit reports will be submitted to the Bank no later than six months after the end of each year that was audited.

IV. APPRAISAL SUMMARY

A. Economic and financial analyses

61. At the local level, the main economic benefit expected is an improved environment and a sustainable improvement of livelihoods. At the global level, the expected benefit is a conservation of biodiversity and a contribution to climate change mitigation. These, however, have not been accounted for in the analysis because of the difficulty in estimating their value. Most benefits will materialize when trees are harvested, starting 15 years after project closing, as shown below (Table 6).

Table 6 – Expected Local Economic Benefits
(NPV@12% discount rate)

Benefit (cumulative)	Unit	During project (2009-14)	15 years after project closing (2014-28)
Employment generation	person/year	2,647	5,952
Forage	000' US\$	1,883	348
	000' bales	1,255	232
Fruits	000' US\$	2	1,893
	000' tons	0	102

Firewood	000' US\$	0	1,376
	000' cubic meters	0	717
Round wood	000' US\$	0	13,881
	000' cubic meters	0	1,375
Net carbon revenue	000'US\$	189	3,247
	000' tCO ₂ e	179	1,978

62. A 20-year analysis shows that the project is economically sound. The base ERR is 16.3 percent with a corresponding Net Present Value of US\$8.87 million (assuming a 12 percent discount rate). It is estimated that in 2028, the project-planted trees will sequester 1.978 million tCO₂e; poplar will produce 1,375,000 cubic meters of round-wood and 717,000 cubic meters of fuel-wood; and orchards will generate almost 102,000 ton of fruits. The soil fertility improvement in plantations and adjacent arable lands, if taken into account, would increase this ERR; sensitivity analysis shows little sensitivity to a moderate decrease or delay of benefits.

63. Financial analysis examines the main forest activities' financial feasibility, viability, and assesses their potential to increase incomes for individual beneficiaries. The annual cash flow generation indicators help determine the best way for the project to finance these activities. Fast-growing species such as poplar have a high IRR: (a) timber and fuel-wood prices are quite high and expected to stay at this level; and (b) irrigation infrastructure is already available, even in marginal lands unsuitable for agriculture. Nevertheless, even if these species are profitable, the target groups are unable to invest without project support: (a) first-year investment requirements are unaffordable and (b) years of negative cash flows are unmanageable (at least 15 years for poplar), and incomes are limited (firewood from thinning only). Fruit trees and willows generate incomes after 4-5 years, but the duration of capital recovery is too long for local people, justifying the project matching grant.

64. Three financial models were prepared for the financial analysis: irrigated poplar, with and without intercropping of forage, orchards and spruce/pine. This is a simplification; beneficiaries will be encouraged to plant multiple species to increase biodiversity and environmental benefits. The results of these financial models are summarized in Table 7 below. (See Annex 9 for details.)

Table 7 – Summary of Financial Analysis

	BEFORE FINANCING		AFTER FINANCING	
	IRR	NPV	IRR	NPV
Poplar (irrigated)	12%	-US\$60	21%	US\$941
Poplar + forage (irrigated)	19%	US\$757	159%	US\$1,757
Orchards (irrigated)	21%	US\$1,143	40%	US\$1,956
Spruce	6%	-US\$603	9%	-US\$127

Discount rate for NPV calculations: 12 percent

B. Technical

65. A review of silvicultural practices has been carried out during project preparation. Such review revealed that overall silvicultural practices are satisfactory, except for the excessive density of plantation of some species, as reported below. The project will contribute to improve nursery practices; still existing private and public nurseries already have the capacity to produce planting material for the initial years of the project.

Table 8 – Summary of Recommendations for Plantation Establishment

Species	Current unit (size/density/ha)	Recommended unit (size/density/ha)	Current plants/unit	Revised recommendation (plants/unit)	Recommended weed control
Poplar	No units	No units	3,000 plants/ha	1,150 plants/ha	Cultivation
Pine	2 x 1 m, 400-600/ha	1 x 1 m, 800/ha	5-8	2	Manual, Herbicide (propizamide)
Spruce	Same as pine	Same as pine	5-8	2	Same as pine
Juniper	Same as pine	Same as pine	5-8	2	Same as pine

66. All plantings will be undertaken utilizing species native to the Kyrgyz Republic, such as *Populus alba* from the Fergana Valley, *Populus diversifolia* along the Chui Valley, or *Populus Tianshanica* in the valleys of the Central Tien Shan. While accessible natural stands have almost disappeared due to over-exploitation for fuel-wood and timber, it is common practice of the rural population to plant poplars around houses, along roads and as agricultural windbreaks. Poplars, mixed with willows and elm serve as a source for fuel-wood and timber needs. The rural poor cannot afford imported timber and poplar is often used for construction. The Tien Shan project seeks to scale-up these small-scale tree-plantings. For instance, in one Aiyl Okmotu, comprising several villages, on average 200 ha of scattered plots will be planted. There are large areas of salinated and unproductive lands, where Poplars can still reach high growth rates, while improving soil quality.

67. **Legal aspects.** The Government of the Kyrgyz Republic is concerned about food security—good arable land suitable for food production should not therefore be used for other purposes. As a result, current legal restrictions on land use changes have tightened and marginal arable land cannot be reclassified to use as orchards and plantations. A legal review was carried out (Annex 16: Legal Framework). The legal framework to allow the land-use changes required under the project is sufficiently clear, and a pilot to test its effective implementation is ongoing. The project unit is working with the Ministry of Agriculture to develop clear indicators so plantations will be allowed only where land is marginal.

68. The two applicable decrees on ‘Collaborative Forest Management No 377’ and ‘Forest Plot Use and Leasing No.482’ limit the maximum size of a plot managed by one family to 20 and 10 hectares, respectively. Therefore the project will not be legally allowed to finance large industrial plantations. Still, these micro-projects could be located next to each other, and in total comprise a larger plantation area, or several families could form a micro-project group. But it is highly unlikely that one single Aiyl Okmotu will have the capacity to plant more than 200 ha in total.

C. Fiduciary

69. **Financial Management.** Assessment of the adequacy of financial management arrangements for project implementation was carried out in November 2008, including a review of budgeting, accounting, internal control, funds flow, financial reporting, and auditing procedures. The State Agency for Environmental Protection and Forestry (SAEPF) of the Kyrgyz Republic is responsible for project implementation and fiduciary aspects in the Kyrgyz Republic, and has delegated this role to the PIU, which has hired a qualified and experienced staff—a project coordinator, financial manager, and procurement specialist. The PIU is also supported by an office manager/translator and an international consultant. The PIU recently installed and is customizing 1-C accounting software for project accounting and financial reporting. The PIU is also contracting a consultant to draft the Project Operational Manual. The Kazakhstan Forest and Hunting Committee (FHC) is responsible for implementing activities in Republic of Kazakhstan. Agency capacity is more limited and the FM environment is more challenging

for various reasons, including a rigid budget system, and centralized controls, approvals, and procurement of external audits. A time-bound action plan was discussed and agreed with the FHC to strengthen systems and controls for project implementation; the plan will be implemented by negotiations. Overall project financial management risk, which is rated 'High' would be reduced to 'Substantial' after mitigation measures. Financial management risk at the country level is rated as 'Substantial'. For Financial Management details, see Annex 7.

70. **Procurement.** The project will be implemented by the State Agency for Environmental Protection and Forestry (SAEPF) of the Kyrgyz Republic and the Forestry and Hunting Committee (FHC) of Kazakhstan. Bank Procurement and Consultant Guidelines (published in May 2004, and revised in October 2006) will apply for project-financed activities, except counterpart contributions (mainly in-kind), for which national procurement rules will apply. Kazakhstan enacted a new Public Procurement Law (PPL) on July 21, 2007, that took effect on January 1, 2008; it includes provisions that reflect international practices and Bank recommendations, but needs improvement. The Kyrgyz Republic enacted a new PPL on July 28, 2008, with few changes to the 2004 PPL, but no longer requires State Agency clearances for bidding steps, which is an improvement.

71. In November 2008, a Bank assessment found that project procurement capacity of SAEPF of the Kyrgyz Republic and FHC of Kazakhstan are adequate to handle project activities. However, even though both countries have advanced PPLs, the overall procurement environment is assessed as high risk, and the perceived level of corruption remains very high. According to Transparency International, the 2008 Corruption Preconception Index was 2.2 for Kazakhstan and 1.8 for the Kyrgyz Republic, ranking 145th and 166th, respectively in the world. Kazakhstan domestic review and approval procedures remain cumbersome (such as Government review of procurement documents, contract registration, and rigid budget code). Also, it is difficult to attract and retain qualified specialists, particularly in Kazakhstan. These conditions put project procurement risk rating as substantial in both countries after the mitigation measures described below.

72. The following mitigation measures will be adopted: (a) develop practical procurement plans including careful packaging and realistic scheduling; (b) complete advance procurement preparation as much as feasible; (c) provide procurement training during project implementation; (d) closely supervise and monitor procurement processes; and (e) enforce Bank good governance and anti-corruption safeguards, including transparency and disclosure requirements. (For details on procurement arrangements and plans, see Annex 8.)

D. Social

73. Project activities are considered socially sensitive. Therefore an integrated Environmental and Social Assessment (ESA) of the project was completed by a team of consultants on behalf of the Grantees (Section E below covers the environmental sections) in the Kyrgyz Republic and Kazakhstan. The ESA comprised a comprehensive desk review of reports and statistics, key informant interviews, focus group meetings, and a survey of 275 forest users in nine case study villages. The ESA was disclosed "in country" on February 10, 2009 and submitted to Infoshop on February 25, 2009.

74. **Socio-economic Impact of the Project.** The ESA identified project benefits and risks. Support for the project is widespread among forest users in case study villages. Forest users often recognize that unfavorable social and economic conditions are leading to excessive and unsustainable exploitation of their forest resources. In many villages, more than half of the energy demand for heating and cooking is satisfied by burning firewood from trees and shrubs. Survey results have shown that rural people who plant trees to satisfy their own needs for firewood and timber are less likely to engage in illegal cutting and harvesting. Other expected benefits include the direct financial gains for engaging in forestation, and income and employment benefits generated by eco-tourism.

75. Overall social impact was assessed as positive, but the ESA confirmed that a few project activities may have negative consequences. Among these, the most important is forestation of marginal land, which may conflict with the interests of herders currently using the land for grazing, sometimes without formal leasing arrangements. Another potential negative impact is the inequitable distribution of project benefits and revenues among stakeholders, which may be linked to the risk of limited accountability among LHs and other official entities involved in resource distribution.

76. **Mitigation Measures.** Given these risks, the consultants and the project team proposed mitigation measures to be incorporated in the project design. To mitigate the risk of restricted access to grazing due to forestation along with the possibility of conflicts arising from changes in the management of protected areas an Access Restriction Policy and Process Framework (ARPPF) has been prepared. This framework serves to minimize possible conflicts arising from changes in the management of protected areas and minimizes the risk of conflict between grazing and forestation activities implemented on the basis of community decision making processes (the ARIS social mobilization process), state agencies (Lezkhozes) or public-private partnership arrangements. The instrument therefore combines the core elements of both a Process Framework (necessary for activities within protected areas) and a Resettlement Policy Framework (necessary for activities outside protected areas), while also outlining the participatory decision making process to be followed by Communities pursuing reforestation activities on AO land¹⁰. The ARPPF includes participatory processes to form local management groups to mediate any conflicts or disputes arising from changes in the management of protected areas and to ensure that sites selected for forestation are not under lease or informal use for grazing livestock. When conflicts occur between forestation plans and current grazing no forestation activity will be carried out. The site-identification process already carried out specified that sites should be free of possible conflicts and surveying teams, including social specialists, will confirm that no clear and serious conflict can be identified. This cautious approach is necessary as it is likely that forestation will fail if conflicts exist.

77. However, some marginal pastures are used informally (without recognizable legal right or claim to the land used), sometimes seasonally or even just occasionally, making it difficult to identify potential conflicts during the initial survey. If such cases arise, the project will provide measures to assist in improvement or restoration of livelihoods in the form of access to alternative pastures, or other assets such as seeds, fertilizers, or technical assistance to improve the productivity of alternative pastures. Similar measures will be available to informal users of protected areas who may have their access to important livelihood resources (grazing, forage, non-timber forest products) restricted as a result of a change in the management regime. Coordination with the Kyrgyz Republic Agricultural Investment and Services Project (AISP) will help implement measures to assist the improvement or restoration of livelihoods for persons affected by restricted access to grazing. A Memorandum of Understanding between the two projects has already been signed to improve coordination during pilot activities, and will be broadened to cover the project.

78. To mitigate the risk of lack of knowledge about informal or seasonal uses of areas to be forested, the project will adopt the following measures, depending on the implementation mechanisms.

- **ARIS.** The social mobilization process is designed to ensure maximum community engagement in micro-project planning and selection, including measures to maximize women's and other marginalized groups participation in making decisions;
- **PPP on State Forest Fund Land.** Awarding public-private partnership forestation projects will be based on principles of collaborative forest management to help ensure transparency and accountability in selecting project beneficiaries. Furthermore, LHs staff will benefit from training

¹⁰ OP 4.12 does not apply to community based natural resource management activities, but such activities are covered by this framework as a matter of due diligence

and advisory support on the principles of collaborative forest management and participatory natural resource management techniques.

- **Lezkhozes.** Transparency and knowledge of participatory approaches are limited but because these areas are so remote, they are less prone to conflicts. Still, LHs staff will be trained in the principles of collaborative forest management and participatory natural resource management techniques to reduce the risk of conflicts.

79. **Poverty targeting.** A large share of project benefits is expected to reach poor rural communities. IFAD is preparing a more specific note on poverty targeting, including gender and property rights. As listed below, most benefits resulting from project investments are pro-poor, even though most of these benefits will materialize only after project closing (see Table 6 at page 15 for a more quantitative assessment):

- **Sustainable Employment Generation.** Hard manual work in rural areas will be carried out primarily or even exclusively by poor people (see also Figure 3 at page 67);
- **Forage** will be used by herders, who are among the poorest people in rural areas, where 76% of the poor are concentrated;
- **Fruits and Nuts** (particularly walnuts) benefit particularly poor rural people. Women play a key role in harvesting and marketing of fruits. The Improved Forest Management Component will start to produce benefits during project implementation;
- **Firewood.** More affluent households have access to electricity and/or gas, and do not need firewood to heat their houses or for cooking. Increased availability of firewood will therefore mostly benefit the poor;
- **Round wood** is the most important benefit that the project will produce. Round wood is highly valuable in the Kyrgyz Republic because the country imports most of it from Siberia, adding significant transport costs. Most round wood produced by the project is poplar, a low-quality construction wood that is unlikely to be used by more affluent people who typically use the more expensive pine logs imported from Siberia. Therefore increased availability of domestically produced poplar will primarily benefit poor people;
- **The small grants** under Sub-component A.2 have proven to benefit mostly the poor. The assessment of a similar program implemented during the Central Asia Transboundary Biodiversity Project revealed that such grants strongly target the poor (geographical targeting, since protected areas are located in remote areas, where the poorest people live). The assessment also showed that 42 percent of beneficiaries were women (handicrafts, eco-tourism, etc);
- **Eco-tourism** will benefit in particular communities living around protected areas, in the most remote regions of the two countries. Remoteness and poverty are strongly correlated; and
- **Biodiversity**, including increased availability of hunting game and other non-timber forest products, will mostly benefit the poor.

E. Environment

80. The proposed project deals primarily with environmental management and environmental improvements in the Tien Shan, so the overall environmental impacts are expected to be positive and outweigh any potential negative impacts. However, the proposed project triggers several environment policies, such as Environmental Assessment. Thus a joint Environmental and Social Assessment (ESA) has been carried out and disclosed “in country” on February 10, 2009 and submitted to Infoshop on February 25, 2009.

81. It is anticipated that the project will have a strong positive environmental impact, but some activities have potential for a negative impact and mitigation measures have been designed. The ESA identified the primary negative impacts, including the following:

- Increased competition for irrigation water

- Reduced biodiversity through introducing monocultures
- Unskilled use of pesticides
- Increased allergenic substances produced by trees (such as cotton fluff produced by female poplars)
- Temporary environmental impacts from waste management, emission control and soil / vegetation conservation during small-scale construction works

82. None of these impacts is expected to be large in scale, significant, sensitive, or unprecedented. All of these impacts are expected to be reversible; established and tested mitigation measures for them are readily available. The counterparts' environmental capacities are assessed as satisfactory and the Environmental Mitigation Plan has sufficient detail and quality to ensure that identified environmental safeguards measures will actually be mainstreamed and implemented during project execution.

F. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP 4.01)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Habitats (OP/BP 4.04)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pest Management (OP 4.09)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Physical Cultural Resources (OP/BP 4.11)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Involuntary Resettlement (OP/BP 4.12)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Indigenous Peoples (OP/BP 4.10)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Forests (OP/BP 4.36)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Safety of Dams (OP/BP 4.37)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects in Disputed Areas (OP/BP 7.60)*	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects on International Waterways (OP/BP 7.50)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

83. *Environmental Impact Assessment.* The project environmental category has been assessed as B. A joint Environmental and Social Assessment (ESA) has been carried out and has been found acceptable by the Bank team. The ESA describes potential activities and outlines the assessment and permitting processes for such investments in accordance with Government and World Bank policies and procedures. The ESA reviews each country's legislative and regulatory frameworks and implementation enforcement capacity to assess their compatibility and adequacy for World Bank requirements; evaluates potential project environmental risks and impacts, and suggested measures to prevent, minimize, mitigate, or compensate for them, and enhance positive environmental impacts. The ESA also describes the process for developing environmental monitoring and mitigation plans (EMPs) for specific investments.

84. *Natural Habitats.* This policy is triggered because the project will finance on-the-ground works in legally designated protected areas, for example, delineation of hiking trails for eco-tourists.

85. *Pest Management.* This policy is triggered because the project will finance a limited use of herbicides in forestation sites. A Pest Management Plan was developed to reduce the risk of pesticide use and it is part of the Environmental and Social Assessment (ESA).

86. *Physical Cultural Resources.* This policy is triggered because some of the protected areas include archaeological resources such as petroglyphs, burial sites and holy places. The protected area management plan will define how to sustainably manage such resources.

87. *Involuntary Resettlement.* This policy is triggered because forestation activities may restrict access to resources such as grazing for livestock producers. Project activities will not involve land

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

acquisition or physical relocation of people. In addition, the component for Strengthening Biodiversity Conservation aims solely to improve the management of existing protected areas, not enlarge them. To address the risk of restricting access to grazing, an Access Restriction Policy and Process Framework was prepared.

88. *Forests.* The project will finance forestation activities in sites yet to be determined. The Environmental and Social Assessment developed a framework to ensure that plantations will not involve conversion or degradation of critical natural habitats, and that no invasive species will be used that could threaten biodiversity.

89. *Projects on International Waterways.* The project will finance forestation activities in the Kyrgyz Republic, which will require irrigation of around 7,920 ha, out of which 6,787 ha are in basins of international waterways. This will increase irrigation water demand in international rivers basins including the Syr Darya, which flows to Tajikistan and Uzbekistan, the Chui, and Talas, which flow to Kazakhstan. The Kyrgyz Republic asked the World Bank to notify riparian states on its behalf. The notification letter was sent on February 17, 2009. The letter allows until April 13, 2009 for the recipients to submit comments. On April 10, 2009, the Water Resources Committee of the Republic of Kazakhstan answered stating that they do not object to the project. On April 16, the Ministry of Melioration and Water Resources Management of the Republic of Tajikistan answered stating that they did not object to the project. As of May 19, 2009 (nine days after the April 13 deadline) no reply has been received from the Republic of Uzbekistan.

G. Policy Exceptions and Readiness

90. No policy exceptions are sought for this project. The project is ready to be implemented. Thanks to PHRD financing, the project implementation unit in Bishkek is staffed and a pilot forestation plot has already been planted.

91. The project will allow for up to \$100,000 retroactive financing of the IFAD Grant. This is because the IFAD Grant is planned for the September 2009 IFAD Board meeting, and will require a few months for ratification. However the project needs to expand planting during the fall of 2009 to achieve the BioCarbon targets by 2017.

Annex 1: Country and Sector Background

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

1. **Biodiversity in the Tien Shan.** The Tien Shan (“Celestial Mountains”) ecosystems of Kazakhstan and the Kyrgyz Republic include a range of habitats from sub-tropical to tundra and glaciers, including arid, semi-arid, forest, meadows, and mountain ecosystems. The geological origins of the mountains and their wide variations in altitudes and climates produce remarkable habitat diversity and endemism. Table 9 gives an overview of the project Protected Areas (PAs) and biodiversity information. The most widespread forest ecosystems are juniper (*archa*), spruce and fir, and nut-bearing forests that are especially valuable. The flora-rich area has an estimated 2,000 plants species, at least 12 percent of which are considered endemic and include trees, grasses, and herbs. Over 1,000 species are utilized by humans, including timber and firewood trees, medicinal plants, mushrooms, fruits, berries, and nut trees (e.g., apples, apricots, walnuts) and ornamental plants (e.g., endemic tulips). Of these at least 100 local species, or about 50 percent of the total number of species in Central Asia, are ancestral landraces and relatives of agricultural and horticultural crops. The Tien Shan’s global botanical significance resulted in it being included in the WWF/IUCN Mountains of Middle Asia Center for Plant Diversity.
2. Fauna in the Tien Shan include many endangered and endemic species: 27 avian and nine mammal species are considered globally endangered (see Table 9). Among avian species, the area is a particular stronghold for raptors, which have significant breeding populations, including eagles; and numerous species of migratory and wetland birds. The Tien Shan and other Central Asian mountains provide a contiguous habitat through their central location for many mountain Asian fauna, including Central Asia’s flagship species, the snow leopard (*Panthera uncia*). The Tien Shan in the western part of the species’ range is key to the movement of individuals and genetic interchange among snow leopard populations in the Hindu Kush, Karakoram, Kun Lun, Altai, and Tibetan Plateau link. The Tien Shan is also home to a rich array of ungulates, including the Argalis (largest of the Eurasian sheep) with a distribution confined to Central Asia, the Himalaya and Tibetan Plateau. Of the three subspecies in Central Asia, two are endemic to Tien Shan; the Karatau argali (*Ovis ammon nigrimontana*, critically endangered) is confined to the Karatau and may number no more than 200, and the Tien Shan argali (*O. a. karelini*, vulnerable) occurs in the Tien Shan in suitable habitats.
3. **Legal Framework for Biodiversity Conservation.** Although each country is pursuing an independent conservation strategy, a system of special protected areas (SPAs), established during the Soviet regime, remains common to Kazakhstan and the Kyrgyz Republic and is a primary instrument for biodiversity conservation. The project will focus support on nationally designated PAs found in both countries: State Strict Nature Reserves (*zapovednik*), including Biosphere Reserves and State National Nature Parks. The project will continue to promote regional cooperation in conservation where practical. Although PAs perform relatively well in securing representative samples of biodiversity pattern (distribution of species, communities, and ecosystems), they remain inadequate for conserving the ecosystem processes that will secure the PAs or biodiversity in the wider landscape. The ecosystem approach—supporting multiple-agency, landscape-level approaches can help address this challenge, although it is widely recognized that this can be complex and demanding.

Table 9 – Overview of Protected Areas covered under the Project

Project Protected Areas (date of establishment)	Area (ha)	Number of visitors in 2007 and period covered under existing Management Plan (MP)	Biodiversity Values
1. Aksu Jabagly SR ¹¹ (1926)	131,934	Visitors – 6,192 , MP: 2009-13	The West Tien Shan and Karatau mountains support rare fauna and flora, including: Severtzov's jerboa, Turkestan steppe polecat, marbled polecat, Indian crested porcupine, Karatau argali, and one of three sites for the endemic Menzbier's marmot. Other important fauna: snow leopard (globally endangered), Turkestan lynx, Tien Shan argali, red deer, Tien Shan brown bear, Siberian ibex, Golden Eagle, Great Rosefinch, Short-toed Eagle, Red-capped Falcon, Bearded Vulture, Griffon Vulture, Penduline Tit, Tibetan Snowcock. Flora comprises 1,850 species, 136 endemic with 32 spp. occurring in Kazakhstan only, 72 spp. Red Book listed (1981), 17 endemic to West Tien Shan. Unique vegetation types for Kazakhstan, e.g., archa (juniper) forests, hawthorn woodlands, types of tall-grass savannoids, <i>Artemisia</i> brushwoods, <i>Acantholimon</i> communities, <i>Prangos</i> communities, ash forests in river valleys.
2. Karatau SR (2004)	34,300	Visitors – 316, MP: 2009-13	
3. Sairam-Ugam NP (2006)	149,053	Visitors – 2,000, MP: 2009-14	
4. Kolsai Lakes NP (2007)	161,045	Visitors – 6,993, MP: 2009-17	
5. Charyn NP (2004)	93,150	Visitor data unavailable	
Kazakhstan- Total	569,482		
6. Naryn SR (1983)	91,023	Visitors – 569	The West Tien Shan range supports unique forests of walnut, wild fruit, pistachio, almond, archa and spruce/fir, broad-leaved and tugai spp. Also communities typical for continental deserts, mountain steppe, savannoids, and meadows. Diverse flora concentrated in a relatively small area with about 2000 spp. of vascular plants, of 600 genera and 100 families. 12 percent of flora is endemic. 100-plus spp. are ancestral forms/relatives of agricultural and horticultural crops. Vertebrate fauna represented by some 40 mammal species, 300 bird species, 10 reptiles, 3 amphibians, and 20 fish species. 15-10 percent of invertebrate fauna investigated depending on species groups, with about 10,000 insect spp. registered with high endemism at the species, order, or higher taxonomic levels. Rare animal species listed in the Kyrgyz Red Book include the Menzbier's marmot, snow leopard, bear, marten, argali, vultures, hawk-type raptors, falcons, Himalayan lynx, etc. Issyk-Kul basin fauna, especially in mountain belt, is rich and diverse. Eastern portion contains archeological sites. Tien Shan suslik (ground squirrel). Inner and Central Tien Shan high mountains support large mammals, such as the snow leopard, argali, brown bear, Siberian ibex, manul cat, stone marten, roe deer, lynx, wild boar, and porcupine which survive due in part to remoteness and inaccessibility.
7. Karatal-Zhapyryk SR (1994)	21,259	Visitor data unavailable	
8. Issy-Kul SR (1948)	19,661	Part of Biosphere Reserve	
9. Padyshat SR (2003)	30,560	Visitors – 3,207	
10. Kulunata SR (2004)	27,434	Visitors – 25	
11. Karabura SR (2005)	59,067	Visitor data unavailable	
12. Kara-Shoro NP (1996)	14,340	Visitors – 3,998	
Kyrgyz Republic – Total	263,344		
Total Project	832,826		

¹¹ State Reserves (SR) are known locally as “Zapovednik” and conform to IUCN Category Ia – Strict Nature Reserve, locally designated National Parks (NP) conform to IUCN Category II – National Park

4. **Natural Resource Utilization.** The Tien Shan ecosystems are a vital source of subsistence, water, energy, and recreation for local and regional populations, and more recently in the case of tourism for international visitors. As with other mountain systems, the Tien Shan range provides vital water storage in the form of glaciers and snow, which supports much of the cultivation in the plains below. The Tien Shan's many streams, the majority of which drain to the north, have formed alluvial deposits on the plains below that provide sites for agriculture and settlements and are home to several major population centers. The Western Tien Shan's annual freshwater discharge to adjacent areas is estimated to be about 10 cubic km. As a destination, the Tien Shan offers a variety of tourism experiences from mountaineering to bird-watching to sharing nomadic lifestyles.¹² Although the Tien Shan features prominently in Kyrgyz tourism offerings, operators are increasingly recognizing value of offering Tien Shan-based experiences that include both countries. For Almaty-based operations that focus on the Tien Shan, including Kyrgyz destinations extends the trip and diversifies the tourism experience. Marketing a regional approach to tourism would benefit the Tien Shan protected areas in both countries.¹³

5. **Challenges in Tien Shan Biodiversity Conservation.** The mountains of Central Asia have long been exploited for grazing, hunting, timber and firewood. Habitat destruction, overgrazing, and unregulated wildlife hunting and firewood collection remain major threats to biodiversity in the Tien Shan. A more recent threat is the increasing recreational load on mountain ecosystems from local and overseas tourists to the Tien Shan, particularly in the Issyk Kul Lake. But the biggest threat may be the long-term effect of global warming, which can radically change the present environment and biota. At the same time, protection regimes in both countries are undermined by institutional weaknesses that were exacerbated by the transition; and reduced funding for staff salaries and patrolling, among other activities, has eroded strategic planning, day-to-day management, research, and combating illegal activities.

6. **Forestry in the Kyrgyz Republic.** This mountainous country has continental and extremely diverse ecological conditions. Although forests cover only 5.4 percent of Kyrgyz territory, they form unique ecosystems and provide major biodiversity, watersheds, soil protection, and control of erosion, landslides, and avalanches. Forest types include mountainous conifers, relict walnut, pistachio, and almond, riverine, and belts of irrigated, fast-growing plantations and orchards near villages. During the last century, the forest area has been halved by decades of extreme anthropogenic pressure, mainly firewood collection, illegal and/or unsustainable logging, and uncontrolled grazing.

7. Existing forests on State Forest Fund lands are important to rural people for subsistence and livelihoods, including direct use of forest resources, such as fuel-wood and non timber forest products, timber harvesting, hunting, or livestock grazing. Since the Kyrgyz Republic has relatively low forest cover, the importance of forest resources for rural people varies widely among forest types and regions. The most significant, if unsustainable, contribution of accessible forest resources to livelihoods is encroachment of forests for livestock grazing and fuel-wood collection, which are legally restricted (not banned) in the State Forest Fund land. Encroachment has become common practice, leading to extensive forest degradation throughout the country.

8. The walnut-fruit forest in the Kyrgyz Republic is the world's largest relict walnut forest, the result of more than 1,000 years of a unique land use and livelihood system, which occurs on the northern and north-eastern slopes of the Fergana valley and ranges from pure walnut stands to mixed forest types with fruit trees, rose, almond, and pistachio species. In good seasons, collection of walnut fruits provides

¹² Tien Shan focused tourism offerings have been finalists in the British Airways Tourism for Tomorrow Awards in 2004, and selected as an Outstanding Trip of the Year in Outlook Magazine (2005).

¹³ An example of regional cooperation is the Community-based Tourism Central Asia Network, led by CBT in the Kyrgyz Republic with partners already in Kazakhstan, http://www.cbtkyrgyzstan.kg/index.php?option=com_content&task=view&id=100&Itemid=98

the major source of income for some 100,000 forest dwellers. However, unfavorable socio-economic conditions and increasing population density have raised the pressure on natural resources in the walnut-fruit forest, posing a serious threat to this unique ecosystem and source of livelihood for the poor. LHs lack the capacity to cope with this pressure or to maintain the integrity of the forest.

9. There are also 300,000 hectares of forested area on Aiyl Okmotu territory; most of which are natural juniper stands, small-scale orchards, and other forest types. Aiyl Okmotus are local self-governments, established with the 2002 Law on Local Self-Government and Local State Administration and the 2003 Law on the Financial and Economic Basis of Local Self-Government, developed as part of a national strategy for decentralization. Aiyl Okmotus comprise an elected council (Aiyl Kenesh), an executive body that is the village administration (Aiyl Okmotu) with an elected representative (Glava), and additional institutions such as village elders “Aksakals” (elected or informal), Women’s Councils, and others. These local self-governments are accountable to the citizens that establish them and to the Aiyl Kenesh where they are registered, consequently, they are perceived as the most accountable level of government.

10. Trees beyond the State Forest Lands, primarily on Aiyl Okmotu lands, are even more important for poor rural households. These include small-scale orchards and plantations in home gardens, rows of poplars and willows along roads, irrigation channels, or windbreaks along agricultural fields. Trees outside the forest provide essential forest products, especially where State Forest Fund lands—constituting most of the existing forests—are remote and their access restricted. No statistics are available on the quantity and kind of contributions to local livelihoods made by trees outside the forest, nor on depletion trends, but these resources’ decline has been widely observed and recently attracted local media attention. In addition to fuel-wood, timber and non timber forestry products, trees outside the State Forest Land can provide benefits for improved agricultural production, aesthetic and environmental services. For example, in the south where fuel is especially scarce and pressure on existing natural resources and land is enormous, experts observe local people increasingly engaging in small-scale tree planting, such as along irrigation channels. Scaling up tree-planting activities is limited because most rural people lack awareness of potential benefits, including early benefits, their lack of investment capital, and the delayed returns to investments. However, significant potential exists for scaling up tree-planting on local self-governments’ (Aiyl Okmotus) unproductive and barren lands, in particular on the redistribution fund land.

11. The forestry sector is still struggling with the transition to a market economy. The Soviet-era forestry sector had a centralized and hierarchical structure and policies designed for protection and conservation. The sector was highly subsidized, and the Soviet Union provided cheap wood and energy. After independence, the socio-economic downturn increased rural unemployment and poverty, which increased forest-dependent livelihood strategies among local people. In particular, forests have been encroached for firewood collection, construction materials, and uncontrolled livestock grazing.

12. According to the UN Food and Agriculture Organization (FAO), the value of coniferous sawnwood imported during 2006 was about US\$9.0 million, compared to US\$2.0 million during 2000. Similarly, a strong value increase for local-level quality timber was observed—the price for one cubic meter of 15-year old poplar timber increased from KGS300 to KGS1,000 during 2003-08. Local experts and timber sellers attribute this price spike to timber scarcity, followed by a construction boom when credit access improved. This trend peaked during 2006-07 with a price of KGS1,200 per cubic meter of poplar timber. But recent global economic crises and constrained access to financing have reduced construction. Elm hardwood, commonly used for furniture, showed a similar trend—since 2002, prices have doubled to KGS5,000 at end-2008, and the urban market value is considerably higher.

13. While pressure has increased on limited forest resources and forest managers, the potential is great for the sector to contribute to sustained socio-economic development and poverty alleviation.

During the last few years, the SAEPP and its predecessor, State Forest Service (SFS), in cooperation with development partners have initiated reforms to adapt the roles and responsibilities of the forest administration. One of the major objectives of the National Forest Program (during 2005-15) is to integrate the local population and the private sector into forest management.

14. The National Concept of Forestry Sector Development reports that the sector faces several challenges: First, the national budget allocation rarely covers more than administrative costs of Lezkhoz (LHs), therefore most forestry activities must be self-sufficient. Second, although LHs have quality professional staff, they lack resources, managerial skills, or incentives to pursue business opportunities. Instead, LHs management is hindered by a bureaucratic accounting and reporting system, and a legacy of centralized, inflexible decisionmaking. Third, modern information and communication technologies are lacking now that LHs must integrate social considerations with forest management, which is essential to address forest encroachment. Finally, although Collaborative Forest Management has evolved during the last decade, awareness, clarity, and detail are lacking on participatory procedures or stakeholder involvement, all of which are essential to integrate forest management with the local population and Aiyl Okmotus (see Annex 17: Collaborative Natural Resource Management).

15. During 1998-03, the State Forest Program reforested around 16,400 ha, although long-term survival rates were very low. The State Forest Program now projects annual forestation activities of 2,000 hectares on State Forest Fund Land and 1,000 hectares on Aiyl Okmotu land. Low budget allocations lead to low survival rates. Funds for initial investments and maintenance are insufficient, and the budget barely covers salaries and administration. The accounting structure prevents coordination of available funds (for example, funds are allocated too late in the year to fund appropriate site preparation before planting), and quality planting materials, and planting time are insufficient. Due to budget and technical problems, most reforestation efforts do not lead to forest establishment:

- Inadequate soil preparation and planting techniques
- Low salaries and motivation among Lezkhoz staff
- Low quality seedlings due to inadequate nursery practices
- Insufficient forest protection
- Lack of awareness about local communities and lack of coordination with local Aiyl Okmotus and communities
- Natural hazards such as drought, storms, and floods
- Planting on unsuitable lands in areas with high population pressure;

16. In the meantime, private foresters have succeeded in developing small-scale fast-growing plantations, reclaiming formerly unproductive and barren lands, achieving impressive survival rates, and creating biodiversity benefits. Due to high timber prices, firewood needs, and unemployment, local people show great interest in establishing small-scale private plantations and orchards. But similar to state efforts, forestation of municipal and private lands is limited by the high initial investment required and the lack of capital to invest, which means that local forestation activities rarely cover more than a few hectares. Furthermore, local people need training and technical assistance to improve their business skills, planting techniques, and knowledge of sustainable forest management and protection, including environmental and biodiversity considerations.

17. Forest pests and diseases are not serious problem in Kyrgyz forests, however in the southern Oblasts Osh and Jalalabad, hardwood forests are seriously infested with Gypsy Moth (*Lymantria Dispar*). Forestation activities with several hardwood species in Osh and Jalalabad would be exposed to a high risk of infestation. Therefore, the project would avoid planting hardwood species in regions affected by pests. Bio-control measures have been applied in cooperation with several development partners but the

effectiveness rate is low—around 16 percent. Better results were obtained in combination with manual egg collection, a method that also provides local poor with income opportunities.

18. One of the strongest drivers of deforestation and forest degradation in the country is pasture and the encroachment of forest areas for livestock grazing, since livestock grazing has been a dominant source of livelihood for rural people. For centuries, pastoral nomads benefited from the country’s mountainous terrain by changing altitudes with the seasons. Overgrazing was avoided by transhumance and a relatively low population. During the Soviet era, nomads were settled and collectivized, and pasture development was intensified to create a center for wool production for the Soviet Union. After independence, the central administration of pasture was transformed to several central state entities, and local management authority transferred primarily to Rayon and Aiyl Okmotu administration. In most cases, collectives were dissolved and became small-scale farmer-owned pastures. Organized summer pastures, common during the Soviet era, were beyond the capacity of most subsistence livestock keepers. Increasing livestock numbers and the absence of rotation systems, particularly the rangelands near villages, have resulted in extensive overgrazing during the last decade, which has contributed to the current trend for resurrecting the practice of organized summer pastures in the mountains.

19. In theory, a comprehensive planning process regulates pasture management on a competitive basis. This process would include thorough assessments of grazing capacity and participation by different institutions and administrative levels. According to the Forest Code and Resolution No.360, LHs pastures (so-called “forestry tickets”) are allocated directly to farmers, while the local administration receives 25 percent of the fees. However, in practice, user rights are awarded in an uncoordinated, opaque, and sometimes informal manner, especially when pastures are transferred to private investors from cities or other areas, potential for conflicts with the local population is high. Also, conflicts have been reported in some highly populated regions where forestation activities on LHs land because pasture rights were unclear, uncoordinated, and lacking proper procedures.

20. Many subsistence farmers prefer to regulate their pastures informally within the community, for example, by using traditional tribal structures, or if formal registration is necessary, through the Aiyl Okmotu administration. For example, conflicts such as damage to trees caused by grazing are usually solved directly or informally with the help of village elders. Therefore, the effectiveness and sustainability of pasture management largely depends on local circumstances and relations among herders, Aiyl Okmotu, and LHs. This is likely similar in the regulation of other user rights.

21. Planted forests can no longer satisfy national demand for fuel-wood and timber. According to annual growth estimates, SAEPF allows the extraction of some 25 thousand m³ of timber, including fuel-wood, but much of this resource is inaccessible in mountainous forests. There are no local assessments of fuel-wood availability but according to a study of the Central Asian Transboundary Project on Biodiversity, actual fuel-wood collection is five times the allowable quantity. In the winter of 2008, the demand for firewood around cities escalated, likely in response to Central Asian water and energy politics, which are increasingly controversial.

Table 10 – Threats/obstacles to biodiversity protection and reforestation and project actions

Threats/obstacles to biodiversity protection and reforestation	Project actions
Overgrazing in lower lands	Collaborate with pasture committees Improve forest management Improve stakeholder collaboration (local communities, Aiyl Okmotus, LH)
Unregulated hunting (especially of charismatic flagship species) and wild plant collection	Improve PA management, research support, public awareness

Over-exploitation of fuel-wood	Improve forest management Reforestation. Improve stakeholder collaboration (local communities, AO, LHs)
Loss of habitat	Forestation Improve forest management
Poor management of PAs due to lack of capacity and finance	Strengthen the PAs with equipment (horses, cameras, GPS, etc.), TA, eco- tourism (trekking itineraries, maps, tourist information) Introduce carbon trading as source of revenue
Long returns from investments in reforestation	Include grant elements in investments Introduce carbon trading Introduce multiple-benefit trees (e.g., orchards) Diversify livelihood resources
Lack of financial resources of protected areas, natural parks, and LHs	Contribute to initial investment Introduce carbon trading Develop revenue-generating forest activities and eco-tourism
Excessive top-down strict conservation measures	Support participatory conservation measures and small grants to generate collaboration with local communities

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

1. **Village Investment Project (VIP)** in the Kyrgyz Republic. This successful project was implemented by the Community Development and Investment Agency (ARIS) to develop community involvement in local decisionmaking. This project provides grants to villages to construct and improve social infrastructure and support income-generating activities designed to alleviate poverty. By encouraging community inclusion in decisionmaking and implementation, the project improved the efficiency of public fund management and increased trust in local governance. Local communities are responsible for implementing micro-projects, financial management, and procuring project inputs. So far over 3,000 social infrastructure investments and income-generating micro-projects have been completed. A factor that contributed to project success was building on the existing Aiyl Okmotu local self-government structures. Building on the processes and institutions established by ARIS, the World Bank Agricultural Investment and Services Project (AISP) currently introduces community-based pasture management to strengthen involvement of pasture users in allocation, use, monitoring and decisionmaking to improve oversight, equitable distribution, and sustainability of this critical, over-exploited asset. The project is rated Highly Satisfactory.
2. **Agricultural Investments and Services Project (AISP)** in the Kyrgyz Republic. This US\$22 million investment operation aims to improve the institutional and infrastructure environment for farmers and herders, emphasizing the livestock sector. The project will increase farmer productivity, particularly livestock farmers in the project areas, and reduce animal diseases that affect public health (e.g., brucellosis). Main project activities are pasture improvement (US\$9.0 million); rural advisory services (US\$5.0 million); community seed funds (US\$4.0 million); and animal health (US\$4.0 million). The project is rated Satisfactory.
3. **Agro-Business and Marketing Project (ABMP)** in the Kyrgyz Republic. This US\$12 million investment operation aims to (a) expand the level of activity of processing, marketing, and trade enterprises downstream from the farm gate; (b) increase the number and economic importance of producer organizations; and (c) improve market functioning and trade linkages among producers and primary- and secondary-level trade organizations. The project provides a credit facility and technical assistance to private enterprises, producers, and other commercial organizations to improve the competitiveness of Kyrgyz products. The project is rated Satisfactory.
4. **Second On-farm Irrigation Project (OIP-2)** in the Kyrgyz Republic. This US\$16 million investment operation aims to improve irrigation service delivery on a sustainable basis. The project has three components: (a) strengthen WUA to ensure that they can efficiently and productively utilize the irrigation systems under their management; and (b) rehabilitate and modernize irrigation and drainage systems on about 51,000 ha managed by an estimated 29 WUAs. The project is rated Satisfactory.
5. **The Forest Protection and Reforestation Project** in Kazakhstan. The project aims to develop cost-effective and sustainable environmental rehabilitation and management of forest lands and associated rangelands, with a focus on the Irtysh pine forest, the dry Aral seabed, and saxaul rangelands. The project is implemented by the Forest and Hunting Committee of the Republic of Kazakhstan. The project is facing some implementation challenges and it is currently rated as Marginally Satisfactory.
6. **The Kyrgyz-Swiss Forestry Support Programme (KIRFOR)** began in 1995 and will be completed in 2009. The project has focused on forestry sector institutional reform and its first achievement was the approval of the 1999 Forestry Concept. Since then the project has achieved important improvements including: (a) development of modern forestry management tools, (b) promoting

the handing-over of productive activities in forest management to the private sector, (c) development of the Collaborative Forest Management (CFM) in the walnut fruit forest, and (d) supporting education and research for the sector. The focus of the fifth and last phase of the program (2008-09) is to include municipalities in natural resources management.

7. **Second Land and Real Estate Registration Project** in the Kyrgyz Republic. This World Bank financed project has been supporting GosRegister, the State Agency responsible for Registration of Rights to Immovable Property. The increased efficiency of this agency will improve property rights of land leased for forestation activities.

Annex 3: Results Framework and Monitoring
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

Results Framework

PDO	Project Outcome Indicators	Use of Project Outcome Information
<p>Contribute to improving ecosystem management and sustainable forestry in the project areas of Kazakhstan and the Kyrgyz Republic.</p> <p>Global Environmental Objectives:</p> <ul style="list-style-type: none"> • improving biodiversity conservation • contributing to climate mitigation by sequestering carbon dioxide in forests in the Kyrgyz Republic 	<ul style="list-style-type: none"> • 13,950 ha of new forests established and maintained • Levels of key threats to biodiversity for each PA remain unchanged as measured through a Threat Reduction Assessment Index • Verified Emission Reduction (VER) sold (a crucial measure of reforestation sustainability): <ul style="list-style-type: none"> – 179,000 tCO₂e at project closing in 2014 – 500,000 tCO₂e by 2017 	<p>Insufficient achievement of indicators should trigger revisions of project implementation arrangements or even design</p> <p>Assess PA management of threats, and adjust based on findings</p> <p>Carbon sequestration estimates will be used for CDM Validation and Verification and to sell VER to the BioCarbon Fund, closing in 2017</p>
Intermediate Outcomes	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
Improved management of 12 protected areas, natural parks, and hunting reserves	Progress in protected areas management effectiveness as measured by the Management Effectiveness Tracking Tool Scores	Assess PA management effectiveness and/or adjust project interventions and management based on experience with implementation
Increase environmental awareness and benefits from eco-tourism	<p>Number of eco-tourists visiting PAs</p> <p>Number of public awareness initiatives implemented on PAs, tourism and CITES</p> <p>UNESCO nomination of the Western Tien Shan</p>	<p>The numbers of eco-tourists may highlight problems in campaign design and suggest revisions. Public awareness initiatives may flag problems in activity design and implementation and suggest revisions.</p> <p>The nomination process may flag issues to address in transboundary cooperation and areas requiring attention in PA management.</p>
Diversify local livelihood strategies in ways that reduce threats to biodiversity by increasing benefits from eco-tourists and availability of forest products	<p>Fruits, nuts, and firewood available for local communities including:</p> <ul style="list-style-type: none"> – 100,000 tons of apple – 1.3 million cubic meter of poplar round wood harvested during 2018-27 <p>Employment generated</p>	Insufficient achievement of indicators should trigger revisions of project implementation arrangements or design.
Increase long-term financial sustainability of the State Agency for Environmental Protection and	<ul style="list-style-type: none"> • Gross Carbon revenue¹⁴: US\$0.340 million by project closing in 2014 (net value 	Insufficient achievement against indicators should trigger revisions of project implementation

¹⁴ Gross Carbon Revenue before payments of the costs associated to the VER (registration fees, verification, and advance of the BioCarbon Fund for project preparation).

Forestry of the Kyrgyz Republic (SAEPF) and Aiyl Okmotu of the Kyrgyz Republic	<p>US\$0.189 million) and US\$1.23 million in 2017 (net value US\$0.63 million).</p> <ul style="list-style-type: none"> • Net value redistributed between the SAEPF and Lezkhozes, Aiyl Okmotu, communities and private groups/investors. Around 80% of the gross value of VER redistributed to project participants (including local communities, Aiyl Okmotus, and forest agencies) 	arrangements or design.
Demonstrate the feasibility of carbon finance from forestry in the Kyrgyz Republic to generate knowledge and serve as a model for the region.	<ul style="list-style-type: none"> • Project Design Document verified by the CDM • Exchanges with potential Agriculture, Forestry, and Land Use (AFOLU) project proponents in the region 	
Effective project management	<ul style="list-style-type: none"> • Project implementation timely and well-coordinated 	Delays and/or coordination problems may flag shortcomings in capacity and/or high-level support that need to be addressed.

Arrangements for results monitoring

Project Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Area reforested and afforested	0	2500	3,400	3,500	2,400	2,150	Annual	Monitoring of implementation and maintenance through regular, random controls by PIU Monitoring team (financed by the PHRD grant, after project closing financed by carbon revenue), participatory community monitoring through ARIS	SAEPPF of the Kyrgyz Republic through the Project Unit, and ARIS
Verified Emission Reduction (VER) sold (detailed annual targets to be estimated in the ERPA)	0					179,000	Annual	Monitoring of tree growth by permanent sample plots, according to the CDM monitoring plan;	Forestry Agency of the Kyrgyz Republic through the Project Unit
Threat Reduction Assessment Index	Currently under estimation (expected before effectiveness)					At least remains unchanged	Annual	PA monitoring systems and reports on sub-component A2	Project Implementation Units
Intermediate Outcome Indicators									
Improved management of 12 protected areas (measured with the Management Effectiveness Tracking Tool, METT, previously ME Score Cards)	Currently under estimation (expected before effectiveness)	All PAs using METT		At least 40% of PAs show improvement		All PAs show improvement	At least project start, mid-term and completion	PA reporting	PIUs and PA authorities
UNESCO nomination of the Western Tien Shan	No		Yes				Once	PA monitoring systems and reports on sub-component A2	PIUs

Number of eco-tourists visiting PAs	35,634 (2007)	36,750	37,485	38,235	39,000	39,780	Annual	PA monitoring systems and reports on sub-component A2	PIUs and PA authorities
Employment generated (persons/year)	0	338	519	634	575	580	Annual	Monitoring system	PIUs
Value of VER redistributed to project participants (including local communities, Aiyl Okmotus, and Forest Agency)	0	85%	85%	85%	85%	85%		Monitoring system and reports	PIU
Project Design Document validated by a Designated Operational Entity under the CDM and the registered with the CDM Executive Board		PDD validation				PDD registration		Verification	PIU

Annex 4: Detailed Project Description
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

Project components

92. The project includes the following components and sub-components:

A. Strengthening Biodiversity Conservation in Protected Areas and Productive Landscapes

- A.1. Protected Area Management
- A.2. Conservation in the Broader Landscape through Small Grants in Kazakhstan
- A.3. Sustainable Tourism Promotion

B. Forestry and Carbon Trading in the Kyrgyz Republic

- B.1 Reforestation and Afforestation
- B.2. Monitoring and Validation of Carbon Sequestration
- B.3. Improved Forest Management

C. Project Management

Component A - Strengthening Biodiversity Conservation in Protected Areas and Productive Landscapes

1. The component will strengthen biodiversity conservation the Tien Shan region of the Kyrgyz Republic and Kazakhstan. The project will help improve management in 12 PAs in this region through strengthening technical capacity, investing strategically in PA infrastructure, supporting local efforts to reduce threats to biodiversity in and around project PAs, and increasing public awareness and promoting sustainable tourism. Each country will develop a menu of activities based on availability of funds and conservation priorities. The component will include the following three sub-components:

- A.1. Protected Area Management
- A.2. Conservation in the Broader Landscape through Small Grants
- A.3. Sustainable Tourism Promotion

Sub-component A.1. Protected Area Management.

2. The sub-component will include the following main activities:

3. **PA Management Planning.** This activity will finance technical assistance and training for the development and implementation of management plans emphasizing ecosystem-based approaches and business planning for PAs. Given the large number of PAs in Kyrgyz Republic and limited financing, the project will support development of management plans for six State Reserves and one National Park, based on their biodiversity values (including level of threats), size, and recreation potential. The approach and the plans will become models for management planning in the remaining PAs. In Kazakhstan, all five PAs have developed management plans which will expire in 2014-2017. The project will finance updating these plans to extend the period covered under such plans at least until to 2017.

4. **PA Monitoring.** This activity will finance technical assistance and training to introduce and/or develop the following approaches

- Threat Reduction Assessment method (TA and training),
- PA Management Effectiveness Tracking Tool,
- Wildlife Picture Index (WPI)¹⁵ and similar approaches, e.g., repeat photography for landscape monitoring

¹⁵ The Wildlife Picture Index protocol was developed by the Wildlife Conservation Society (WCS), but involved all major organizations that use camera trapping as a monitoring tool such as WWF, Conservation International, and Flora and Fauna International. Disaggregate trends for particular species groups will be reported. Population estimates can be calculated for many species based on count and occupancy, if required. Trends will be measured using camera traps systematically placed within fixed sampling blocks oriented from the site's point of greatest anthropogenic influence to the least. Camera trap surveys will be

- Other parameters as needed on a PA basis, e.g., visitor impacts, grazing impacts, Non Timber Forest Products (NTFP) collection, etc.
- Specialized studies (e.g., status of threatened species such as snow leopard and Argali)

5. **PA Management Capacity.** The project will finance the preparation and implementation of a training plan to improve staff capacity for effective PA management. Technical assistance and training is expected to be provided in areas such as collaborative approaches to natural resource management (this will be linked to training activities under Component B), field-based skills for PA staff (poaching control, visitor management), ecosystem-based approaches, ecological monitoring (see section above).

6. **PA Facilities.** Investments under this activity will include equipment and infrastructure intended to improve PA management including ecological monitoring, threat assessment, and efforts to manage key threats such as uncontrolled visitor movements and poaching.

- Equipment, such as binoculars, cameras, horses, uniforms, etc., for field-based staff to improve patrolling and general monitoring. Specialized equipment for wildlife monitoring, e.g., self-timing still and video cameras, GPS devices, laptop computers, etc.
- Infrastructure such as tourist trails, camping sites, signage, visitor booths, small-scale upgrades to PA facilities, e.g., renovation of remote posts
- Office equipment such as computers, fax machines, solar panels, etc.

7. **Transboundary PA Management.** This activity will finance semi-annual meetings of PA management and other stakeholders such as government officials, scientists, civil society organizations, private sector (e.g., tourism, hunting enterprises), and development partners. This is the only activity that will be financed jointly by the two countries. To facilitate implementation, each country will organize an annual workshop hosting the other country, which should generate healthy competition between the two countries for the best workshop (location, content, logistics, etc.). Issue to be discussed during these workshops include status of threatened species, enforcement of legislation across borders, regional tourism development opportunities, and so on.

Sub-component A.2. Conservation in the Broader Landscape through Small Grants in Kazakhstan

8. This sub-component will finance small grants for local groups and organizations directly linked to either threats or opportunities for biodiversity protection. The main objective of these small grants is to increase the benefits for surrounding population and thus increasing their support for protection activities. Small grants could finance ecotourism activities (accommodation such as small guest-houses and traditional nomad yurts, guide training, trail development, birdwatching treks, etc.), handicraft production, low-cost livestock protection measures, wildlife information programs, waste management schemes, alternative energy promotion, environmental certification assistance, site and landscape restoration, and similar initiatives. The sub-component aims to accomplish the following: (a) improve opportunities to conserve biodiversity (e.g., ecotourism, sustainable Non Timber Forest Products, NTFP, collection); (b) reduce threats to biodiversity—e.g., human/wildlife conflict management, hunting control, and alternative renewable energy; and (c) integrate conservation into the broader landscape through working in PA buffer zones, and adjacent hunting and forest reserves. An operational manual on small grants is under development with funding from the GEF Grant for Project Preparation. The operational manual for small grants will build on the experience of the CATBP and will define: (a) eligible activities; (b) eligible applicants; (c) maximum grant size and duration; (d) design and approval process; and (e) beneficiary contribution.

carried out on an annual basis at each site to produce trend updates relevant for site-based priority setting and management. The approach can be applied with varying levels of expertise and resources and in different habitats and biological communities.

Sub-component A.3. - Sustainable Tourism Promotion

9. The sub-component will support the development and implementation of public awareness and information campaigns to increase support for biodiversity conservation, generate interest in the region's natural and cultural heritage, and increase awareness of obligations associated with international conservation treaties. The sub-component will include the following activities:

10. **Public Awareness Programs.** This activity will implement an outreach program to raise public awareness and support for biodiversity conservation and the PA network, with a focus on increasing the profile of the Tien Shan and the range's tourism attractions to international and regional markets. The project will develop promotional strategies and materials in partnership with key tourism actors in the region, e.g., the Community-based Tourism Association of the Kyrgyz Republic, Kazakhstan Tourism Association, and the Information Resource Centre for Ecotourism (Kazakhstan).

11. **CITES Campaign.** Both countries are signatories to the CITES (Kazakhstan on April 19, 2000 and the Kyrgyz Republic on September 2, 2007), but awareness of the terms and implications are very limited among PA staff, the public, and visitors, especially hunters. The project will support information campaigns on CITES regulations and obligations targeted at PA staff and government agencies, hunting outfitters, hunters, and other key actors.

12. **UNESCO World Heritage Site Nomination.** Consensus exists among stakeholders in each country to move forward with activities to nominate a Western Tien Shan World Heritage Site Nomination comprising eight PAs and suitable buffer zones in The Kyrgyz Republic, Kazakhstan, and Uzbekistan (Uzbekistan's nomination will be directly financed by UNESCO, and not under this project).

Component B. Forestry and Carbon Trading in the Kyrgyz Republic

Sub-component B.1: Afforestation and Reforestation

13. To contribute to restoring forest ecosystems and to reduce anthropogenic pressure on natural forest resources, this sub-component will invest in forestation activities on 13,950 hectares over five years. Activities will be implemented with two management models: (a) on State Forest Fund lands directly with LHs or with public-private partnerships (PPPs) between private investors and LHs; and (b) on Aiyl Okmotu or private lands with individuals, groups, or communities through the Community Development and Investment Agency (ARIS). The plantations will be made up of many small plots (the maximum size governed by the legislation) and will not constitute large scale plantations under single ownership.

14. For LHs and Aiyl Okmotu /ARIS, forestation activities will be designed and implemented as small-scale business projects to ensure forestation sustainability. Private investors, community groups or individuals, submit comprehensive project proposals including business plans and forest management plans in cooperation with and according to the procedures of LHs or Aiyl Okmotu /ARIS. Project proponents and staff/designates of LHs, Aiyl Okmotu s and ARIS will be provided with technical training for project design and implementation, including modules on business management, forest establishment, sustainable forest management and protection, plus environmental and biodiversity considerations.

15. The project does not seek to maximize carbon credits by planting only fast-growing species; instead, the intent is for carbon finance to provide a small continuous incentive to improve the sustainability of the established forest. The following tree species will be directly planted, seeded, or regenerated: almond, elm, fruit trees, juniper, pine, pistachio, poplar, saxaul, seabuckthorn, spruce, walnut, and willow, among others. These species are either indigenous or have proven to be non-invasive. Taking project objectives into account, the total area and species compositions will be determined when micro-project proposals are finalized.

16. Negative effects on the environment and biodiversity from plantations will be avoided by maintaining a small-scale structure of various species, taking into account the needs of local communities, adjacent land uses, site suitability, environmental conditions, and landscape features. At the same time, this strategy of maintaining multiple types of forestation and structures will reduce risks to the permanence of carbon sequestration.

B.1.A. Reforestation of 7,720 ha with Lezkhozes or Public-Private Partnerships

17. The project will invest in forestation activities on 7,720 ha of State Forest Fund land in cooperation with LHs and the private sector. If eligible for CDM projects, project areas and reforestation types will be selected according to the objectives of the National Forest Plan. Project activities are intended to add financial and technical capacity to existing forestation efforts, not replace them, to reach actual targets of forest establishment according to the CDM Forest Definition for the Kyrgyz Republic.¹⁶

18. According to the National Forest Policy, revenue-producing functions of forestation activities in this project will be transferred to the private sector. Control and regulative functions shall remain tasks of the state, to safeguard sustainable forest development and protection. The LHs will provide non revenue-producing functions, including protection (control of encroachment, forest health, fire management), monitoring and control of project implementation. In close cooperation with the Forestry Department, the project will help facilitate public-private partnerships by developing detailed procedures and mechanisms, including modalities for procurement, benefit-sharing, cooperation, conflict resolution, and technical assistance to the private sector.

19. Activities on State Forest Fund Lands include reforestation of secondary forest and forest restoration in river and mountain ecosystems, by seeding, direct planting, and assisted natural regeneration. The aim is to restore and enhance biodiversity habitat and other protective forest functions, to control erosion, and protect watersheds and soils.

20. The private sector is unlikely to invest where returns are delayed, and productive benefits and the value of carbon credits are low, for example, forestation with protective spruce or juniper, and biomass accumulation. Therefore, cost-efficient and low-impact techniques are being explored for assisted natural regeneration of protective forests.

B.1.B. Afforestation of 6,230 hectares through Aiyl Okmotus and ARIS

21. About 6,230 hectares of unproductive and degraded lands belonging to Aiyl Okmotus, private landowners, and municipalities will be forested in cooperation with ARIS. Activities that take place on lands designated agricultural will include only non-arable lands that are clearly unsuitable for crops, pasture, or any other type of agriculture. In particular, on private lands there is a significant potential for planting of shelter-belts along irrigation channels, roads, or between agricultural fields.

22. Forestation activities primarily aim to diversify livelihood strategies and alleviate poverty among local communities by providing fast-growing plantations and orchards, oriented to productive functions. Long-term benefits of forestation are timber, and increased productivity and higher soil quality of non-arable and marginal lands; short-term benefits are forage, fuel-wood, fruits and other non-timber forest products that contribute to local food and energy security.

23. Aiyl Okmotus may participate directly as one community, or community members may participate as individuals or groups, according to the relevant decrees on collaborative forest management and forest plot leasing and use. Activities will be implemented based on the institutions set up at the Aiyl Okmotu level, according to procedures defined in cooperation with ARIS, adapted from the successful

¹⁶ Minimum tree crown cover of 20 percent, minimum tree height of three meters, minimum land area of 0.5 ha.

“Village Investment Project” and other projects. A separate operational manual is currently being developed to outline the operational guidelines and general procedures of ARIS activities.

24. The overarching aim of ARIS, and any project managed by it, is to help alleviate rural poverty by working at the grassroots level to support income and employment-generating investments in village infrastructure and in group-managed small and medium enterprises such as forestry activities. ARIS also helps communities and local authorities work together to achieve key development objectives at the local level. ARIS aims to strengthen local administrative bodies Aiyi Okmotu and councils (Aiyi Kenesh) of Local Self-Government Bodies (LSG) and community-based grassroots institutions, making them more inclusive, accountable, and effective at meeting villagers’ self-identified development needs.

25. Seabuckthorn (*Hippophae ramnoides* L.) is a unique, undemanding and valuable shrub common in the Central Asian region. While leaves and young branches can be used as fodder, especially berries and seeds have high nutritional and medicinal value. For instance, fruits contains high amounts of vitamins, sugars and organic acids that can make a significant contribution to the health of the rural population. Intensively managed orchards can produce up to 10 tons of berries per hectare. Therefore, the cultivation of Seabuckthorn within the project presents major social benefits by providing income opportunities, in particular to women and the poor, which will be specifically targeted to participate in these activities by the ARIS mobilization. In addition, the extensive root system contributes to soil stabilization and land reclamation by nitrogen-fixation, and therefore present a good longer-term option for fencing of plantations.

Sub-component B.2–Validation and Monitoring of Carbon Sequestration

26. The project will seek certification as an Afforestation/Reforestation Project under the “Clean Development Mechanism” (CDM) of the Kyoto Protocol. A Letter of Intent for the purchase and sale of the Verified Emission Reductions (VERs) has been signed between the World Bank (as Trustee of the BioCarbon Fund) and the State Agency of Environmental Protection and Forestry (SAEPF) for the net carbon sequestration of 500,000 tCO₂ until the year 2017. After complying with the BioCarbon Fund commitment, additional VERs (much more significant post-project) will be sold on the voluntary carbon market. To facilitate access to voluntary markets, an international consultant will be hired at the end of the project lifetime to develop a self-sufficient, i.e., carbon-financed continuation of the scheme.

27. The project was designed to keep the carbon-trading scheme as simple as possible, appropriate to local circumstances and land-use planning systems. For instance, only marginal lands with little or no vegetation are included in order to simplify baseline assessments and monitoring as well as the proof for land eligibility. By designing the project as a portfolio of small-scale AR CDM project activities rather than one large scale project activity, small-scale methodologies can be used: AR-AMS005 on barren and degraded lands and therefore for the majority of the area, and AR-AMS001 on marginal grasslands. The purpose of small-scale AR CDM is to enable the participation of low income communities and individuals. This portfolio of projects can be expanded at a later stage by adding more small-scale projects

28. The project activities are in addition to any plantings currently undertaken in the Kyrgyz Republic, according to the small-scale CDM modalities and procedures. For CDM project activities under the Tien Shan project, several barriers would prevent the implementation without the project’s intervention, *inter alia*: investment and institutional barriers, barriers due to prevailing practice and social conditions. Although the increment is high and poplar plantings are common in the Kyrgyz Republic, there are very few plantings beyond a few hectares because: (a) people are not aware of the full potential; inadequate access to capital; (b) unclear ownership rights; (c) the risk of an investment with delayed returns is too high; (d) challenging cash flow; and (e) single investors will have difficulties to organize a comprehensive community consultation essential for the sustainability of the plantings etc.

29. According to the small-scale methodology, the baseline is equal to the land-use prior to the implementation of the project activity, i.e. in the case of the proposed Project, barren lands or marginal grasslands. Any lands other than with little or no vegetation are excluded from the project. Therefore the baseline is set to zero. Most of the CDM project activities will take place on redistribution fund lands, where there have been no government plantings. The current government planting practices are not representative for the baseline, since they barely include activities comparable to the foreseen CDM project activities (irrigated fast-growing plantations on marginal lands). The State Forest Fund has limited land available that could meet CDM requirements or sequester enough carbon to justify CDM transaction costs.

30. The project intends to apply two different small-scale methodologies AR-AMS0005 on barren and degraded lands and therefore for the majority of the project, and AR-AMS0001 on marginal grasslands. Neither of the two methodologies account for project emissions other than from fertilizer. Other emissions such as from irrigation, forage or silvopasture are considered insignificant. AR-AMS0005 does not include any limit on site preparation. AR-AMS0001 restricts site preparation to 10% of the total project area. For most CDM activities there will be site preparation once before planting, while it is assumed that the long-term effect of afforestation on soil carbon on barren and eroded lands will be positive. To prove this, the methodological tool “Procedure to determine when accounting of the soil organic carbon pool may be conservatively neglected in CDM A/R project activities” is applied. In accordance with this tool, the PIU is currently assessing the long-term effects of site preparation on soil carbon in a pair-site assessment of stands and barren lands comparable to project circumstances. This will confirm the omission of any related emissions.

31. Since only land without woody vegetation will be included in the project, there will be no risk for the displacement of fuel-wood collection. With livestock as the predominant source of livelihood for Kyrgyz people, there is however some risk of grazing displacement. The project seeks to limit this with several provisions in project design:

- a. Only plots meeting the following conditions are included in the project:
 - i. currently unused,
 - ii. barren or degraded lands, or marginal grasslands, with little or no vegetation,
 - iii. excluding any formal land use designation (e.g. pasture) other than low-productive/irrigated or forest,
 - iv. excluding formal lease/renting agreements,
 - v. unsuitable for crops or pasture according to yield classes;
 - vi. Most of CDM project activities will take place on low-productive and irrigated lands of the redistribution fund, where informal grazing is negligible due to the absence of grass vegetation, according to numerous field visits and expert consultations. The best quality areas of redistribution fund lands have already been distributed; the lands available are barren, stony, eroded or degraded yet still suitable for plantations. This will be confirmed for each parcel by the official soil classification determining degradation and fertility.
- b. The extent of informal grazing is being assessed by field teams (May-June 2009) in order to select sites with minimal risk for displacement or effects on livelihoods.
- c. The participatory planning process is expected to minimize the risks of displacement or encroachment of established plantations. For activities managed by ARIS, the community and its institutionalized representations approve and are involved in the design of micro-projects, including the sharing of benefits (such as carbon, fuel-wood, forage).
- d. Since carbon credits depend on tree growth for their value, they are expected to significantly reduce encroachment risk if they are shared by all stakeholders. Carbon

credits provide early benefits shortly after tree planting, compared to much later returns provided by timber.

- e. Forage and the boost of grass vegetation due to the irrigated afforestation should compensate and outweigh the loss of marginal lands used for a few livestock-days per year. When the trees are well established, grazing animals will cause no damage, rather grazing will provide organic fertilization and reduce the risk of grass fires.

32. The grazing capacity of barren and degraded lands with little or no vegetation is negligible and therefore leakage is not accounted, according to methodology AR-AMS0005. Displacement of activities, i.e. of informal grazing, is mostly relevant to marginal grasslands. According to AR-AMS0001, activities may be implemented only on lands where the number of displaced grazing animals is less than 50 per cent of the average grazing capacity of the project area; Leakage can be considered zero, if surrounding areas containing no significant biomass areas are likely to receive the shifted grazing activities. For marginal grasslands, this applicability condition will be confirmed by field teams.

33. There are few country-specific parameters available for ex ante carbon estimates. In the absence of such values, the small-scale methodologies would allow the use of default factors. For the proposed project, the available yield table was reduced conservatively by 20% based on representative field measurements and a Chapman-Richards growth function.. In spring and summer 2009, additional field measurements are been taken in pilot sites to produce a statistically valid growth rate.

34. The current phase of the BioCarbon Fund ends in 2017, and they will purchase credits up until that date. Although this is a fairly limited time in forestry terms, it is still a reasonable time period to both have a meaningful volume of carbon sequestration and to get the project registered. In addition, the BioCarbon Fund will assume the risk of registration.

35. **Sharing of Carbon Revenue.** For activities on Aiyl Okmotu lands, communities will receive at least 50 percent of carbon revenue, based on the outcomes of the social mobilization process, which may require micro-project participants to provide additional carbon revenue or other benefits, such as fuel-wood. For example, for one hectare of poplar plantations, the carbon revenue for the fifth year will be about US\$50. If an Aiyl Okmotu plants 150 hectares of poplars as part of the Tien Shan Project, it will receive carbon revenue amounting to at least US\$3,750 during the fifth year, to invest in community projects. The PIU and ARIS are currently discussing more detailed mechanisms for allocating benefits to the poor and disadvantaged. For specific targeting, a comprehensive socio-economic baseline is available for all Aiyl Okmotu in the ARIS Information Management System. For activities implemented as PPPs, the private micro-project participant will receive 80 percent of the carbon revenue, Lezkhoz will receive the remaining 20 percent. These thresholds may be further adapted according to the experience in the pilot projects currently implemented.

36. At the current project stage, ex ante estimates of net anthropogenic greenhouse gas removals are included only for elm, fruit trees, pine, poplar, and willow, amounting to approximately 500,000 tCO₂e until the end of 2017, reduced by project emissions. As availability of yield tables and growth information is limited, estimations are conservative. For all other species, available growth data is insufficient and further field measurements are undertaken to obtain reliable estimates.

37. Based on the GIS database established for the CDM Project Design Document, a system of permanent sampling plots will be established to monitor diameter, height, biomass removals, land use activities and other indicators related to environmental and social impacts. The PIU will employ one Monitoring and Inventory Coordinator and two assistants for the project lifetime. This monitoring team will establish the sampling system, and undertake quarterly random audits of growth, survival, planted areas, biodiversity and additional qualitative criteria. Training workshops will be conducted relevant to

the ARIS participatory monitoring and evaluation, and specifically to the staff of PIU oblasts in order to increase capacity for a functioning monitoring scheme.

38. The rights to the carbon benefits will be clearly defined in the contracts between micro-project participants, communities, project unit (SAEPF), Lezkhoz and ARIS. Kyrgyzstan has two strong points on land property (which reflects in the benefits produced by such land, such as carbon sequestered):

- the Swiss Cooperation (KyrFor) has been working for 10 years to improve the legal framework for forestry (see annex 16). Thanks to this, the legal framework to protect forest land rights in the country is very strong;
- The organization responsible for land administration, GosRegister, is very efficient. One of its objectives is to register " Property rights clear, secure and reflected in accessible information base ". Until the end of 2008, GosRegister registered about 2.7 million titles of which over 1.3 million are agricultural lands.

39. The project is building on this strong base by developing clear and detailed contractual agreements to facilitate a full implementation of existing regulations. This is already being piloted with support of the Legal Assistance to Rural Citizen (LARC), an independent institution which has been initially created with support of KyrFor. These contracts are also covering the sharing of carbon revenue.

40.

41. Carbon revenue will contribute to strengthen property rights and mitigate these risks. Until project closing (2014), and until BioCarbon Fund commitment period (2017), there will be the opportunity to supervise the allocation of carbon revenue to ensure that it will benefit the poorest beneficiaries. Beneficiaries will be paid annually their share of the carbon revenue on the basis of the contracts mentioned above and thus will possess a document confirming their rights. This will work as an annual reminder of their property rights in relation to their forest/plantation. This sub component will develop the capacity to carry out this task, and will be financed even after project closure thanks to the carbon revenue, Thus carbon revenue will allow monitoring and supervision for a period longer than the five project years.

Sub-component B.3 - Improved Forest Management

42. Due to unfavorable socio-economic conditions, the pressure on natural resources in the Walnut-Fruit Forest (WFF) in the South of the Kyrgyz Republic poses a serious threat to this unique livelihood. With the support of the Kyrgyz-Swiss KIRFOR project, a scheme for collaborative forest management (CFM) was developed during the last ten years, with the following key elements:

- improve local livelihoods through sustainable resource utilization and income generation opportunities arising from this.
- empower local people by providing them with greater responsibility for forest management (and potentially other aspects of their lives), and increasing motivation to conserve the forest;
- promote biodiversity conservation, through productive management of selected stands;
- pursue equity through joint management of forests;

43. The core of this component is to continue and expand the CFM activities of the expiring KIRFOR project in and beyond the pilot areas, by providing capacity building and support for improved coordination and collaboration between AO, ARIS, LH and the population for natural resource management.

44. To increase the sustainability of established plantations and forest management, the project will provide technical assistance and capacity building to Lezkhoz and the private forestry sector, including training on sustainable forest management, business skills, and forest protection. Some equipment will also be provided.

Component C – Project Management

45. A project implementation unit (PIU) has been created by the Kyrgyz State Agency for Environmental Protection and Forestry (SAEPF), comprising a coordinator, procurement and financial management specialists, and an office manager. During project preparation, technical skills, such as an international specialist in forestry and carbon trading, will be hired as needed. In Kazakhstan, the fiduciary capacity developed under the Forest Protection and Reforestation Project will be initially used. Once the Kazakhstan grant will become effective, a small team dedicated to the proposed project will be hired. The small team will include one coordinator, one procurement specialist, and one financial management specialist.

46. In the Kyrgyz Republic, an additional regional unit will be established in the South of the country. The southern regional unit will have an accountant, foresters and technical experts to monitor forests. The Bishkek PIU and southern regional unit are responsible for the following functions, in cooperation with LHs, Aiyl Okmotus, ARIS, local communities, and NGOs:

- establishing final micro project design and forest management plan in the project database and GIS platform
- coordinating project implementation according to the micro project proposals
- accounting and allocating finance to micro project participants for LHs forestation and the local ARIS investment structures
- accounting for carbon credits
- monitoring and control of survival rates, technical quality standards for seedlings, planting techniques, site preparation and silvicultural interventions
- implementing the CDM monitoring plan
- coordinating technical assistance and trainings;
- conflict resolution and mediation;

47. **Reforestation Monitoring and Evaluation.** A comprehensive monitoring and evaluation system is required to ensure that all activities are implemented according to the agreed project design and contractual arrangements. Random annual financial, procurement, and technical audits will be conducted by independent auditors and PIU teams. For Aiyl Okmotu forestations, ARIS monitoring and evaluation procedures will be carried out according to the operational manual, including participatory monitoring and evaluation at the community level, by local ARIS institutions, and technical experts.

Annex 5: Project Costs
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

Table 11 – Project Costs

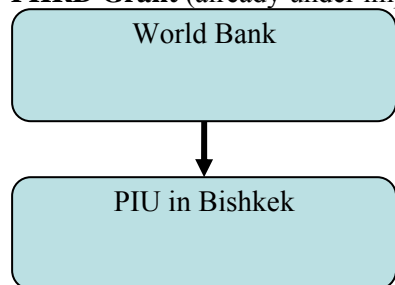
Financier	IFAD	PHRD	GEF	Beneficiaries	Gov. (in kind)	Taxes (cash)	Total	%
The Kyrgyz Republic								
Component A	0	0	1,000	0	580	80	1,660	10%
Component B	7,104	89	0	5,875	306	975	14,349	83%
Component C	896	320		0	0	42	1,258	7%
Sub-total	8,000	409	1,000	5,875	886	1,097	17,267	100%
Kazakhstan								
Component A			2,045	55	3,000	152	5,252	94%
Component C			305		0	41	346	6%
Sub-total			2,350	55	3,000	193	5,598	100%
Total project costs								
Component A	0	0	3,045	55	3,580	232	6,912	30%
Component B	7,104	89	0	5,875	306	975	14,349	63%
Component C	896	320	305	0	0	83	1,604	7%
Total project costs	8,000	409	3,350	5,930	3,886	1,290	22,865	100%

Annex 6: Implementation Arrangements
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

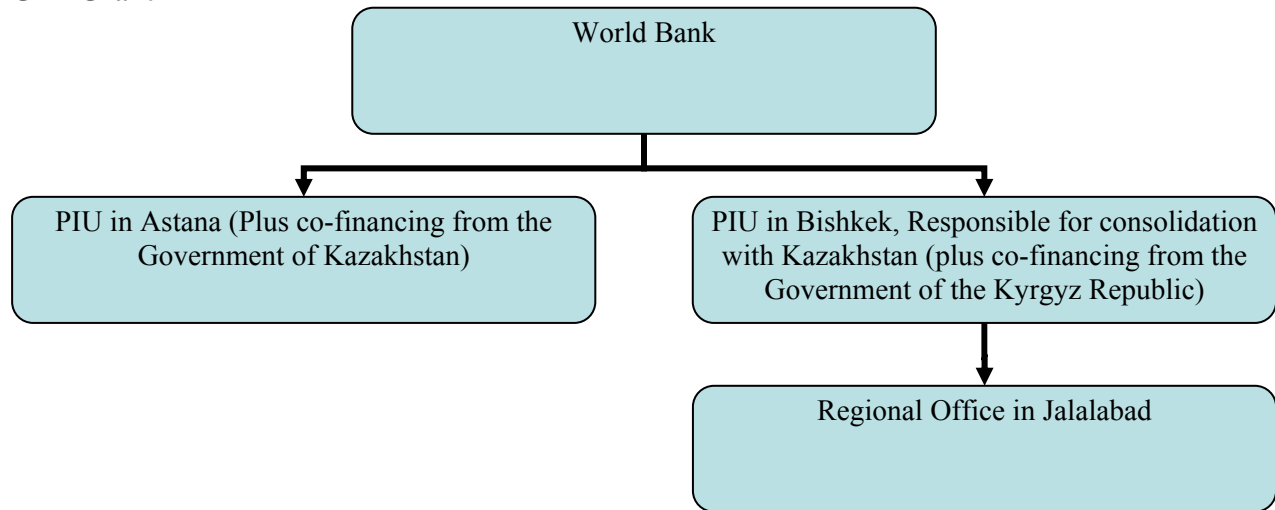
1. The State Agency for Environmental Protection and Forestry (SAEPF) will have overall responsibility for implementation of project activities in the Kyrgyz Republic. The Community Development and Investment Agency (ARIS) will be responsible for forestation activities at Aiyl Okmotu level under Component B1 - ARIS, the implementing organization for the ongoing Village Investment Project, will also implement part of the Reforestation and Afforestation sub-component, adopting ARIS standards for social mobilization, micro-project selection, implementation, financing, and monitoring. A strong collaboration among SAEPF, the PIU, and ARIS has already been established, which will facilitate coordinated efforts for implementing this sub-component.
2. The Forest and Hunting Committee will have overall responsibility for implementation of project activities in the Kazakhstan.
3. The proposed project would be implemented in a coordinated but independent way in each country. Each country will have its own Project Implementation Unit (PIU) with its own coordinator and independent budget. This will avoid the risk of conflict for budget allocation and management. Thus there will be a PIU in Bishkek and a PIU in Astana. In addition, given the larger amount of activities in the Kyrgyz Republic, there will be a regional office in Jalalabad. This regional unit will report to the project unit in Bishkek.
4. **Flow of funds.** Figure 2 below shows graphically the flow of funds for the three grants which will finance the project. In addition to this, the BioCarbon Fund will pay annually based on the reporting of emission reduced generated by the project. Independent verification will be required after a maximum of 5 years.

Figure 2 – Flow of Funds

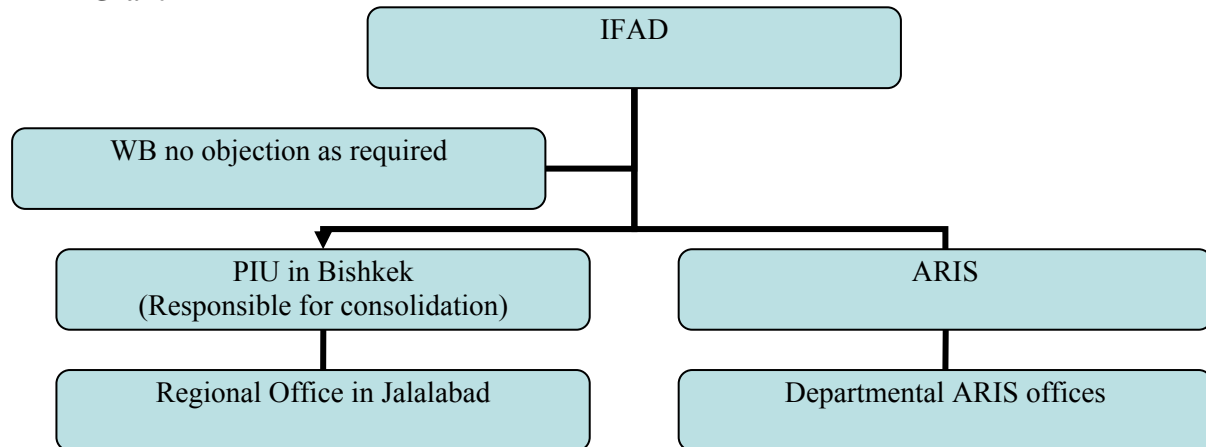
PHRD Grant (already under implementation)



GEF Grant



IFAD Grant



5. **Relationships between the World Bank and IFAD.** The World Bank will act as a Cooperating Institution to IFAD for this project. The two organizations will sign a Cooperation Agreement which to define roles and responsibilities of each institution. The World Bank will be responsible to:

- a. Facilitate Project implementation by assisting the Kyrgyz Government in interpreting and complying with the IFAD Grant Agreement
- b. Review the Grantee withdrawal applications to determine the amounts which the Grantees is entitled to withdraw
- c. To review the procurement of goods, civil works and services for the Project financed by the IFAD Grant
- d. Monitor compliance with the Grant Agreement, bringing any substantial non-compliance to the attention of IFAD and recommending remedies therefore
- e. Administer the Grant and supervise the Project as may be set forth in the Cooperation Agreement

6. **IFAD Designated Account** (see Annex 7: Financial Management and Disbursement Arrangements at page 49). In addition to reviewing withdrawals applications, the World Bank will also monitor Designated Account activity. Special attention should be paid to any Designated Account for which there have been no replenishment applications in the previous six months and to Designated

Account for which the outstanding advance is substantially greater than the flow through the account over a six-month period.

7. **Disbursement Monitoring of the IFAD Grant.** The World Bank will examine the Grantee's applications for withdrawal to ascertain whether the amounts claimed for withdrawal are in the correct format, properly signed by the authorized representative, fit the project description, fall within the disbursement categories in the withdrawal schedule, conform to the eligible disbursement percentages, and are appropriately documented. In addition, the World Bank will monitor the compliance with the disbursement conditions and will inform IFAD of any amounts that may not be considered eligible for financing..

8. **Disbursement Authorization of the IFAD Grant.** The World Bank is responsible for forwarding to IFAD an authenticated message authorizing the disbursement of funds.

9. **Statement of Expenditures for the IFAD Grant.** The World Bank, together with IFAD, will ensure that Statement Of Expenditures (SOEs) that will be prepared and certified by the implementing agency meets the criteria of IFAD and the World Bank in both form and content, so that IFAD could reimburse the Grantee on the basis of a withdrawal application supported by SOE.

10. **Procurement Monitoring of the IFAD Grant** (see Annex 8: Procurement Arrangements at page 58). The World Bank will review the Grantee's proposed procurement arrangements and decisions prior to the contract award for all contracts that exceed the limit specified in the Grant Agreement (the 'prior review threshold'). The IFAD Grant Agreement shall stipulate that the World Bank Procurement Guidelines (published in May 2004 and revised in October 2006) shall apply.

Annex 7: Financial Management and Disbursement Arrangements

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

A. Financial Management Arrangements

1. **Summary and Conclusion.** An assessment of financial management arrangements for the implementation of the Tien Shan Development Project was carried out in November 2008 to review the adequacy of budgeting, accounting, internal control, funds flow, financial reporting, and auditing arrangements of the agencies responsible for project implementation.
2. **Kyrgyz Republic.** The State Agency for Environmental Protection and Forestry (SAEPF) has established a Project Implementing Unit (PIU) and recruited key consultants including project coordinator, finance manager, procurement specialist, and office manager/translator who are already implementing ongoing project preparation activities, supported by an international consultant. The PIU has installed and customized 1-C accounting software for project implementation, and preparing the Project Operational Manual, with support from consultants.¹⁷ Technical assistance and training to strengthen the PIU capacity is built into project design.
3. **Kazakhstan.** The project will be implemented in collaboration with the existing Forestry and Hunting Committee (FHC) which is currently implementing the Forest Protection and Reforestation Project. This project has ongoing difficulties in financial management (currently rated moderately satisfactory) because it is difficult to attract and retain qualified consultants, and because budget regulations in Kazakhstan are cumbersome and rigid. The 1-C accounting system acquired one year ago to maintain project accounting records is not yet effectively utilized; instead, the PIU accounting is still using Excel spreadsheets. The Tien Shan project will hire a new FM/Disbursement specialist for the Kazakhstan project unit to be responsible for overall financial management arrangements, in close cooperation with the Kyrgyz Republic financial manager. Project accounting will be maintained using 1-C software specially designed for World Bank financial reporting and accounting requirements, and systems, controls, policies and procedures documented in Project Operational Manual.
4. **World Bank Assessment of FM capacity.** The existing Kazakhstan financial management arrangements for implementation of project components do not fully meet Bank requirements. A time-bound action plan was agreed with the PIU to strengthen systems and controls, and will be a condition of disbursement of goods, works, and small grants for Kazakhstan. On the other hand, financial management arrangements for the implementation of the Kyrgyz Republic project components meet minimum Bank requirements. A time-bound action plan to further strengthen systems and controls was agreed with the PIU, and would be implemented by negotiations. The overall project FM risk is assessed as ‘High’ before mitigating measures, with residual risk to be reduced to ‘Substantial’ after mitigation measures.
5. **Kyrgyz Republic Country Issues.** The project will be implemented in an environment of high perceived corruption. The Law on Accounting and Law on Auditing (2002) envisaged using International Financial Reporting Standards and International Standards on Auditing in the Kyrgyz Republic. However, the country has not yet completed the transition to international standards that promote transparency and accountability in financial reporting—neither public nor corporate sectors are compliant because there is no process for official adoption and publication of new accounting and auditing standards when they are issued. However, most project implementing agencies use cash basis accounting which is sufficient for project accounting in most cases. The Government is addressing recommendations from the 2004 Country

¹⁷ The Project Operational Manual will include a Financial Management Manual. A separate Micro-project Handbook (Manual) for the implementation of micro-projects at the community level will be prepared, with ARIS support.

Financial Accountability Assessment (CFAA), and the Report on Observance of Standards and Codes on Accounting and Auditing (ROSC), conducted in November 2008. The Bank is providing support to strengthen capacity in the Kyrgyz Republic Chamber of Accounts, the supreme audit institution, with the expectation that the Bank will gradually place more reliance on institutional audits, and regularly assesses its capacity to conduct audits, consistent with standard practice in all Bank-financed projects.

6. **Kazakhstan Country Issues.** A Country Financial Accountability Assessment (CFAA) for Kazakhstan, completed in September 2002, concluded that the country's fiduciary environment is weak and the risk to public funds is high. Among the findings are that Government spending is not transparent, management information system and internal controls are weak, and the external audit function has low capacity. The International Financial Institutes, which conducted the assessment, noted that official research documents were outdated, making it difficult to evaluate the current situation, although there are signs of improvement in financial discipline at all levels of government. In particular, since 2002, the Government has adopted several accounting and financial laws and developed an integrated treasury system. Commercial banks and public companies are required to adopt International Financial Reporting Standards as a basis for preparing annual financial statements. Kazakh Accounting Standards (KAS) require that accruals accounting be adopted, but implementation is weak among government agencies and local commercial organizations because there are too few qualified accountants.

7. **Implementation Arrangements and Staffing:**

- **Kyrgyz Republic.** The PIU within the SAEPF will be supported by one regional office in the south, which will coordinate implementation of project activities at the regional level. ARIS, the implementing organization for the ongoing Village Investment Project, will also implement part of the Reforestation and Afforestation sub-component, adopting their standards for micro-project selection, implementation, and monitoring. A strong collaboration among SAEPF, the PIU, and ARIS has been established, which will facilitate coordinated efforts for implementing this sub-component.
- **Kazakhstan.** The project will be implemented in collaboration with the existing unit under the Forest Protection and Reforestation Project. This project has ongoing difficulties in financial management (currently rated moderately satisfactory) because it is difficult to attract and retain qualified consultants, and because budget regulations in Kazakhstan are cumbersome and rigid. The proposed project will hire a new Financial Management/Disbursement specialist for the unit in Kazakhstan, who will be fully responsible for disbursement functions, project accounting, and financial reporting for the project in Kazakhstan including managing of the Designated Account. The FM/Disbursement specialist activities will be in close cooperation with Financial Manager based in Kyrgyz Republic.

The risk associated with implementation arrangements is Significant before and Moderate after mitigation measures.

8. **Planning and Budgeting.** Each PIU will be responsible for preparing annual budgets for the project based on each country's Procurement Plan, and in line with each Project Implementation Plan, which will be used to allocate funds to project activities. Each PIU will prepare a three-year budget, updated annually, broken down by quarter and disbursement categories, components, activities and source of funding. Annual budgets will be agreed with the Bank before submission to the Ministry of Finance for final approval. Approved budgets will be included in the accounting system for periodic variation analysis between actual and plan, as part of interim financial reporting. Risk associated with planning and budgeting is assessed High before and Significant after mitigation measures.

9. **Project Accounting and Financial Reporting.** The PIUs will maintain project accounts and records, account for the funds, and safeguard project assets. A 1-C accounting system will be used for project accounting and financial reporting by PIUs in Kazakhstan and The Kyrgyz Republic. The Chart of

Accounts structure will conform to the project cost tables, capturing financial data under appropriate components, including sources and uses of funds in sufficient detail to satisfy reporting requirements. The system will automatically generate the required interim financial reports (IFRs) in formats acceptable to the Bank. All transactions will be recorded on cash basis accounting, with supporting documentation maintained in files and made available to the auditors and Bank missions throughout project implementation.

10. The accounting system of each PIU will automatically generate Interim Financial Reports (IFRs) in a format agreed with the Bank. The Financial Manager of Kyrgyz PIU will be responsible for submitting consolidated reports to the Bank no later than 45 days after each quarter of the calendar year. The reports will include: (a) Project Sources and Uses of Funds; (b) Uses of Funds by Project Activity; (c) Statement of Designated Accounts Statements; and (d) Project Account (counterpart funds) Statement; and (e) Balance sheets.

11. Regarding **small grants and micro-projects** for communities, simple financial reports and milestones will be defined in the financing agreement between the PIUs and the beneficiaries, and will serve as a basis for disbursement of funds and financial reporting. Financial management guidelines on micro-projects will be included in the Micro-projects Operational Manual. The risk associated with project accounting and financial reporting is assessed as Substantial before and Moderate after mitigation measures.

12. **Internal Controls.** The PIUs will follow the Project Operational Manual for accounting and internal control policies and procedures, including contracting, flow of funds, authorizations, segregation of duties, safeguarding of project assets, and controls over maintenance and reliability of accounting data and financial reporting. An operational review will be conducted by an independent auditor during mid-term review, under terms of reference acceptable to the Bank, to evaluate internal controls, policies and procedures for Project implementation, and implementation of micro-projects at the community level. The risk associated with internal controls is considered Substantial before and Moderate after mitigation measures.

13. **External Audit.** Independent auditors will audit the proposed Project Financial Statements, under terms of reference acceptable to the Bank, and in accordance with International Standards on Auditing (ISA). The Kazakhstan and Kyrgyz Republic activities will be audited separately. The annual audited financial statements will be submitted to the Bank no later than six months after end of each calendar year audited. The first project audit will be at the end of the first year of Project implementation. The audit contract awarded during the first year of project implementation could be extended annually, subject to satisfactory performance, and will be procured under a competitive procurement method. A sample terms of reference was discussed with the PIU during appraisal and will be confirmed at negotiations. The risk associated with external audit is assessed Substantial before and Moderate after mitigation measures. *A financial covenant for the annual audit of Project Financial Statements will be included in the legal agreement(s).*

Table 12 – Required Audit Reports

Audit Report	Due Date
Continuing Entity Financial Statements	N/A
Project Financial Statements (including Special Opinions, SOEs, Designated Account(s))	No later than six months after end of each calendar year audited
Operational Audit (reference above on ‘internal controls’)	At project mid-term review

14. **Risk Analysis and Mitigation Strategy.** The Kyrgyz Republic and Kazakhstan are considered high risk countries. Consistent with the risk-based approach in financial management, consideration was given during project preparation for the design of anti-corruption and mitigation measures in the project. The risk assessment for the project is summarized below.

Table 13 – Financial Management Risk Rating

	Comments	FM Risk¹⁸	Risk Mitigating Measures	FM Risk¹⁹
INHERENT RISK				
1. Country Level Financial Management	Weak public financial management and institutions based on CFAA and Public Expenditures and Financial Accountability.	S	Capacity building for public financial management institutions such as Chamber of Accounts will enhance accountability and transparency in financial reporting, leading to improved governance in public sector.	S
2. Entity Level Financial Management	Risk of political interference in entity management, particularly by local governments	S	Project will maintain organizational structure and staffing satisfactory to the Bank, and any changes will require Bank agreement.	M
3. Project Level Financial Management	Community-driven micro projects in some regions increase risk for channeling funds to the end user.	S	Minimizing flow of funds tiers before funds reach end users (communities, by transferring funds to the PIUs' bank accounts and Regional Offices (three) in charge of implementation. Project implementation arrangements will be closely monitored by the Bank.	M
	Financial management capacity to implement the Kazakh Region project activities requires strengthening to meet Bank minimum requirements.	H	Qualified FM/Disbursement Specialist specially hired for the Kazakh region project will be in charge of accounting and reporting arrangements	S
Overall Inherent Risk		S	Risk-based financial management supervision, interim reports and annual audits of project financial statements and operational review during mid-term.	S
Control Risks				
4. Budget	Cumbersome and rigid budget regulations in Kazakhstan (Adequate budgeting procedures in place for the Kyrgyz Republic)	H	Budgeting process is regulated by budget code in Kazakhstan, which is currently under revision, but only marginal improvements are expected. Planning and Budgeting for project implementation will be closely monitored by the PIU and the Bank and a qualified financial management specialist will be hired for Kazakh project implementation.	M
5. Accounting	1-C accounting system that is widely used for other Bank-financed projects in the country will be used for project accounting and financial	S	Bank team to test the system to ensure system captures and tracks project resources and expenditures, generates required interim reports, and meets Bank and Borrower requirements.	M

¹⁸ At appraisal

¹⁹ After mitigation

	reporting in PIUs. Kazakhstan PIU maintains accounting records in Excel	H	1-C accounting system, specially designed for the WB financed projects will be acquired and installed.	S
6. Internal Controls	Internal control procedures are in place at the PIUs and would be documented in the Project Operational Manual. Financial management responsibilities should be segregated and all controls and procedures documented in the Project Operational Manual	S	Operational review will be carried out at mid-term review to monitor compliance with controls and procedures documented in the Project Operational Manual.	M
7. Funds Flow	Improved planning and budgeting would minimize delays on providing counterpart funding in Kyrgyz Republic and Kazakhstan	S	Monitoring timing of release of counterpart funds, and compliance with financial covenants. Designated Account opened for the Kazakh part of the Project will be closely monitored by the Bank and the Ministry of Finance	M M
8. Financial Reporting	Interim Financial Reports for the project in Kyrgyzstan adequate KZ PIU submits IFRs which are not yet satisfactory to the Bank, and with delays	M H	Interim Financial Reports (IFRs) for project reporting will be automatically generated from the 1-C accounting software by each PIU, and consolidated reports submitted to the Bank on quarterly basis. Bank will review the interim reports and provide comments.	M S
9. Auditing	Project Financial Statements will be audited by independent auditors (one per each country) and under TORs acceptable to the Bank	S H	Auditors acceptable to Bank to be appointed early to minimize delays in field audit and issuance of audit report. MoF appoints auditors in Kazakhstan and audit reports are delayed for all projects due to rigid government procurement procedures. If late appointments continue, the legal agreement shall stipulate that the MoF shall follow WB guidelines for appointing auditors.	M S
Overall Control Risk		H		S
Overall FM Risk		H		S

H = High S = Substantial M = Moderate L = Low

15. Overall financial management risk for the Project is rated as ‘High’, and reduced to ‘Substantial’ after mitigation measures.

16. **Strengths and Weaknesses: Kyrgyz Republic.** Significant strengths in the project financial management systems and controls include the experienced PIU consultants that are already implementing project preparation activities, and the extensive experience of ARIS, which will be implementing one of the largest project activities and is implementing the ongoing Bank-financed Village Investment Project. ARIS will coordinate closely with the PIU throughout project implementation. In addition, the PIU and regional office consultants will be supported by part-time international consultants who will provide on-

the-job training and monitor community-level micro projects. To strengthen PIU staff capacity, training in financial management and disbursement will be provided during project implementation.

17. **Kazakhstan.** The PIU lacks sufficient capacity to ensure adequate financial management (FM). The FM consultant who is currently working on the Forest Protection and Reforestation Project is relatively new and insufficiently familiar with Bank financial reporting and accounting requirements. The terms of reference (TORs) for the FM consultant have not yet been elaborated. Project IFRs submitted to the Bank are not yet satisfactory and 1-C software is not yet fully in place for accounting and financial reporting.

18. The PIU in Astana will hire a qualified Financial/Disbursement Specialist who will oversee financial management of the activities in Kazakhstan and will liaise with the Financial Manager of the PIU in Bishkek. The 1-C accounting system specially designed for Bank-financed projects will be used for accounting and financial reporting.

19. **Action Plan.** The following is a time-bound Action Plan, agreed with the PIUs.

Table 14 – Financial Management Action Plan

	Action	Responsibility	Deadline
1	Consulting Firm to be contracted to assist PIUs in setting the Financial Management System of the Project preparation of the FM section of the POM	Kyrgyz PIU ²⁰	Negotiations
2	Prepare and adopt the Project Operational Manual (POM), including Financial Management Manual (and Micro-Project Operational Manual for Kazakhstan)	Kazakh PIU	Effectiveness
3	Kazakhstan - (a) Install and customize 1-C Accounting System (b) appointment of the FM specialist, and (c) adoption of an acceptable small grant manual	Kazakh PIU	Disbursement condition

20. Disbursement Conditions

- No disbursement will be made for works, goods, and small grants to Kazakhstan until the Astana Project Implementation Unit has selected a suitable coordinator, financial management, and procurement specialists
- No disbursement will be made for forestation activities until existing plantation norms of the Kyrgyz Republic are revised
- No disbursement will be made for Kazakhstan until - (a) 1-C Accounting System will have been installed and customized (b) a suitable PIU, including FM and procurement specialists, will have been appointed
- No disbursement will be made for small grants in Kazakhstan until an acceptable small grant manual will have been adopted.

B. Flow of Funds and Disbursement Arrangements

21. The total project cost of US\$20.6 million will be financed with a Global Environment Facility (GEF) grant of US\$3.3 million, IFAD grant of US\$8.0 million, PHRD grant of US\$0.6 million, Government of Kazakhstan counterpart funding of US\$3.0 million, and Government of the Kyrgyz

²⁰ TORs are under review by the World Bank

Republic counterpart funding of US\$0.7 million. In addition, the beneficiary communities will provide cash and in-kind contributions of about US\$3.7 million. The project funds will finance micro-projects, goods, equipment, and consultant services, including audit, training, and operating costs for project management.

IFAD Grant. IFAD will sign a separate Financing Agreement with the Kyrgyz Republic to finance project activities under Components B and C of the project.

PHRD and GEF Grants. The Bank directly administers PHRD and GEF grants and it is also responsible for supervising IFAD funds as detailed in Annex 6: Implementation Arrangements. The grant funds will be disbursed under Bank transaction-based disbursement methods that include: reimbursements with full documentation, reimbursements on basis of Statements of Expenditures for small expenditures with defined thresholds, direct payments to third parties, special commitments to third parties, and advance of grant proceeds into designated account(s) to finance eligible project expenditures as they are incurred, and for which supporting documents will be provided.

22. **Designated Accounts.** To facilitate project implementation, a total of five (5) Designated Accounts will be opened. Four of them will be for the implementation of the Kyrgyz Republic activities, and one for Kazakhstan (see Figure 2 at page 46):

- Kyrgyz Republic:
 - (i) PHRD Grant (already open)
 - (ii) GEF Grant
 - (iii) SAEPF for the IFAD Grant
 - (iv) ARIS for the IFAD Grant
- Kazakhstan:
 - (v) GEF Grant

23. The Designated Accounts will be replenished regularly, at least every three months, and audited annually in conjunction with the audit of the project financial statements.

24. **Documentation of Expenditures:**

- **Kazakhstan.** Full documentation would be submitted for contracts valued above US\$500,000 equivalent for goods, above US\$3,000,000 equivalent for minor works, above US\$100,000 equivalent for consulting firms, above US\$50,000 equivalent for individual consultants and above US\$50,000 equivalent for training. Expenditures against contracts valued at less than these limits and for incremental operating costs and micro projects will be submitted using Statements of Expenditures (SOEs); and
- **The Kyrgyz Republic.** Full documentation would be submitted for contracts valued above US\$100,000 equivalent for goods, above US\$1,000,000 for minor works, above US\$100,000 equivalent for consulting firms, above US\$50,000 equivalent for individual consultants and above US\$50,000 equivalent for training. Expenditures against contracts valued at less than these limits and for incremental operating costs and micro projects will be submitted using Statements of Expenditures (SOEs).

25. For all expenditures financed under the SOE disbursement method, full documentation in support of the SOE will be retained in the PIU for at least two years after the project closing date. This information will be available for review by Bank missions during project supervisions and by the project auditors. SOEs will be audited in conjunction with the annual audit of the project. Further instructions on the size of the Minimum Application and on how funds will be withdrawn from the Grants will be provided in the Disbursement letter.

26. **Micro-project Grants.** To facilitate implementation of community-level activities, local bank accounts will be opened in local branches of the commercial bank holding the Designated Accounts funding community-level activities. The PIUs in Astana, Bishkek, and a Regional Office in Jalalabad (reporting to the PIU in Bishkek) will be opened, and will be responsible for managing local bank accounts to finance micro-projects on behalf of the communities and the Leskhozoes. The small grant recipients under project Component A and B will cash in tranches to finance eligible micro-project expenditures. Implementation, financing, and monitoring of the micro-projects and activities carried out through communities, village organizations, and individuals will follow guidelines in the Financial Management Handbook for Communities, and in the Project Operational Manual, as summarized below.

- a. The PIUs and Regional Office for community level operations will manage local bank accounts in their respective regions to finance capital investments for communities and related operating costs.
- b. Initial advances and replenishments to local bank accounts would be based on agreed milestones specified in the Financing Agreement between the SAEPF and implementing agencies, and as outlined in the Micro-projects Financial Management Handbook.
- c. Replenishment to local bank accounts would be made on the basis of simplified reports showing sources and uses of funds and supporting documents, including bank statements. The replenishment package would be verified by the Regional Offices and endorsed by the PIU before replenishment. Detailed flow of funds to the community level is outlined in the project Manual.

27. The multi-layered and inefficient control system and managing community-driven development operations, makes the risks associated with flow of funds high. However, actual implementation of controls would be monitored closely by the PIU, technical advisors, and Bank supervision missions. In addition to the annual audit for the overall project financial statements, at mid-term, independent auditors would carry out an operational review, under terms of reference acceptable to the Bank. The operations review would assess: (a) operations controls for the effective and efficient use of resources; (b) financial reporting controls for the preparation of reliable financial reports; and (c) compliance controls for the implementing agencies' compliance with regulations and procedures outlined in the Financing/Cooperation Agreement between SAEPF and the implementing agencies, and in the Project Operational Manual. The PIUs would have overall responsibility for operation, maintenance, and administration of the Designated Accounts, the Project Accounts (government contribution), and the transfer of funds to local bank accounts. Detailed procedures on the flow of funds mechanism will be outlined in the Project Operation Manual.

Table 15 – Kyrgyz Republic: Allocation of GEF Grant Proceeds (net of taxes)

	Expenditure Category	Amount in US\$ thousands	Financing Percentage
1	Works	142	100
2	Goods	440	100
3	Consultant Services	337	100
4	Training	36	100
5	Unallocated	45	
	Total	1,000	

Table 16 – Kazakhstan: Allocation of GEF Grant Proceeds (net of taxes)

	Expenditure Category	Amount in US\$ thousands	Financing Percentage
1	Works	220	100
2	Goods	980	100
3	Consultant Services	615	100
4	Training	95	100
5	Grants	210	75%
6	Recurrent Costs	100	100%
7	Unallocated	130	
	Total	2,350	

Table 17 – Allocation of PHRD Grant Proceeds

	Category	Amount of the Grant Allocated (US\$)	% of Expenditures to be Financed
1	National Consultants' Services	206,120	100
2	International Consultants' Services	166,000	100
3	Local Training, Workshop, Stakeholders Consultation	34,000	100
4	Goods and Works	86,000	100
5	Operating Costs	134,000	100
	TOTAL	626,120	

28. **Government Contributions.** Governments' counterpart funding to finance project activities will be provided in-kind and in-cash. Only funding for taxes will be provided in cash and channeled through project accounts to be managed by the PIU. In-kind contributions will be mainly for salaries and operational costs, which are provided according to each government's procurement and financial management rules. The value of beneficiary in-kind contributions will be determined using a system of standard unitary costs and quantities used to achieve project objectives.

29. **Financial Covenants.** The Recipient will be required to maintain a financial management system, including accounts and records, sufficient to monitor sources and uses of funds for project implementation. The project financial statements will be audited annually by independent auditors, under terms of reference acceptable to the Bank, and a report submitted to the Bank no later than six months after end of the year audited. Un-audited interim financial statements will be submitted to the Bank no later than 45 days after end of each quarter. *Financial management and financial covenants will be discussed and agreed at negotiations.*

30. **Supervision Plan.** The Bank will conduct periodic financial management (FM) supervision, at least once every six months, initially, to monitor project implementation progress and ensure that FM arrangements are in place. The FM supervision would focus on the following: (a) review project quarterly IFRs, the annual audited financial statements, and the auditor management letters and their recommendations for remedial actions; (b) during on-site supervision missions, review the following: (i) project accounting and internal control systems; (ii) budgeting and financial planning arrangements; (iii) disbursement management and financial flows, including counterpart funds, as applicable; and (iv) any incidences of corrupt practices involving project resources. As required, a Bank-accredited Financial Management Specialist will assist in the supervision process.

Annex 8: Procurement Arrangements

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

1. **General.** Procurement for the Tien Shan Ecosystem Development Project will be carried out in accordance with the World Bank “Guidelines: Procurement under IBRD Loans and IDA Credits,” published in May 2004 and revised in October 2006 (Procurement Guidelines); and “Guidelines: Selection and Employment of Consultants by World Bank Borrowers,” published in May 2004, and revised in October 2006 (Consultant Guidelines); and the provisions stipulated in the Grant Agreement (GA). The procurement actions under different expenditure categories are described below. For each contract to be financed under the GA, procurement or consultant selection methods, pre-qualification requirements, estimated costs, prior review requirements, and time frame have been agreed between the Recipient(s) and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. A General Procurement Notice (GPN) will be published in UNDB on-line and in print, and in dgMarket online in due course before the procurement activities take place. Specific Procurement Notices (SPN) will be published for all ICB and NCB procurement and consulting contracts as per Guidelines as corresponding bidding documents or TORs become ready and available.

2. **Assessment of Agency Capacity to Implement Procurement.** The Bank conducted an assessment of the implementing agencies’ capacity to implement project procurement in October-November 2008; it is included in the project file.

3. The project covers areas of Kazakhstan and The Kyrgyz Republic. Procurement activities will be carried out by the Forestry Agency of each country through a PIU. The PIUs are teams within the Forestry Agency of each country, not separate entities, that report directly to the Chairman of the Forestry Agency. The Kyrgyz PIU staff is established and includes a procurement specialist. The PIU in Kazakhstan will be set up upon the effectiveness of the proposed project. The two procurement specialists already available under the on-going Forest Protection and Reforestation Project will help bridge during the transition. All the existing procurement specialists have attended procurement training and gained practical experience through on-going Bank financed projects. In view of the small amount of the financing and the limited complexity of procurement activities to be financed, existing procurement capacity related to the project is considered adequate.

4. **Procurement Risk Assessment.** The overall procurement risk is rated substantial after mitigation measures. The risks associated with procurement and the mitigation measures were identified in the assessment of agencies procurement capacity and are summarized in the table below:

Table 18 – Procurement Risk Assessment

Description of Risk	Risk Rating	Mitigation Measures	Residual Risk Rating
Potential procurement delays: Experience with the past and on-going projects in countries show frequent procurement delays.	H	Careful procurement planning and realistic scheduling; advanced preparation of technical specifications or TORs; further procurement training would be provided during project implementation; close Bank supervision and monitoring, particularly from the country offices.	S
Low level of competition: Past experience indicates the procurement	S	Careful procurement packaging to foster competition; wide and advance	M

in countries has not attracted adequate competition; often only one bid was received.		advertising; proactive search and contact to potential suppliers, contractors or consultants.	
Inadequate contract management and lower-than-required quality of works or equipment	M	More emphasis and training on appropriate contract management; regular physical inspections by PIUs and Bank supervision mission.	L
Perceived high level of corruption as measured by Transparency International. Overall procurement environment is unsuitable for effective procurement.	H	Bank Anticorruption Guidelines (October 15, 2006) and the transparency and disclosure provisions of the Bank Procurement or Consultants Guidelines (May 2004, revised in October 2006) will be enforced.	S
Average	H		S

H: High; S: Substantial; M: Moderate; L: Low.

5. **Procurement Implementation Arrangements.** Procurement activities will be carried out by the two countries' Forestry Agencies through the PIU. The Bank ICB SBD, SRFP, sample NCB or shopping documents will be used.
6. Procurement of Works: Works to be procured under this project would include: development of trekking paths in the project areas; construction of infrastructure in protected areas (such as renovation of offices, cordon houses, ranger stations); and forest plantations.
7. The following special arrangements would be made under the Kyrgyz components: for forest plantations in areas under the jurisdiction of villages, the Community Participation approach would be adopted under the management of the ARIS (Community Development and Investment Agency) following the existing procedures established for the two Village Investment Projects. For forest plantations in areas under the jurisdiction of the Lezkhozes, Public Private Partnership (PPP) would be used in areas where higher yield trees can grow, while Force Account would be used in the other areas that are not attractive to private contractors. Under the PPP arrangements, long-term contracts will be awarded to private investors through a competitive process that includes provisions to share benefits between Lezkhozes and private investors. Specific details for the above arrangements (including Bank reviews, monitoring and supervision, physical inspection) will be provided in the Project Operational Manual (POM).
8. Procurement of Goods: Goods to be procured under the project would include: digital cameras and other electronic equipment; specialized vehicles and small tractors; horses for PA patrols; ranger uniforms; printed materials and brochures; broadcasting materials.
9. Selection of Consultants: Consultant services to be procured under the project would include: development of management plans for PAs; monitoring and evaluation of management effectiveness capacity; communication, awareness, and media campaigns; PIU staff; development of material for the UNESCO nomination. Shortlists for consultants' services for contracts estimated to be less than US\$100,000 or equivalent may be composed entirely of national consultants. UNESCO's services are required for nomination of the Western Tien Shan as a World Heritage Site; the associated amounts are small and will be contracted on SSS basis since only UNESCO provides such services.
10. Training: Training, including study tours, would be carried out according to annual training plans to be prepared by the PIUs and agreed by the Bank. The institutions for training/study tours would be selected by evaluating which institutional program would be most useful, availability of services, duration of training, and reasonableness cost.

11. **Operating Cost:** These would include office rent, utility and communications, translations, bank charges, office supplies, advertisements, photocopying, mail, and travel expenses. Such costs will be financed by the project as per annual budget approved by the Bank and according to the implementing agency's administrative procedures, which were reviewed and found acceptable to the Bank. Operating costs will not include salaries of civil servants.

12. **Technical Issues of Procurement Decisions:** The PIUs will be responsible for developing technical specifications or TORs in collaboration with implementing agencies and national or international consultants will be hired to provide needed assistance.

13. **Filing and Records Keeping:** The Astana and Bishkek PIUs and the Jalalabad regional office will set up adequate filing and recordkeeping systems, including hard and electronic copies of related procurement documents. Agreed reporting formats are included in the project operation manual.

14. **Procurement Plan.** The PIUs have developed an initial Procurement Plan for the entire project scope consistent with the implementation plan, which provides information on procurement packages, methods, and Bank review requirements. The procurement plan is tentative since it covers the entire project completion period, however, a firm procurement plan for the first 18 months of the project will be prepared before negotiations and will be agreed upon between the Recipients and the Bank project team at negotiations. This plan will be available in the implementing agency's project database and the version without budget will be available on the Bank's external website. The procurement plan will be updated annually or as required to reflect the actual project implementation needs and improvements in the implementing agency institutional capacity, in agreement with the Bank project team.

15. **Retroactive Financing:** In order to allow starting planting during the fall the 2009 fall season, it is agreed that retroactive financing up to \$100,000 will be permitted under the project.

16. **Frequency of Procurement Supervision.** In addition to the Bank team prior review, the Implementing Agencies capacity assessment recommends ex-post reviews be carried on at least 20 percent of contracts subject to post review. It is expected that a field supervision mission will take place every six months, during which, post reviews will be conducted. At a minimum, one post review report—which will include physical inspection of sample contracts, including those subject to prior review—will be prepared each year. Not less than 10 percent of the contracts will be physically inspected. The CDM monitoring and verification requirements will aid annual physical inspections of reforested sites.

17. **Anti Corruption Measures.** The Bank Anticorruption Guidelines (October 15, 2006) and the transparency and disclosure provisions in the Bank Procurement or Consultants Guidelines (May 2004, revised in October 2006) will be enforced. Among others, the following specific actions would be taken:

- Individuals involved in project management, including procurement, and tender or evaluation committees, must confirm that they have no conflicts of interest, i.e., relationships with suppliers consultants, or government officials, etc.
- Establish mechanisms to ensure payments to suppliers and contractors are made according to their contract terms without delays.
- Notify the Bank of every complaint received from suppliers or consultants relating to the procurement process; record and deal with these complaints promptly and diligently.
- Maintain up-to-date procurement records and make these available to the Bank staff, auditors.

Table 19 – Initial Procurement Plan for Activities in the Kyrgyz Republic

Works and Goods (Kyrgyz Republic)

Package No.	Description/ Location	Estimated Cost (USUS\$'000)	No. of Packages	Procurement Method	Review By Bank (Prior / Post)	Invitation Date	Expected Bid-Opening Date	Contract Award Date	Start Date	Completion Date
	A	B	C	D	E	F	G	H	I	K
1. WORKS										
KG/W/02	Construction of infrastructure in protected area (renovation of offices, cordon houses, ranger stations, etc.)	150	1	NCB	Prior	04/20/10	05/21/10	06/30/10		12/31/12
	Forestry micro-projects (multiple small packages)	6,991	M	CPP	Post a/	NA	NA	NA	NA	12/31/12
	Forestry micro projects (multiple small packages)	1,353	M	PPP	Prior/ Post a.	NA	NA	NA	NA	12/31/12
	Reforestation (multiple small packages)	1,098	M	FA	Prior a/	NA	NA	NA	NA	12/31/12
	Total 1. for works	9,293								
2. GOODS										
KG/G/01	4WD vehicles	142.3		ICB	Prior	07/15/09	08/15/09	09/18/09		01/16/10
KG/G/02	Field equipment (binoculars, water bottles, tents)	65		SH	Prior	07/15/09	07/30/09	08/29/09		11/27/09
KG/G/03	Radio transmitters	65		SH	Post	07/20/09	08/04/09	09/03/09		12/2/09
KG/G/04	Survey equipment	65		SH	Post	07/25/09	08/09/09	09/08/09		12/07/09
KG/G/05	Monitoring equipment	92.7		SH	Prior	07/15/09	07/30/09	08/29/09		11/27/09
KG/G/06	Uniforms	52.3		SH	Post	08/05/09	08/20/09	09/19/09		12/18/09
KG/G/07	Office equipment	80.1		SH	Post	08/05/09	08/20/09	09/19/09		12/18/09
KG/G/08	Horses	20.8		SH	Post	08/10/09	08/25/09	09/24/09		12/23/09
KG/G/09	Nursery technical upgrading	100		SH	Prior	07/15/09	07/30/09	08/29/09		11/27/09
KG/G/10	Agricultural equipment	69.7		SH	Post	08/10/09	08/25/09	09/24/09		03/23/10
KG/G/11	Field equipment including minor tools for reforestation (multiple packages)	107	M	SH	Post	08/10/09	08/25/09	09/24/09		12/31/12
KG/G/12	Manuals, brochures and publications	27.2		SH	Post	08/10/09	08/25/09	09/24/09		12/31/12
	Total 2. for goods	887.1								
Legend:										
ICB =	International Competitive Bidding (in accordance with section 2 of the Procurement Guidelines) For works contracts valued at or more than USD 1,000,000 For goods contracts valued at or more than USD 100,000									
NCB =	National Competitive Bidding (in accordance with section 3.3 of the Procurement Guidelines) For works contracts valued less than USD 1,000,000 For goods contracts - Not Applicable									
DC=	Direct Contracting (in accordance with section 3.6 of the Procurement Guidelines)									
SH =	Shopping (in accordance with section 3.5 of the Procurement Guidelines) For works contracts valued less than USD 100,000 For goods contracts valued less than USD 100,000									
FA =	Force Account (in accordance with section 3.8 of the Procurement Guidelines)									
CPP =	Community Participation in Procurement (in accordance with section 3.17 of the Procurement Guidelines; cost sharing)									
PPP =	Public Private Partnership (contracts awarded to the private investors through local competitive process on cost/benefit sharing basis)									
Prior review										
	For Goods, all ICB contracts, the first Shopping contract (regardless of value), and all direct contracting contracts (if any) will be subject to Bank prior review. NCB for goods is not applicable for The Kyrgyz Republic. For Works, all ICB contracts (if any), the first two NCB contracts (regardless of value), the first Shopping contract, and all direct contracting contracts (if any) will be subject to Bank prior review. The first 4 FA contracts are subject to the Bank prior review. The first 4 PPP contracts are subject to the Bank prior review.									
Pre Qualification=	Not Anticipated									
Domestic Preference=	Will apply to works contracts only									
Note:	a/ The specific Bank review requirements will be determined in line with the POM once the packages are defined.									

Consultants' Services (Kyrgyz Republic)

Package No.	Description of Assignment/ Location	Estimated Cost (USUS\$'000)	Selection Method	Review by Bank Prior / Post	Advertisement for EOI Date	Expected Proposal Submission Date	Contract Award Date	Start Date	Completion Date
A	B	C	D	E	F	G	H	I	J
3. CONSULTANTS' SERVICES									
KG/CS-01 – KG/CS/08	PIU staff (8 positions)	401.1	IC or SSS b/	Prior					12/31/13
KG/CS/09	Environmental/Biodiversity Specialist	45.3	IC	Prior	07/10/09		09/03/10		12/31/13
KG/CS/10	M&E methods and IUCN assessment	16.2	CQS	Post	11/10/09		02/08/10		12/31/12
KG/CS/11	Management planning	20.3	CQS	Post	11/10/09		02/08/10		12/31/10
KG/CS/12	FM evaluation and improvement	42.5	CQS	Post	11/10/09		02/08/10		12/31/11
KG/CS/13	Public awareness & website development	43.6	CQS	Post	11/10/09		02/08/10		12/31/13
KG/CS/14	Management of small grant scheme	30	CQS	Post	01/25/10		04/25/10		12/31/12
KG/CS/15	Communication campaign	100	CQS	Prior	11/10/09		02/23/10		12/31/10
KG/CS/16	UNESCO services	12.4	SSS	Prior	NA		12/10/09		12/31/10
KG/CS/17	Training guides	21.2	SSS	Prior	01/25/10		04/25/10		12/31/12
KG/CS/18	Annual Audits	27	CQS	Prior	01/25/10		04/25/10		12/31/13
KG/CS/19	TA for implementation of concept for nursery development; seed & seedling testing	27.5	CQS	Post	01/25/10		04/25/10		12/31/12
KG/CS/20	TA for validation and monitoring of carbon sequestration	106.8	CQS	Prior	01/25/10		04/25/10		12/31/13
Legend									
QCBS= Quality and Cost-based Selection (in accordance with sections 2.1 - 2.28 of the Consultant's Guidelines)									
QBS= Quality Based Selection (in accordance with section 3.7 of the Consultant's Guidelines)									
CQS= Consultants Qualifications (in accordance with section 3.7-8 of the Consultant's Guidelines)									
LCS= Least-Cost Selection (in accordance with section 3.6 of the Consultant's Guidelines)									
FBS= Fixed Budget Selection (in accordance with section 3.5 of the Consultant's Guidelines)									
SSS= Single source Selection (in accordance with section 3.9-13 of the Consultant's Guidelines)									
IC = Individual Consultant (in accordance with section V of the Consultant's Guidelines)									
Prior Review									
For firms: All contracts equal to USD 100,000 or more. First two contracts regardless of value and all SSS contracts. For individual consultants: All contracts equal to USD 50,000 equivalent or more. First two contracts regardless of value and all SSS contracts.									
All the TORs (regardless of the value of assignment) will be subject to Bank prior review. Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than US\$100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.									
Note:	b/ SSS will be applied to those PIU staff that has been hired competitively under the PHRD grant and has been performing satisfactorily. These staff will continue to work under the financing of the project.								

Table 20 – Initial Procurement Plan for activities in Kazakhstan

Works and Goods (Kazakhstan)

Package No.	Description/ Location	Estimated Cost (USUS\$'000)	No. of Packages or Lots	Procurement Method	Review By Bank (PRIOR / Post)	Invitation Date	Expected Bid-Opening Date	Contract Award Date	Start Date	Completion Date
A	B	C	D	E	F	G	H	I	K	
1. WORKS										
KZ/W/01	Construction of infrastructure in protected area (renovation of offices, cordon houses, ranger stations, trekking paths, etc.)	277.6		NCB	Prior	04/20/10	05/21/10	06/30/10		12/31/12
Total 1. for works		277.6								
2. GOODS										

KZ/G/01	Office equipment & furniture for PIU	12.8	SH	Prior	07/15/09	07/30/09	08/29/09		11/27/09
KZ/G/02	4WD vehicles	100	SH	Prior	11/15/09	11/30/09	12/30/09		03/30/10
KZ/G/03	Binoculars and skis	42.3	SH	Post	03/31/10	04/15/10	05/05/10		08/03/10
KZ/G/04	Motopumps and water bottles	27.7	SH	Post	03/31/10	04/15/10	05/05/10		08/03/10
KZ/G/05	Uniforms	237.3	ICB	Prior	01/30/10	03/01/10	04/06/10		09/03/10
KZ/G/06	Office equipment, radio transmitters	95.7	SH	Prior	03/15/10	03/30/10	04/19/10		07/18/10
KZ/G/07	Horses and accessories	107.1	NCB	Prior	11/20/09	12/20/09	01/25/10		04/25/10
KZ/G/08	Solar panels	160.5	NCB	Prior	11/20/09	12/20/09	01/25/10		04/25/10
KZ/G/09	Generators	49.4	SH	Post	03/31/10	04/15/10	05/05/10		08/03/10
KZ/G/10	Sprayers	13.8	SH	Post	04/15/10	04/30/10	05/20/10		08/18/10
KZ/G/11	Minor equipment (incl. sleeping bags and mats)	8.2	SH	Post	04/15/10	04/30/10	05/20/10		08/18/10
KZ/G/12	Brochures' and publications	22.4	SH	Post	04/15/10	04/30/10	05/20/10		12/31/12
KZ/G/13	Monitoring equipment (movement activated)	341.1	ICB	Prior	04/20/10	05/20/10	06/25/10		06/25/11
Total 2. for goods		1218.3							
Legend:									
ICB =	International Competitive Bidding (in accordance with section 2 of the Guidelines) For works contracts valued at or more than USD 3,000,000 For goods contracts valued at or more than USD 500,000								
NCB =	National Competitive Bidding (in accordance with section 3.3 of the Guidelines) For works contracts valued less than USD 3,000,000 For goods contracts valued less than USD 500,000								
DC=	Direct Contracting (in accordance with section 3.6 of the Guidelines)								
SH =	Shopping (in accordance with section 3.5 of the Guidelines) For works contracts valued less than USD 100,000 For goods contracts valued less than USD 100,000								
Prior review									
For Goods, all ICB contracts, first 2 NCB contracts (regardless of value) and all NCB contracts at or more than USD 200,000; the first Shopping contract, and all direct contracting contracts (if any) will be subject to Bank prior review. For Works, all ICB contracts (if any), the first two NCB contracts (regardless of value) and all NCB contracts at or more than USD 2,000,000; the first Shopping contract, and all direct contracting contracts (if any) will be subject to Bank prior review. All FA contracts are subject to the Bank prior review.									
Pre Qualification=	Not Anticipated								
Domestic Preference=	Will apply to goods contracts only								

Consultants' Services (Kazakhstan)

Package No.	Description of Assignment/ Location	Estimated Cost (USUS\$'000)	Selection Method	Review by Bank Prior / Post	Advertisement for EOI Date	Expected Proposal Submission Date	Contract Award Date	Start Date	Completion Date
A	B	C	D	E	F	G	H	I	J
3. CONSULTANTS' SERVICES									
KZ/CS/01	Project Director	77.6	IC	Prior	07/10/09		09/03/09		12/31/13
KZ/CS/02	Financial Manager	64.7	IC	Prior	07/10/09		09/03/09		12/31/13
KZ/CS/03	Procurement Specialist	37.7	IC	Prior	07/10/09		09/03/09		12/31/13
KZ/CS/04	Environmental/Biodiversity Specialist	61.5	IC	Prior	07/10/09		09/03/09		12/31/13
KZ/CS/05	M&E methods and IUCN assessment	21.3	CQS	Post	11/10/09		02/08/10		12/31/12
KZ/CS/06	Management planning	20.3	CQS	Post	11/10/09		02/08/10		12/31/10
KZ/CS/07	Public awareness & website development	53.2	CQS	Post	11/10/09		02/08/10		12/31/13
KZ/CS/08	Management of small grant scheme	32.3	CQS	Post	01/25/10		04/25/10		12/31/12
KZ/CS/09	Communication campaign	200.0	CQS	Prior	11/10/09		02/23/10		12/31/10
KZ/CS/10	UNESCO services	20.7	SSSc/	Prior	NA		12/10/09		12/31/10
KZ/CS/11	Training guides	29.1	CQS	Post	01/25/10		04/25/10		12/31/12
KZ/CS/12	Annual Audits	27.0	CQS	Prior	01/25/10		04/25/10		12/31/13
Legend									
QCBS=	Quality and Cost-based Selection (in accordance with sections 2.1 - 2.28 of the Consultant's Guidelines)								

	QBS=Quality Based Selection (in accordance with section 3.7 of the Consultant's Guidelines)
	CQS=Consultants Qualifications (in accordance with section 3.7-8 of the Consultant's Guidelines)
	LCS =Least-Cost Selection (in accordance with section 3.6 of the Consultant's Guidelines)
	FBS=Fixed Budget Selection (in accordance with section 3.5 of the Consultant's Guidelines)
	SSS=Single source Selection (in accordance with section 3.9-13 of the Consultant's Guidelines)
	IC = Individual Consultant (in accordance with section V of the Consultant's Guidelines)
Prior Review	
	For firms: All contracts equal to USD 100,000 or more. First two contracts regardless of value and all SSS contracts. For individual consultants: All contracts equal to USD 50,000 equivalent or more. First two contracts regardless of value and all SSS contracts.
	All the TORs (regardless of the value of assignment) will be subject to Bank prior review. Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than US\$100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.
	Note: c/ SSS is justified since only UNESCO provides the needed services.

Annex 9: Economic and Financial Analysis
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

1. At the local level, the main benefit expected from the project is an improved environment and a sustainable improvement of livelihoods. At the global level, the expected benefit is conservation of biodiversity and a contribution to climate change mitigation. Most benefits will materialize when trees are harvested, starting 15 years after project closing, as shown in Table 6 on page 15.
2. The project will target six main groups of beneficiaries: (i) poor households as individuals, groups and communities who will reforest on *Aiyl Okmotu*, rayon, and private lands; (ii) private investors in public-private partnerships (PPP) with *Lezkhozes* on State Forest Fund lands; (iii) rural people whose livelihood depends on walnut fruit forest (Jalalabad Oblast); (iv) small entrepreneurs in the ecotourism sector; (v) public institutions such as *Aiyl Okmotus*; and (vi) State Forest and Conservation Agencies/Institutions.
3. It is estimated that the Project would directly reach around 15,300 beneficiary households, with more than 90% poor²¹. Beneficiary groups that will benefit indirectly from the project include input suppliers such as forest nurseries, service providers, rural workers who help establish plantations, traders and processors in the wood supply chain, and consumers who use the fuel-wood, timber, and fruits. The number of indirect poor beneficiaries for the period 2015-2028 is conservatively estimated in 10,000 (2 million cubic meters of construction and fuel wood, with an average consumption of 15 cubic meters per household per year). Increased income among target groups is expected to generate additional tax revenues for local and central governments
4. Governments will also benefit from additional revenues from the carbon (VER) market. In addition, production more fruits and nuts could contribute to boosting exports, because demand in the region has been increasing. Long-term benefits include reduced timber imports that could result in foreign exchange savings, and reduced consumer prices, in particular for fuel-wood and timber. Finally, institutions supported during project implementation will realize efficiency and effectiveness gains.
5. Some project benefits expected from the second component, such as afforestation and forestation, are relatively easy and objective to assess, but quantifying project benefits from the first component is more problematic. Global benefits of conservation and biodiversity activities are difficult to quantify in financial terms.
6. Consequently, the economic analysis was based *only* on mid-term benefits of the afforestation and reforestation component: incomes generated by poplar and fruit trees plantation (timber, fuel-wood, inter-cropped forage, fruits and carbon sequestration) and the associated costs during 20 years (in constant average 2009 prices). Long-term benefits of the slow growing species in mountainous forests are important—erosion control, wind protection on adjacent agricultural lands, increased snow retention, increased habitat for biodiversity—but unquantifiable, except for carbon revenue. For apple and forage, the financial prices and economic prices are assumed to be similar. For firewood and round timber,

²¹ It is assumed that through the ARIS scheme, on average, very poor households would have about either 2 ha of unproductive and barren lands suitable for forests or 0.5 ha for orchards; while under the PPP arrangements, private investors would have access to either 5 ha of forests or 1 ha of orchards. The improved forest management in the walnut fruit forest ecosystem will improve sharing of the benefits generated by harvesting walnut forest reaching a conservative number of 10,000 households.

economic prices of US\$10/cum and US\$60/sum accordingly were considered as these two goods represent national import savings.

7. The analysis shows that the Project is economically sound, though the analyzed period is limited to 20 years, compared to expected 80-year lifespan of some species such as spine and juniper. The base ERR is 16.3 percent with a corresponding Net Present Value of US\$8.87 million (assuming a 12 percent discount rate). In 2028, the trees planted by the Project are estimated to sequester 1.978 million tCO₂e, poplar will produce 1,375,000 cubic meters of round-wood and 717,000 cubic meters of fuel-wood, and orchards will generate 102,000 t of fruits. Improved soil fertility in the plantations and adjacent arable lands has not been taken into account but would increase these results. Furthermore, the analysis has not taken into account all the economic benefits associated with the Project, and therefore, the estimated economic benefits are likely on the low side of the potential economic returns generated by the Project. The ERR is increased by 2.0 percent by carbon revenue and the NPV by almost US\$3.0 million. The sensitivity analysis shows that the Project is not very sensitive to a moderate decrease or delay of benefits (Table 21).

Table 21 – Sensitivity Analysis

Sensitivity Analysis (20-year period)	Base case	Costs Increase			Increase of Benefits			Decrease of Benefits		Delay of Benefits		Timber price (in USD/t for logs in 2009)			
		+10%	+20%	+50%	+10%	+20%	-10%	-20%	-30%	1 year	2 years	40	50	70	80
IRR	16.3%	15.2%	14.1%	11.4%	17.6%	18.7%	15.0%	13.6%	12.0%	14.6%	12.7%	14%	15%	17%	18%
NPV (000US\$)	8,868	5,273	3,678	-1,107	9,150	11,431	4,586	2,304	21	4,221	1,160	2,198	4,511	8,138	11,452

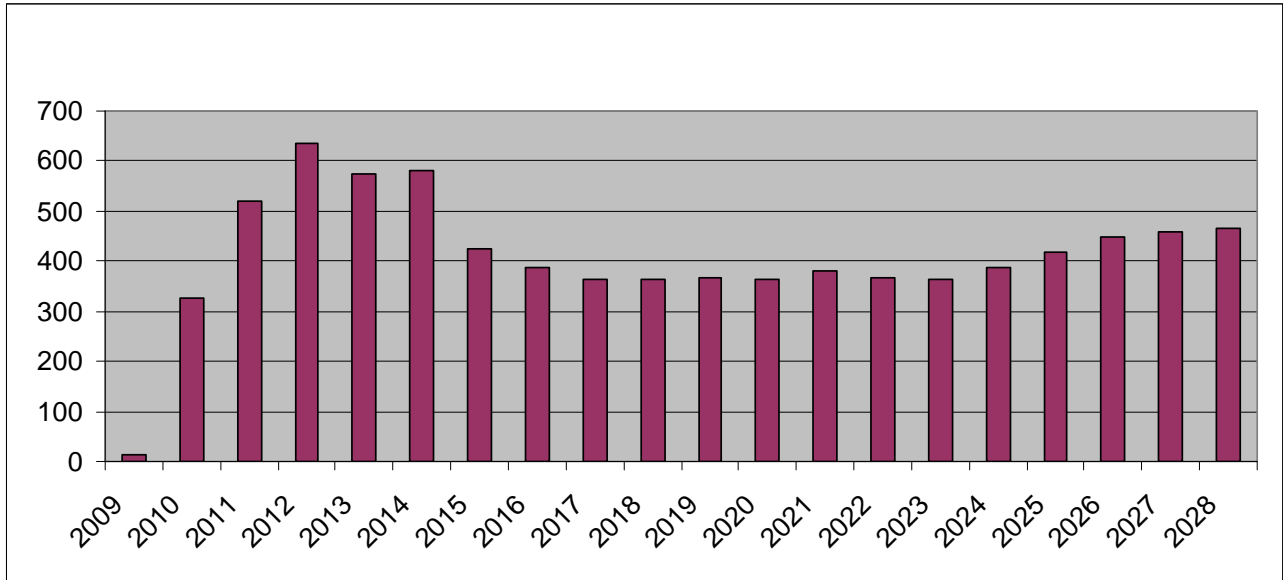
8. The main objective of the financial analysis is to examine the financial feasibility and viability of the main forest activities and assess their potential for increasing the incomes of the main beneficiaries. Annual cash flow indicators also help determine the best way for the Project to finance these activities.

9. For this analysis, three financial models were prepared (irrigated poplar, with and without intercropping of forage, orchards and spruce/pine). This is a simplification, as beneficiaries will be encouraged to plant multiple species to increase biodiversity and environmental benefits. The financial results of these models are summarized in Table 7 on page 16. Two scenarios were estimated for each: without financing and with financing (including the Project matching grant for initial costs and carbon revenues). Fast growing species like poplar have high internal rate of return (IRR) because (a) timber and fuel-wood prices are quite high and are expected to stay at this level; and (b) irrigation infrastructure is already available, even in marginal lands not suitable for agriculture. But, even if these species are profitable, the investments are not feasible for the target groups without Project support due to: (a) the high investment required in the first year; and (b) the number of years with negative cash flows (at least 15 years for poplar) and limited incomes (firewood from thinning only). Fruit trees and willows can generate revenues in four to five years, but the duration of capital recovery is long. Consequently the matching grant is justified to cover partial costs during the first years (investment and operation costs), also because the target groups have no access to finance. Smallholders and communities will also be encouraged to intercrop forage with trees to provide incomes during the first years (without increasing costs significantly). Species such as pine, juniper or spruce that will be planted in mountainous forests with really slow growth rates, are not profitable, even with carbon revenues. The percentage of the investment and operation costs used to calculate the matching grant amount and the total budget take this constraint into account (higher rates for slow growing species).

10. In terms of employment, the Project is expected to generate 2,647 person-years during 2009-14 and 5,952 person-years during the 2014-28, or on average 410 persons employed annually. However, not

all project employment generation will result in full time jobs because some of the labor will be an in-kind contribution from the beneficiaries (family labor) but this number represents the labor requirements to establish, maintain, and harvest the plantations during the first 20 years.

Figure 3 - Annual Employment Generation
(in person-years)



Annex 10: Safeguard Policy Issues

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

1. The project's overall environmental impact is expected to be positive and to outweigh any potential negative impacts. However, the project triggers several safeguard policies, specifically Environmental Assessment (OP/BP 4.01), Involuntary Resettlement (OP/BP 4.12), Pest Management (OP/BP 4.09) Forests (OP 4.36), and International Waterways (OP 7.50). The project has been classified an environmental category B and thus requires a partial environmental assessment. To identify potential negative impacts and to avoid, minimize, mitigate or offset such impacts to the largest extent possible during project implementation, a joint Environmental and Social Assessment (ESA) has been recently completed. Key components of the resulting EA report is an environmental management plan (EMP), which describes how the EA results will be integrated into the project and monitored during project implementation, along with an Access Restriction Policy and Process Framework to mitigate possible restricted access to pasture and non-timber forest products resulting from the project.

2. While the project is expected to achieve strongly positive environmental impacts, some activities do pose a risk of causing a negative impact. The ESA has identified most of the potential negative impacts and designed mitigation measures. Potential risks include the following:

- Restricted access to pastures and reduced available pastureland
- Increased competition for irrigation water
- Reduced biodiversity if invasive non-native species are used for forestation, or if a single tree species is used for concentrated plantations
- Unskilled use of pesticides
- Health impacts from allergenic tree substances (e.g., poplar pollen)
- Temporary environmental impacts from waste management, emission control, and soil / vegetation conservation during small-scale construction works

3. Several safeguard-related risks that may result from project activities are listed below, with proposed mitigation measures. The magnitude of each risk was assessed, as was the change anticipated from the proposed mitigation measures:

- *(Eco)Tourism*: low initial risk, to large extent mitigated by PA Management plan, including (a) keep areas free of human presence (even if seasonal), (b) infrastructure
- *Outbreak of Pests*: low initial risk, to a large extent mitigated by (a) selecting pest-resistant plant species, (b) using mixed species, (c) assisting natural regeneration and using Integrated Pest Management
- *Use of herbicides such as Propizamide*, agents for seed treatment, fertilizer: moderate initial risk, can be effectively mitigated by safety training for due diligence in transport, storage, handling and application. Furthermore, this herbicide poses a little threat because it is classified as nontoxic to only slightly toxic to humans, mammals and birds by the EXTONET database, and to poses low environmental risk if used with due care and diligence.
- *Aggravation of livestock encroachment* on overgrazed pastures: high initial risk, but manageable through the following measures: (a) select plots where there is minimal conflict with herders, (b) use participatory process for site selection, (c) fence forestation areas.
- *Water Pollution*: moderate risk, mitigated by: (a) training agricultural technicians, (b) following norms and storage rules for fertilizer, (c) use good practices during all civil works.
- *Fires*: high risk, which will persist despite mitigation measures; must be constantly managed through the following measures: (a) information campaigns, (b) drills and exercises, (c) physical emergency preparedness measures, including resources, communication, equipment, materials

- *Mechanical impact on soil* from plowing, soil erosion: low risk, mitigated by (a) training by agricultural technician, (b) planting grass and other protective / remedial vegetation.
- *Aggravation of water shortage* resulting from additional irrigation for new forests: high risk, mitigation measures are expected to significantly reduce risk by (a) select species adapted to local climate and water availability, (b) optimize water use through site selection and planting season, (c) offer training by agricultural technician, (d) consult with local population and water committees.
- *Destruction of engineering structures* such as irrigation canals and roads by roots of growing trees: low risk, mitigation measures will be: (a) plantation location and design will consider existing infrastructure and maintenance requirements, (b) stepped-up maintenance near forests, (c) establish and enforce buffer zones around sensitive infrastructure.

4. None of the risks is highly significant or immitigable; none of the impacts is large-scale or deemed significant, sensitive, diverse, or unprecedented; no impact is considered irreversible; and finally, all impacts have mitigation measures that are established, tested, and readily available. The environmental capacities of the counterparts has been assessed as satisfactory and the environmental mitigation plan (EMP) has sufficient detail and quality to ensure that identified environmental safeguard measures will actually be mainstreamed and implemented during project execution.

5. **Water demand.** The project areas will be spread over the three major river basins in the Kyrgyz Republic—Chui, Naryn and Talas. The team estimated project impact in each of these basins, under the following assumptions:

Peak water demand per hectare of forest (including losses):	5,000 m ³ per year in the north
	8,000 m ³ per year in the south
Total irrigated area under the project ²²	7,920 ha
Maximum annual irrigation water demand:	48.2 million m ³ per year

6. The annual water discharges for the three basins across the Kyrgyz national boundaries were obtained from gauging stations or published literature²³ and these flow volumes compared with the estimated total annual volume of water to be used under this project. Results are shown in Table 22 below; the additional irrigation water requirements versus the average annual river basin discharge volumes are 0.36 percent for Talas, 0.20 percent for Chui, and 0.05 percent for Syr Darya, which the team deemed very low. Nevertheless notification to riparian states is required as per OP 7.50 on International Waterways. The Kyrgyz Republic asked the World Bank to notify riparian states on its behalf. The notification letter was sent on February 17, 2009. The letter allowed until April 13, 2009 for the recipients to submit comments.

7. The project abstractions constitute only a minor increase in water use in the project areas. It is expected that maturing forests will increase soil retention capacities and seepage into the ground; improve groundwater and surface water balance, and reduce flooding. When the tree root systems develop, demand for irrigation water will decrease. A significant overall increase in competition for irrigation water appears unlikely, but mitigation measures are planned including: (a) investigate individual micro-project sites on a case-by-case basis if sustainable water sharing with existing demand is feasible; (b) carry out targeted rehabilitation on existing irrigations systems, which would reduce water losses and make up for additional demand and (c) test and disseminate water saving technology such as drip-irrigation.

²² Estimated after 5 years of project implementation

²³ Sources: <http://www.grdc.sr.unh.edu/index.html>, <http://enrin.grida.no/htmls/kyrgyz/soe2/english/waters.htm>

Table 22 – Estimated Irrigation Water Requirements affecting International Waterways

River basins	Plantation area of the Project (ha)	Annual irrigation water requirement* (m3/ha)	Project maximum annual water intake (million m3/year)	Total River flow (billion m3/year)	Project intake as share of total river flow
a	b	d	c	e	c/e
Syr Darya	2,854	8,000	22.8	37.2	0.06%
Chui	2,666	5,000	13.3	6.64	0.20%
Talas	1,267	5,000	6.3	1.74	0.36%
<i>Subtotal basins on International Waterways</i>		6,787	42.5		
Issyk-Kul (national basin)	1,133	5,000	5.7		
<i>Subtotal forestation with irrigation</i>		7,920	48.2		
Forestation without irrigation	6,030				
Total	13,950				

* Including delivery losses

8. **Summary of the Environmental and Social Assessment (ESA).** During project preparation, the client hired a local Kyrgyz consulting firm to elaborate a joint Environmental and Social Assessment with corresponding management and monitoring plans.

9. **Primary objective.** The assessment process aimed to deliver environmental and social management documents (e.g., EMP, Access Restriction Policy and Process Framework - ARPPF) that outline measures to avoid, minimize, mitigate or offset negative environmental and social impacts, and enhance positive impacts. These management plans are specific and contain enough detail to: (a) mainstream into project design and (b) integrate provisions into tender documents for project implementation.

10. **Secondary objectives.** The ESA also aimed to (a) establish a preliminary baseline of environmental conditions in the Tien Shan; (b) identify significant environmental or social risks/impacts of the proposed project (positive and negative), and (c) specify appropriate preventive actions and mitigation measures (including screening and approval of sub-projects and appropriate monitoring) to prevent, eliminate, or minimize any anticipated adverse impacts.

11. The ESA identified a potential risk for conflict between forestation activities and informal pasture use on selected marginal lands. Thus, even though (a) the project objective of strengthening biodiversity conservation does not aim to enlarge protected areas, only to improve their management, and (b) there will be no physical relocation of households or acquisition of land, the project may risk restricting access to resources that are an important component of rural livelihoods. As a result, the Bank's Operational Policy on Resettlement, O.P. 4.12 is triggered. The recommended mitigation measure is to prepare a Natural Resource Access Restriction Policy and Process Framework.

12. The framework objective is to minimize possible conflicts arising from changes in the management of protected areas and minimizes the risk of conflict between grazing and forestation activities implemented on the basis of community decision making processes (the ARIS social mobilization process), State Forest Enterprises (Lezkhozes) or public-private partnership arrangements. The framework therefore combines the core elements of both a Process Framework (necessary for activities within protected areas) and a Resettlement Policy Framework (necessary for activities outside protected areas), while also outlining the participatory decision making process to be followed by Communities pursuing reforestation activities on Aiyl Okmotu land. As such, the framework outlines a participatory process for managing conflicts arising from changes in the management of protected areas and to validate and identify sites for afforestation and reforestation where there is no possibility of conflict between pasture use and forestry use. The process framework specifies criteria and procedures to be followed under the project to minimize the risk of project-induced restriction of access to seasonal pasture and non timber forest products in protected areas, in protected areas, on marginal Aiyl Okmotu and State Forest Fund land. First, a comprehensive information campaign must be carried out, targeting all community members, to create an understanding of the main project components, the affected lands, and potential positive and negative impacts. Second, local Access Restriction Management Groups (ARMGs) should be established; ideally, they would include representatives from the following groups: AO Officials, Local Investment Executive Union Committee, Aiyl Kenesh, Pasture Management Committee (when established), Lezkhozes, Pasture User Union, NGOs, and other civic organizations and vulnerable groups such as women and youths.

13. First, the ARMGs must validate the sites selected for afforestation and reforestation using participatory techniques such as resource mapping to ensure that there are no conflicts with grazing. If potential conflicts are discovered, the ARMGs must establish *when* the pasture use occurred because the cut-off date for identifying project-affected persons is the date of the field study conducted during project preparation. Thus, if pasture use pre-dates the field study, then every effort should be made to identify conflict-free alternative plots for afforestation and reforestation through a joint exercise between the ARMGs (responsible for participatory resource mapping) and a field study team (to determine the technical feasibility of planting in these new sites). Outputs of this process will be formally documented in a written report (including visual aids such as maps) and transmitted to the relevant PIUs.

14. As a last resort, if no alternative sites can be identified, the ARMGs must determine whether measures to assist in improvement or restoration of livelihoods will be provided to affected informal pasture users, and what form this assistance should take, in consultation with the Project Implementation Unit. "Last resort" measures to assist in improvement or restoration of livelihoods includes the following: (a) provide livestock forage for project duration; (b) designate priority status to receive forest benefits such as temporary employment, fuel-wood, grazing, non-timber forest products; (c) provide forage seeds and fertilizer to improve communal pasture land close to settlements; (d) provide the option of leasing alternative pasture sites combined with other assistance such livestock forage, seeds and fertilizer to improve the pasture, and priority status in receiving benefits from the newly forested land.

15. In the case of protected areas, the ARMGs will conduct participatory assessments of how changes in the management regime will impact the individual or community livelihoods. Recommendations will be made on how the management regime can be adjusted in order to minimize these impacts and whether or not measures to assist in improvement or restoration of livelihoods are necessary. Again, outputs of this process will be formally documented in a written report (including visual aids such as maps) and transmitted to the relevant PIUs.

16. The ESA contains an **environmental management plan** (EMP) and adequate social instruments, such as an Access Restriction Policy and Process Framework (ARPPF) for pasture lands to ensure that environmental and social prevention and mitigation measures identified in the ESA will be realized and

that the monitoring plan and any institutional strengthening activities recommended will be undertaken during project implementation. The EMP and ARPPF will establish institutional responsibilities, propose an implementation timetable, and prepare a cost estimate for the project budget. The **geographical scope** of the study is the Tien Shan mountain range located on the territories of the Kyrgyz Republic and Kazakhstan. The following tasks were carried out for the study.

17. **Task 1:** Review and describe *relevant* national environmental policies, laws and regulations, and relevant international environmental conventions governing environmental quality, biodiversity conservation, protected area management, etc., to which either The Kyrgyz Republic or Kazakhstan are party. Review and put into practical context World Bank safeguard policies triggered by the proposed project (see above).

18. **Task 2:** Determine potential positive and negative environmental and social impacts of the proposed project interventions (including potential restrictions on access to natural resources). The table below provides examples of impacts that the consultant considered during the assignment.

Table 23 – Expected positive and negative environmental impacts of the project

<i>Positive</i>	<i>Negative</i>
Component A mainly:	
<ul style="list-style-type: none"> • creation of alternative incomes to (unsustainable) use of natural resources • better enforcement of protected areas due to increased enforcement and higher awareness of local population 	<ul style="list-style-type: none"> • impacts from small scale construction in protected areas (road improvements, building rehabilitation, new structures e.g. sanitary facilities) • waste and sewage management from tourist infrastructure
Component B mainly:	
<ul style="list-style-type: none"> • improvement / upgrading of land quality • creation of habitats for biodiversity development • erosion control and water retention • stabilization of areas with geotechnical hazards such as landslides 	<ul style="list-style-type: none"> • increased competition for irrigation • long-term water demand for sustaining forest in some location typologies (depending on local hydrogeology) • negative impact on biodiversity by monocultures • negative impacts on soil quality by site preparation (e.g. clearing, plowing) • increased fire risks • unsustainable use of pesticides and herbicides • reduced access to pastures, reduction of available pastureland • distribution of project benefits among stakeholders

19. Another important set of impacts is related to climate change (CC). The project will contribute to CC mitigation (by sequestering carbon in the form of cellulose in trees) and CC adaptation (reducing the impact of temperature rise and water scarcity by increasing potential for water retention and snow harvesting). The ESA develops key steps and activities required to implement and measure / quantify mitigation and adaptation measures. The CC consequences may include changes in precipitation and temperature; under most scenarios Central Asia is expected to become drier and warmer, which will affect glacial melting and snow storage potential in the high alpine regions of the Tien Shan mountains.

20. **Task 4:** Identify adequate mitigation measures for the environmental and social negative impacts identified for the project, incorporating recommendations for feasible and cost-effective measures to prevent or reduce, as far as possible, any significant adverse environmental impacts.

Box 1 - Mitigation measures

For Component A, the mitigation measures address impact mitigation in a pragmatic and cost-effective manner. Wherever possible, they rely on standard procedures and enhance their implementation and enforcement (e.g., fire control and pest management). When appropriate, targeted delivery of training forms part of mitigation measures (e.g., pest management).

Social mitigation measures focused on assistance such as growing forage in the forests to compensate for loss of pastures; and participatory processes such as community-level land use planning and irrigation quota allocation.

Mitigation measures for water demand and sustainability will require location-specific design for each identified impact for all potential project site typologies.

For small grants, a list was drafted of undesirable development, such as new access roads, large hotels built as solid / permanent structures, and unrestrained development of weekend homes, shops, or restaurants in areas designated for low-impact “soft tourism.”

For construction works of any size, (path improvements, building rehabilitation, new structures such as cordon houses), clear environmental guidelines were established and will be enforced for contractors, using basic, pragmatic EMP formats (“checklist format” established in ECA for small-scale construction).

21. **Task 5:** An environmental management plan was developed for project implementation that monitors key environmental and social indicators and includes institutional roles, responsibilities, stakeholder capacity, and training requirements. Moreover, the EMP includes guidelines for screening and approving sub-projects that include civil works or physical interventions, to ensure environmentally sound planning, siting, and construction practices for project interventions.

22. Together with the EMP, an Access Restriction Policy and Process Framework (ARPPF) was prepared to address potential access restrictions to natural resources that result from project interventions, and to outline measures to assist in improvement or restoration of livelihoods and substitute for the incremental losses of livelihood expected to be caused by the project. In December 2008, the ARPPF was discussed in Bishkek with specialists and NGOs to solicit expert opinions on whether it could be implemented. This overlapped with Task 6, below.

23. **Task 6:** The ESA was coordinated and distributed among government agencies; public consultations solicited input from affected/beneficiary groups and NGOs, which were then incorporated.

24. Implementing and monitoring the agreed plans will be integral to project design. Thus, the TSED PIU will be the agency responsible for all safeguard-related activities. Although current capacity is assessed as adequate, the project will include capacity building such as on-the-job training and coaching by the project team’s safeguards specialists, and project funding will be made available to attend training offered by the World Bank and other international institutions—similar to client safeguards training organized by WB RSC and held in the Kyrgyz Republic during 2008, which the PIU director attended.

25. The project team will ensure continued attention, capacity building, and mainstreaming of creative solutions for environmental and social safeguards through continuous participation of safeguards experts on all project supervision missions.

Annex 11: Project Preparation and Supervision
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

	Planned	Actual
PCN review	10/10/2007	11/01/2007
Initial PID to PIC		
Initial ISDS to PIC		
Appraisal	May 11, 2009	
Negotiations	June 29, 2009	
Board/RVP approval	August 27, 2009	
ERPA signing	September 21, 2009	
Planned date of effectiveness	November 7, 2009	
Planned date of mid-term review	November 2012	
Planned closing date	November 30, 2014	

1. Key institutions responsible for project preparation:
 - State Agency for Environmental Protection and Forestry (SAEPF) of the Kyrgyz Republic
 - Forestry and Hunting Committee (FHC) under the Ministry of Agriculture of the Republic of Kazakhstan

2. Bank staff and consultants for the project include:

Name	Title	Unit
Maurizio Guadagni	Sr. Rural Dev. Specialist (TTL)	ECSSD
Andrew Mitchell	Sr. Forestry Specialist (deputy TTL)	ECSSD
Andre Aasrud/ Zarina Azizova	Deal Manager	BioCarbon Fund
Christophe Bosch	Country Sector Coordinator	ECSSD
Bulat Utkelov	Operations Officer (Astana)	ECSSD
Ainura Kupueva	Operations Officer (Bishkek)	ECSSD
Wolfhart Pohl	Sr. Env. & Geosciences Specialist	ECSSD
Martin Lenihan/Janna Ryssakova	Social Development Specialist	ECSSD
Anara Jumabayeva/Patricia Larbouret	Ag. Economist	FAO
Frank McKinnell	Forest Specialist	FAO
Nandita Jain	Biodiversity Specialist	Consultant
Yuling Zhou	Sr. Procurement Specialist	ECSPS
Ida Muhoho/ Galina Alagardova	Sr. Fin. Management Specialist	ECSPS

3. Bank funds expended to date on project preparation:
 - Bank resources: BioCarbon Fund (CN-P102403-LEN-BBCBF): US\$117,827
 - Trust funds: GEF (GE-P104670-LEN-BBGEF) US\$132,131
 - Total: US\$249,958

4. Estimated Approval and Supervision costs:
 - Remaining costs to approval: GEF: US\$75,000
 BioCarbon Fund: US\$15,000
 - Estimated annual supervision cost: US\$90,000

Annex 12: Documents in the Project File
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

1. Implementation Completion and Result Report of the Central Asia Transboundary Biodiversity Project
2. Kyrgyz Republic: PHRD Grant for Tien Shan Ecosystem Development Project: Reforestation and Afforestation Component Grant Number TF091334. Grant Proposal and Grant Agreement
3. Detailed cost tables (in Costab software)
4. Economic and Financial analysis (Excel tables)
5. Social and Environmental Assessment
6. December 18, 2007 Letter of Intent between the BioCarbon Fund and the Project Entity
7. Carbon Finance Document of March 13, 2007
8. Corruption and Renewable Natural Resources, Transparency International #1/2007
9. A tourism strategy for Kyrgyzstan. Universitat St. Gallen, November 2002
10. The natural resource lifeline for Central Asia: water, energy and the environment (UNDP)
11. A Users' Manual for Building Resistance and Resilience to Climate Change in Natural Systems (WWF, August 2003)
12. Responsible Management of Planted Forests: Voluntary Guidelines (FAO, 2006)
13. Management Effectiveness Tracking Tool (WWF and the World Bank, July 2007)
14. Survey On Assessment Of Involvement Of The Local Population In A Process Of The Community Based Forestry Management And Sharing Benefits Of Joint Forest Use (FAO, Ecological Movement Biom, Bishkek, 2006)
15. Kyrgyzstan – Environment and Natural Resources for Sustainable Development. State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic - United Nations Development Programme in the Kyrgyz Republic (Bishkek, 2007)
16. Report of Frank McKinnell on silvicultural practices
17. Jean-Marie Samyn report on Collaborative Forest Management (CFM) of December 4, 2008

<http://www.fao.org/forestry/49735/en/kgz/>

http://www.sdc.admin.ch/en/Home/Projects/Protecting_walnut_trees_generates_new_income

Annex 13: Statement of Loans and Credits
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT
KAZAKHSTAN

Project ID	FY	Purpose	Original Amount in US\$ Millions					Cancel.	Undisb.	Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF	Orig.			Frm. Rev'd	
P101928	2008	HLTH SEC TECH (JERP)	117.70	0.00	0.00	0.00	0.00	117.70	0.00	0.00	
P096998	2008	CUSTOMS DEVT (JERP)	18.50	0.00	0.00	0.00	0.00	18.50	0.15	0.00	
P090695	2008	TECHNOLOGY COMMERCIALIZATION PROJECT	13.40	0.00	0.00	0.00	0.00	13.40	0.00	0.00	
P078342	2007	UST-KAMENOGORSK ENV REMED	24.29	0.00	0.00	0.00	0.00	24.29	0.00	0.00	
P095155	2006	N-S ELEC TRANSM	100.00	0.00	0.00	0.00	0.00	39.40	30.07	0.00	
P078301	2006	FORESTRY	30.00	0.00	0.00	0.00	0.00	28.50	1.96	0.00	
P058015	2005	AG POST PRIV ASSIST (APL #2)	35.00	0.00	0.00	0.00	0.00	34.83	24.83	0.00	
P049721	2005	AGRIC COMPETITIVENESS	24.00	0.00	0.00	0.00	0.00	20.82	12.76	0.00	
P059803	2003	NURA RIVER CLEAN-UP	40.39	0.00	0.00	0.00	0.00	16.60	9.11	0.00	
P046045	2001	SYR DARYA CONTROL N. ARAL SEA	64.50	0.00	0.00	0.00	0.00	4.87	4.87	4.54	
P065414	2000	ELEC TRANS REHAB	140.00	0.00	0.00	0.00	0.00	5.82	5.82	1.66	
Total:			607.78	0.00	0.00	0.00	0.00	324.73	89.57	6.20	

STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

FY Approval	Company	Committed				Disbursed			
		IFC		Quasi	Partic.	IFC		Quasi	Partic.
Loan	Equity	Loan	Equity						
Total portfolio:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
2001	Kazkommertsbk 2	0.02	0.00	0.00	0.00
Total pending commitment:		0.02	0.00	0.00	0.00

KYRGYZ REPUBLIC

Project ID	FY	Purpose	Original Amount in US\$ Millions				Cancel.	Undisb.	Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF			Orig.	Frm. Rev'd
P108525	2009	CAPACITY BLDG ECON MGT	0.00	3.00	0.00	0.00	0.00	2.84	0.00	0.00
P108178	2009	SECOND LAND & REAL ESTATE REGISTRATION	0.00	5.85	0.00	0.00	0.00	5.38	0.05	0.00
P101392	2009	EMERGENCY ENERGY ASSISTANCE	0.00	11.00	0.00	0.00	0.00	10.81	0.00	0.00
P104994	2008	BISHKEK AND OSH URBAN INFRASTRUCTURE	0.00	12.00	0.00	0.00	0.00	10.88	0.97	0.00
P096993	2008	AISP	0.00	13.00	0.00	0.00	0.00	10.22	-0.25	0.00
P098949	2007	VIP 2	0.00	15.00	0.00	0.00	0.00	0.81	-2.58	-0.77
P087811	2007	RED TECH BARRIERS FOR ENTREPR & TRADE	0.00	5.00	0.00	0.00	0.00	4.68	3.15	0.00
P096409	2007	OIP-2	0.00	16.00	0.00	0.00	0.00	14.33	0.19	0.00
P099453	2006	AVIAN FLU (AICHPPCP)	0.00	4.00	0.00	0.00	0.00	2.13	0.94	0.00
P088671	2006	WATER MGMT IMPRVMT	0.00	19.00	0.00	0.00	0.00	17.46	3.71	0.00
P084977	2006	HEALTH & SOC PROT	0.00	21.00	0.00	0.00	0.00	13.29	0.92	0.00
P083377	2005	SMALL TOWNS INFRA & CAP BLDG	0.00	15.00	0.00	0.00	0.00	2.77	-0.28	0.00
P078976	2005	RURAL EDUC	0.00	15.00	0.00	0.00	0.00	4.80	3.78	1.84
P049724	2005	AGRIBUSINESS & MARKETING	0.00	8.10	0.00	0.00	0.00	3.87	1.07	0.00
P083235	2004	DISASTER HAZARD MITIGATION	0.00	6.90	0.00	0.00	0.00	4.74	3.57	0.00
P074881	2004	PYMNT/BANK SYST MOD	0.00	9.00	0.00	0.00	0.00	4.08	3.88	0.00
P071063	2003	GOV TA	0.00	7.78	0.00	0.00	0.00	6.77	5.78	0.72
P069814	2000	CONSLD TA	0.00	5.00	0.00	0.00	0.00	2.49	2.15	-0.31
Total:			0.00	191.63	0.00	0.00	0.00	122.35	27.05	1.48

STATEMENT OF IFC's Held and Disbursed Portfolio In Millions of US Dollars

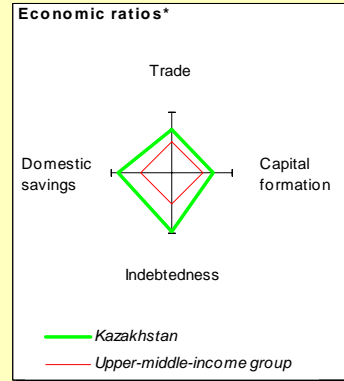
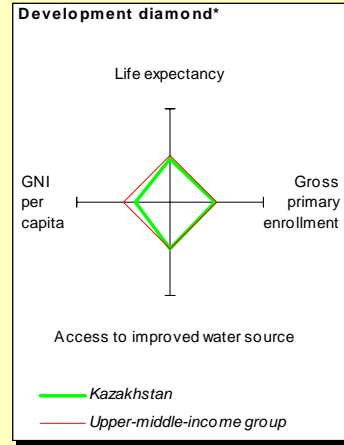
FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2004	AKB Kyrgyzstan	1.50	0.00	0.00	0.00	1.50	0.00	0.00	0.00
2006	Bai Tushum	1.20	0.00	0.00	0.00	1.20	0.00	0.00	0.00
1996	Demirbank Kyrgyz	0.00	0.45	0.00	0.00	0.00	0.45	0.00	0.00
2003	Demirbank Kyrgyz	0.00	0.11	0.00	0.00	0.00	0.11	0.00	0.00
2001	FINCA	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
2004	Ineximbank	1.50	0.00	0.00	0.00	1.50	0.00	0.00	0.00
	KKB Kyrgyzstan	2.00	0.00	0.00	0.00	1.60	0.00	0.00	0.00
2001	SEF Akun Ltd.	0.91	0.00	1.00	0.00	0.91	0.00	1.00	0.00
2005	SEF Altyn-Ajydar	1.00	0.00	0.40	0.00	0.30	0.00	0.40	0.00
2000	SEF KICB	0.00	1.40	0.00	0.00	0.00	1.40	0.00	0.00
2005	SEF KICB	2.50	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Total portfolio:		10.61	2.96	1.40	0.00	8.01	2.96	1.40	0.00

FY Approval	Company	Approvals Pending Commitment			
		Loan	Equity	Quasi	Partic.
2006	Bai Tushum	0.00	0.00	0.00	0.00
2006	GeoPark	0.02	0.00	0.00	0.00
Total pending commitment:		0.02	0.00	0.00	0.00

Annex 14: Country at a Glance

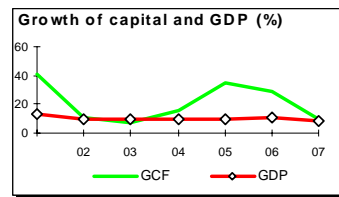
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT KAZAKHSTAN

POVERTY and SOCIAL	Europe & Upper-middle-income				
	Kazakhstan	Central Asia	Upper-middle-income		
2007					
Population, mid-year (<i>millions</i>)	15.5	445	823		
GNI per capita (<i>Atlas method, US\$</i>)	5,060	6,052	6,987		
GNI (<i>Atlas method, US\$ billions</i>)	78.3	2,694	5,750		
Average annual growth, 2001-07					
Population (%)	0.7	0.0	0.7		
Labor force (%)	13	0.5	13		
Most recent estimate (latest year available, 2001-07)					
Poverty (% of population below national poverty line)	15	..	..
Urban population (% of total population)	58	64	75		
Life expectancy at birth (<i>years</i>)	66	69	71		
Infant mortality (<i>per 1,000 live births</i>)	26	23	22		
Child malnutrition (% of children under 5)	..	..	..
Access to an improved water source (% of population)	96	95	95		
Literacy (% of population age 15+)	..	97	93		
Gross primary enrollment (% of school-age population)	105	97	111		
Male	105	98	112		
Female	105	96	109		
KEY ECONOMIC RATIOS and LONG-TERM TRENDS					
	1987	1997	2006	2007	
GDP (<i>US\$ billions</i>)	..	22.2	81.0	103.8	
Gross capital formation/GDP	..	15.6	32.8	31.0	
Exports of goods and services/GDP	..	34.9	51.1	47.6	
Gross domestic savings/GDP	..	13.1	43.5	40.3	
Gross national savings/GDP	..	12.0	30.5	28.4	
Current account balance/GDP	..	-3.6	-2.2	-3.0	
Interest payments/GDP	..	0.8	2.4	..	
Total debt/GDP	..	18.4	91.5	..	
Total debt service/exports	..	6.2	33.7	..	
Present value of debt/GDP	89.1	..	
Present value of debt/exports	167.4	..	
	1987-97	1997-07	2006	2007	2007-11
<i>(average annual growth)</i>					
GDP	-7.1	9.0	10.7	8.5	5.9
GDP per capita	-6.1	8.8	9.5	7.3	5.6
Exports of goods and services	-4.6	7.7	6.9	9.3	8.1



STRUCTURE of the ECONOMY

	1987	1997	2006	2007
<i>(% of GDP)</i>				
Agriculture	..	12.0	5.9	6.6
Industry	..	27.3	42.1	44.3
Manufacturing	..	14.0	12.4	..
Services	..	60.7	52.0	49.1
Household final consumption expenditure	..	74.5	46.3	48.5
General gov't final consumption expenditure	..	12.4	10.2	11.2
Imports of goods and services	..	37.4	40.4	38.3



	1987-97	1997-07	2006	2007
<i>(average annual growth)</i>				
Agriculture	-9.6	4.6	6.0	5.0
Industry	..	10.8	13.4	10.0
Manufacturing	..	8.4	7.9	7.0
Services	..	9.0	10.9	10.0
Household final consumption expenditure	-11.7	7.7	13.8	10.0
General gov't final consumption expenditure	-8.0	7.3	6.2	10.0
Gross capital formation	-26.7	17.4	28.8	10.0
Imports of goods and services	-17.2	6.1	12.1	9.6

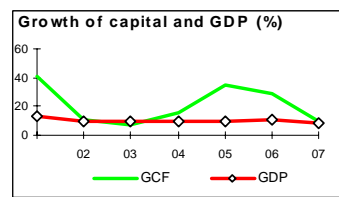


Note: 2007 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* 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.

	1987	1997	2006	2007
<i>(% of GDP)</i>				
Agriculture	..	12.0	5.9	6.6
Industry	..	27.3	42.1	44.3
Manufacturing	..	14.0	12.4	..
Services	..	60.7	52.0	49.1
Household final consumption expenditure	..	74.5	46.3	48.5
General gov't final consumption expenditure	..	12.4	10.2	11.2
Imports of goods and services	..	37.4	40.4	38.3



	1987-97	1997-07	2006	2007
<i>(average annual growth)</i>				
Agriculture	-9.6	4.6	6.0	5.0
Industry	..	10.8	13.4	10.0
Manufacturing	..	8.4	7.9	7.0
Services	..	9.0	10.9	10.0
Household final consumption expenditure	-11.7	7.7	13.8	10.0
General gov't final consumption expenditure	-8.0	7.3	6.2	10.0
Gross capital formation	-26.7	17.4	28.8	10.0
Imports of goods and services	-17.2	6.1	12.1	9.6



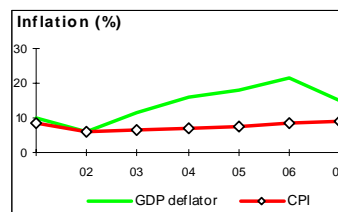
Note: 2007 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* 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.

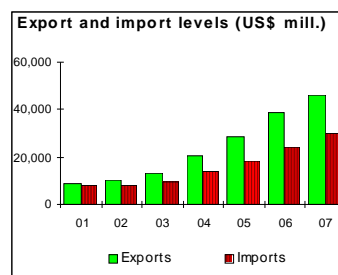
PRICES and GOVERNMENT FINANCE

	1987	1997	2006	2007
Domestic prices				
<i>(% change)</i>				
Consumer prices	..	17.4	8.6	8.8
Implicit GDP deflator	..	16.1	216	14.8
Government finance				
<i>(% of GDP, includes current grants)</i>				
Current revenue	..	20.7	27.1	27.0
Current budget balance	..	-3.8	12.9	10.8
Overall surplus/deficit	..	-7.1	7.6	4.7



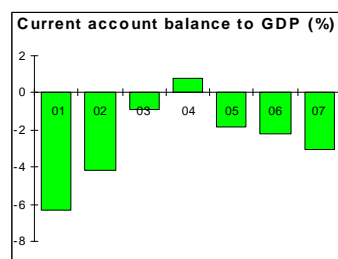
TRADE

	1987	1997	2006	2007
<i>(US\$ millions)</i>				
Total exports (fob)	..	6,899	38,762	46,329
Fuel and oil products	..	2,216	26,279	30,303
Ferrous metals	..	951	2,411	2,555
Manufactures	..	1,491	3,978	6,797
Total imports (cif)	..	7,176	24,120	30,289
Food	..	474	1,174	1,374
Fuel and energy	..	628	3,051	4,051
Capital goods	..	1,462	10,722	14,222
Export price index (2000=100)	..	85	283	309
Import price index (2000=100)	..	120	249	286
Terms of trade (2000=100)	..	71	113	108



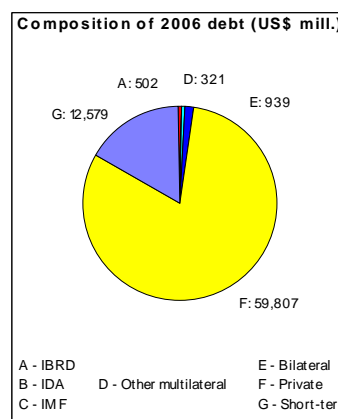
BALANCE of PAYMENTS

	1987	1997	2006	2007
<i>(US\$ millions)</i>				
Exports of goods and services	..	7,741	41,570	49,437
Imports of goods and services	..	8,300	32,840	39,731
Resource balance	..	-559	8,730	9,705
Net income	..	-315	-9,317	-11,321
Net current transfers	..	75	-1,207	-1,500
Current account balance	..	-799	-1,795	-3,117
Financing items (net)	..	1,279	12,869	3,117
Changes in net reserves	..	-480	-11,075	0
Memo:				
Reserves including gold (US\$ millions)	..	2,291	19,127	19,127
Conversion rate (DEC, local/US\$)	2.40E-3	75.4	126.1	122.6



EXTERNAL DEBT and RESOURCE FLOWS

	1987	1997	2006	2007
<i>(US\$ millions)</i>				
Total debt outstanding and disbursed	..	4,078	74,148	..
IBRD	..	648	502	427
IDA	..	0	0	0
Total debt service	..	483	14,532	..
IBRD	..	34	161	172
IDA	..	0	0	0
Composition of net resource flows				
Official grants	..	54	51	..
Official creditors	..	444	-23	..
Private creditors	..	777	25,768	..
Foreign direct investment (net inflows)	..	1,321	6,143	..
Portfolio equity (net inflows)	..	0	2,797	..
World Bank program				
Commitments	..	247	30	0
Disbursements	..	202	29	67
Principal repayments	..	0	130	143
Net flows	..	202	-101	-76
Interest payments	..	34	31	29
Net transfers	..	167	-132	-105

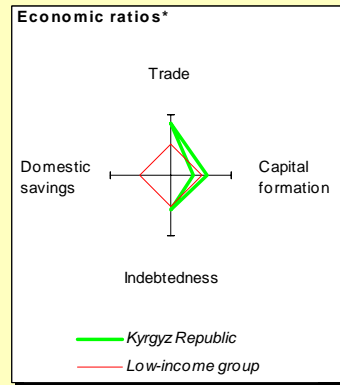
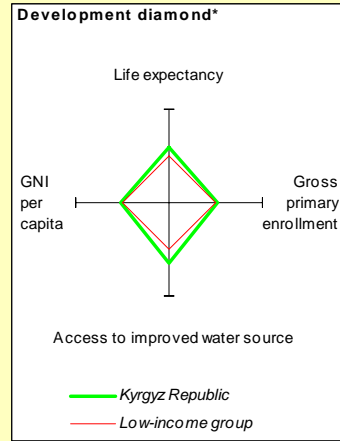


Note: This table was produced from the Development Economics LDB database.

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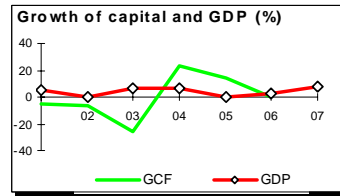
KYRGYZ REPUBLIC

POVERTY and SOCIAL	Europe & Central Asia			
	Kyrgyz Republic	Central Asia	Low-income	
2007				
Population, mid-year (millions)	5.2	445	1296	
GNI per capita (Atlas method, US\$)	590	6,052	578	
GNI (Atlas method, US\$ billions)	3.1	2,694	749	
Average annual growth, 2001-07				
Population (%)	0.9	0.0	2.2	
Labor force (%)	2.0	0.5	2.7	
Most recent estimate (latest year available, 2001-07)				
Poverty (% of population below national poverty line)	43	..	..
Urban population (% of total population)	36	64	32	
Life expectancy at birth (years)	68	69	57	
Infant mortality (per 1,000 live births)	36	23	85	
Child malnutrition (% of children under 5)	..	..	29
Access to an improved water source (% of population)	89	95	68	
Literacy (% of population age 15+)	..	97	61	
Gross primary enrollment (% of school-age population)	97	97	94	
Male	97	98	100	
Female	96	96	89	
KEY ECONOMIC RATIOS and LONG-TERM TRENDS				
	1987	1997	2006	2007
GDP (US\$ billions)	..	18	2.8	3.5
Gross capital formation/GDP	313	217	17.4	..
Exports of goods and services/GDP	..	38.3	39.3	..
Gross domestic savings/GDP	12.4	13.8	-19.8	..
Gross national savings/GDP	..	13.9	4.4	..
Current account balance/GDP	..	-7.8	-13.7	..
Interest payments/GDP	..	3.1	0.7	..
Total debt/GDP	..	75.9	84.5	..
Total debt service/exports	..	114	4.9	..
Present value of debt/GDP	44.6	..
Present value of debt/exports	64.0	..
	1987-97	1997-07	2006	2007
(average annual growth)				
GDP	-6.2	4.0	2.7	7.4
GDP per capita	-7.3	3.0	1.7	6.4
Exports of goods and services	-2.4	16	-0.3	..



STRUCTURE of the ECONOMY

	1987	1997	2006	2007
<i>(% of GDP)</i>				
Agriculture	..	44.6	33.0	..
Industry	..	22.8	20.1	..
Manufacturing	..	14.8	12.9	..
Services	..	32.6	46.9	..
Household final consumption expenditure	64.8	68.9	100.8	..
General gov't final consumption expenditure	22.8	17.3	13.9	..
Imports of goods and services	..	46.2	76.5	..
Growth of capital and GDP (%)				
	1987-97	1997-07	2006	2007
(average annual growth)				
Agriculture	-13	3.4	15	..
Industry	-13.3	0.7	-7.4	..
Manufacturing	-16.5	0.0	-12.8	..
Services	-3.7	6.2	8.4	..
Household final consumption expenditure	-112	7.5	22.1	..
General gov't final consumption expenditure	-14.6	16	0.4	..
Gross capital formation	-7.0	0.2	0.2	..
Imports of goods and services	-111	6.0	38.7	..



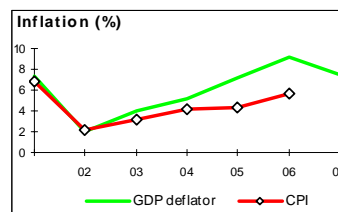
Note: 2007 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* 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.

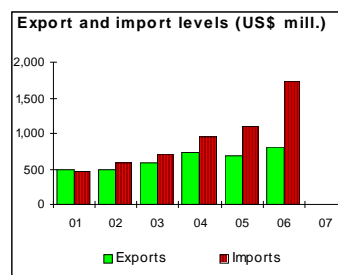
PRICES and GOVERNMENT FINANCE

	1987	1997	2006	2007
Domestic prices (% change)				
Consumer prices	..	23.4	5.6	..
Implicit GDP deflator	..	19.3	9.2	7.6
Government finance (% of GDP, includes current grants)				
Current revenue	..	20.0	26.1	..
Current budget balance	..	-5.7	0.5	..
Overall surplus/deficit	..	-9.0	-3.1	..



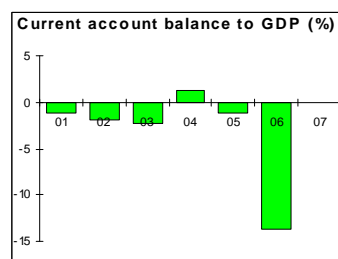
TRADE

	1987	1997	2006	2007
(US\$ millions)				
Total exports (fob)	..	631	811	..
Electricity	..	83	25	..
Gold	..	184	206	..
Manufactures	..	177	278	..
Total imports (cif)	..	725	1,723	..
Food	..	87	211	..
Fuel and energy	..	200	507	..
Capital goods	..	123	386	..
Export price index (2000=100)	..	112	144	..
Import price index (2000=100)	..	118	120	..
Terms of trade (2000=100)	..	95	120	..



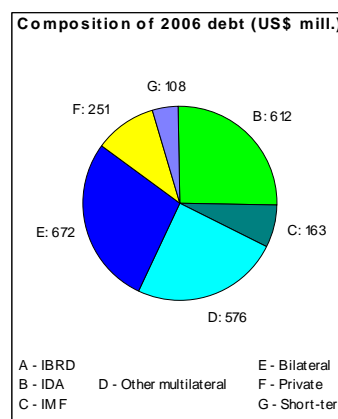
BALANCE of PAYMENTS

	1987	1997	2006	2007
(US\$ millions)				
Exports of goods and services	..	676	1,185	..
Imports of goods and services	..	817	2,253	..
Resource balance	..	-141	-1,068	..
Net income	..	-65	-34	..
Net current transfers	..	68	716	..
Current account balance	..	-138	-386	..
Financing items (net)	..	186	579	..
Changes in net reserves	..	-48	-193	..
Memo:				
Reserves including gold (US\$ millions)	..	196	817	..
Conversion rate (DEC, local/US\$)	..	17.4	40.2	37.3



EXTERNAL DEBT and RESOURCE FLOWS

	1987	1997	2006	2007
(US\$ millions)				
Total debt outstanding and disbursed	..	1,341	2,382	..
IBRD	..	0	0	0
IDA	..	251	612	651
Total debt service	..	78	97	..
IBRD	..	0	0	0
IDA	..	2	11	14
Composition of net resource flows				
Official grants	..	45	105	..
Official creditors	..	132	60	..
Private creditors	..	23	82	..
Foreign direct investment (net inflows)	..	84	182	..
Portfolio equity (net inflows)	..	0	0	..
World Bank program				
Commitments	..	60	0	0
Disbursements	..	67	26	22
Principal repayments	..	0	6	9
Net flows	..	67	19	13
Interest payments	..	2	5	5
Net transfers	..	65	15	8



Note: This table was produced from the Development Economics LDB database.

9/24/08

Annex 15: Incremental Cost Analysis

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

1. **Introduction and Methodology.** The GEF provides co-funding according to a specific set of criteria. Importantly, the GEF only funds the incremental cost of a project, broadly interpreted as the cost of additional measures necessary to provide global environmental benefits.
2. The methodology consists of defining (a) a “baseline” comprising national activities already being undertaken to achieve the aims of the project under development, and (b) an “alternative” scenario, which is a set of actions needed to achieve global environmental benefits. The alternative scenario is essentially the proposed project for which incremental costs will be funded by the GEF.
3. The alternative scenario can include “complementary” activities or “substitutional” activities. Complementary activities add to baseline activities without changing them (e.g., developing legal frameworks for protecting sensitive eco zones). Substitutional activities change the way of doing business to one that is friendly to the global environment, such as modifying production techniques, removing social or economic causes of land degradation, supporting planning for an economic sector such as agriculture, and yielding economic benefits for local people or national populations. In this project, activities will be complementary.
4. **Context and Broad Development Goals.** The Tien Shan is a mountain range covering most of the Kyrgyz Republic, the southern part of Kazakhstan, and smaller areas in Uzbekistan, China, and Tajikistan. This territory plays an exceptional role in conservation of biodiversity and maintenance of environmental sustainability of Central Asia: in 2004 Conservation International (CI) identified the Tien Shan range as a “biodiversity hotspot” based on the high number of endemic²⁴ species and level of threat. For example, the concentration of species in the Western Tien Shan is 63 times higher for birds and 37 times higher for mammals than in Central Asia.
5. Biodiversity is concentrated because this mountain range represents an oasis surrounded by vast arid and semi-desert plains and steppes, particularly toward the north. After traveling undisturbed for long distances over the steppes, winds are lifted by the Tien Shan mountain chain causing concentrated precipitation. In addition, the acutely continental climate, with extremely cold winters (extremes below -50C) and hot summers (extremes above 40C), makes this region unique. This high concentration of natural ecosystems, from glaciers to deserts, in a relatively small part of Central Asia, requires special attention to biodiversity conservation.
6. Rich biological resources and ecosystems in the Tian Shan part of Central Asia have been threatened, particularly during the transition years, by deteriorating economic and socio-economic conditions. Simultaneously, institutional effectiveness and environmental monitoring have declined, as have public expenditures for conservation activities, especially in The Kyrgyz Republic. Only recently have economic developments in The Kyrgyz Republic and Kazakhstan allowed more attention to natural resources.
7. **Baseline scenario.** The importance of the Tien Shan for biodiversity conservation is recognized at the national level. Protected Areas (PAs) in the Tien Shan range comprise 10.6 percent of land area, higher than the average of the two countries (7.3 percent). Table 1 on page 1 summarizes the importance of PAs in the region.

²⁴ This report refers to a species being endemic when naturally present in a particular geographic region. (Sometimes “endemic” is used to refer to species that *originated* in a particular geographic region.)

8. Government support in both countries is directed to two main activities: protection (security) of the PAs and limited scientific monitoring of the flora and fauna. Therefore, government budgets are mainly allocated for recurrent costs, in particular for staff salaries and operational expenditures.

9. **Global Environmental Objective.** The Global Environmental Objective is to improve biodiversity protection in 12 protected areas, natural parks, and hunting reserves.

10. **GEF Alternative and Benefits.** The GEF Alternative consists of complementary measures that would be implemented in addition to governments' efforts. Availability of a significant GEF contribution will help leverage the financing by encouraging other donors to make substantial contribution to project financing. It is unlikely that these donor contributions will materialize in absence of the GEF Grant to support the project. Under the GEF Alternative scenario, governments will be able to improve the management and conservation of biodiversity in the selected PAs. Specific activities would include:

- a. Provide technical assistance and goods to manage different categories of protected areas in the region (such as natural reserves, parks, game reserves), to strengthen their technical capacity and increase their effectiveness in protecting biodiversity,
- b. Provide small grants for local groups and organizations directly linked to threats or opportunities for biodiversity protection; and
- c. Promote sustainable tourism through support to the development and implementation of public awareness and information campaigns to increase support for biodiversity conservation, generate interest in the region's natural and cultural heritage, and increase awareness of obligations associated with international conservation treaties.

11. **GEF Alternative Cost.** The difference between the costs of the Baseline scenario (US\$15.58 million) and the GEF Alternative (US\$18.93million) is estimated at US\$3.35 million, representing the incremental cost to achieve global environmental benefits, and this amount is requested from the GEF.

Table 24 – Summary of the Incremental Cost Analysis

Component and Sub Component	Cost Category	Costs	Domestic Benefits	Global Benefits
Protected Area Management (Sub-component A1)	Baseline	KYR: US\$0.58 mil KAZ: US\$15 mil	Limited government actions to conserve biodiversity	Short-term measures to protect biological diversity of global importance
	With GEF	KYR: US\$1.346 mil KAZ: US\$16.515 mln	Effective actions to conserve biodiversity in a sustainable way	Improved conservation of areas of biodiversity of global importance
	Increment	KYR: US\$0.766 mil KAZ: US\$1.515 mil	PA improved management	Enhanced biodiversity conservation of areas of global importance
Conservation in the Broader Landscape (Sub-component A2)	Baseline	KYR: US\$0 KAZ: US\$0	Some private and non-governmental initiatives to reduce threats for biodiversity protection	Some short-term measures for biodiversity protection
	With GEF	KAZ: ...USUS\$0.197 mln	Increased incomes for local communities and for protected areas	Improved opportunities to conserve biodiversity; reduced threats to biodiversity; Integrating conservation into the broader landscape

	Increment	KAZ: US\$0.197 mln	Increased incomes for local communities and for protected areas	Enhanced biodiversity conservation
Sustainable Tourism Promotion (Sub-component A3)	Baseline	KYR: US\$0 KAZ: US\$0	Private initiatives and sporadic government actions to promote ecotourism	Some short-term measures for biodiversity protection
	With GEF	KYR: US\$0.235 mln KAZ: US\$0.307 mln	Increased incomes for local communities and for protected areas	Increased awareness of local communities and institutions and increased commitments of these communities to protect biodiversity as a source of livelihood
	Increment	KYR: US\$0.235 mln KAZ: US\$0.307 mln	Increased incomes for local communities and for protected areas	Enhanced biodiversity conservation
Component C Project Management and Monitoring	Baseline	KAZ: US\$0	Limited monitoring of biodiversity conservation	
	With GEF	KAZ: US\$0.330 mln	Additional management effort associated with additional project activities	Increased capacity for monitoring indicators and trends. Increased exchange of international experience
	Increment	KAZ: US\$0.330 mln	Successful project implementation and evaluation	Improved monitoring capacity of areas of global importance; Enhanced international knowledge
TOTAL	Baseline	KYR: US\$0.58 mln KAZ: US\$15.00 mln	Some actions taken mainly in two areas: protection (security) of the PAs and limited scientific monitoring of the flora and fauna	Sporadic impact on the biodiversity
	With GEF	KYR: US\$1.58 mln KAZ: US\$17.35 mln	Biodiversity conservation as a sustainable income of local communities; Improved PA management	Enhanced biodiversity conservation
	Increment	KYR: US\$1 mln KAZ: US\$2.35 mln	Biodiversity conservation as a sustainable income of local communities; Improved PA management	Enhanced biodiversity conservation

Annex 16: Legal Framework

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

1. Reforestation and afforestation activities will be carried out through Lezkhozes (LHs, partly through public-private partnership) on State Forest Fund land and through communities and Aiyl Okmotus on land redistribution funds in State Land Reserves. The legal framework is regulated by the following laws:

- Law on Administration of Agricultural Land (2000),
- Law on Land Reform (1991),
- Land Code (1999),
- Law on Administration of Agricultural Land (2000),
- Forest Code (1999)

Government Resolutions:

- No. 377 of July 27, 2001 on Collaborative Forest Management
- No. 482 of October 19, 2007 on the procedures of forest plots leasing and use
- No. 19 of January 22, 2008 On Procedure for Transfer (Transformation) of Land Plots from One Category to Another or from One Type of Lands to Another, and
- No. 403 of July 28, 2008 on results of state registration of land in Kyrgyz Republic as of January 1, 2008.
- No. 256, April 14, 2005 on the Concept of Forestry Development in the Kyrgyz Republic
- No. 693 of September 27, 2006 on the national action plan for development of forestry of the Kyrgyz Republic in the period from 2006 to 2010.

2. The above laws and regulations allow the use of arable but unproductive land from the Land Redistribution Fund (LRF) or private land for reforestation activities. In this case, the categorization of land will not change and therefore conversion of land is not required. A need to transfer agricultural land from one type to another is justified by natural factors such as salinity level, soil pollution, alkalinity level, and other criteria such as minimum productivity. An application from the land plot owner or user is the basis for transferring agricultural land from one type to another. Next, a package of documents containing justification, a map of the land to be transferred, and a statement from Gyprozem of Gosregister must be submitted for approval to the Ministry of Agriculture, Water Resource and Processing Industry (MAWRPI) at the local level. The local-level state administration makes a decision and instructs the local Gosregister to change the certifying documents for the land plot and land records. Land from the LRF can be offered for lease, and based on the results of bids, the land is leased, and the State Design Institute (Gyprozem) of Gosregister will record the transaction.

3. Land tenure is clear where project activities are implemented directly by Lezkhozes (LHs) on State Forest Fund land as LHs are responsible for the management, including reforestation and afforestation, of these lands. According to the Decree of the Government № 315 from July, 3, 1960, Kyrgyz Republic forests are the property of the state and form a unified State Forest Fund. In the process of reforestation, the land officially becomes forest land when it meets threshold criteria for Kyrgyz forest.

4. For activities implemented by public-private partnerships between LHs and micro project participants and activities implemented on Aiyl Okmotu lands, the legal framework is based on Government Regulation No. 482; October 19, 2007, on the procedures for forest plot leasing and use and on Decree No. 377; July 27, 2001, approval of regulations on collaborative forest management (CFM).

5. When LHs enter into a public-private partnership, the relationship will be regulated by the CFM regulation No.482 on forest plots leasing and use. The project will continue to contribute legal services to

draft procedures for the transfer of productive forestry functions (and possibly other functions, for example, forest protection) to the private sector according to the National Forest Programme for 2005-2015 in the framework of the existing regulations. In the meantime, the project builds important pilot experience for these procedures. The project will compensate for the lack of detailed procedures within existing legislation by using detailed contractual agreements and relevant provisions. In compliance with the regulation, State Forest Land is leased for five years; under conditions of bona fide and accurate use stipulated in an agreement, it can be extended for up to 50 years.

6. Under the CFM regulation, disputes and conflicts will be resolved through monitoring and independent expertise supplied by a CFM Board, consisting of Aiyl Okmotu representatives, deputies of Aiyl Kenesh, and community representatives and LHs, and the Oblast CFM specialist of the forest territorial department in Jalalabad. CFM regulations require this independent and elected CFM Board to be established to act as an arbitrator of disputes. The regulation provides for the CFM plot to be withdrawn in exceptional cases, such as: (a) if a CFM plot is used contrary to its purpose; (b) if state and public needs dominate, in accordance with the Land Code; (c) if a CFM plot is not used in accordance with its purpose within the term provided in Land Code. Such withdrawal can be issued only by the decision of a court of justice.

7. **Legal Security.** A disincentive for small-scale farmers to invest in tree-planting activities on government-owned land is the long-term legal security risk. While governmental regulation on collaborative forest management provides the legal basis for local communities to receive benefits from such activities, experience shows that thorough implementation has been lacking. Therefore, the project will develop clear and detailed contractual agreements with full implementation of existing regulations, including establishing relevant institutions as a condition for funding, according to the operational manual. In order to enhance legal security during the project lifetime, the project will: (a) provide legal assistance to micro-project participants, and (b) invest in establishing relevant institutions (e.g., commissions) and user associations at the local level, through awareness and capacity building.

8. The CFM provision for withdrawal upon non-compliance or other reasons poses a risk to individuals with little capacity to protect their legal rights. Considering the potentially high benefits from tree-planting activities, legal conflicts could also emerge among micro project groups, communities, Aiyl Okmotus, or LHs. Therefore, similar to collaborative forest management, legal security requires democratic village or other civil institutions to uphold the legal interests of individuals and micro project participants. In addition, contractual arrangements must be comprehensive and clearly define the parties' responsibilities and benefits to avoid misunderstandings or conflicts. For all project activities, legal documents, including scanned copies of contracts and maps, will be established in a long-term electronic information management system (IMS) overseen by the PIU, based on the current ARIS information management system. Moreover, the contracts are registered with the State Design Institute (Gyprozem) of Gosregister, so all disputes must be resolved before the land can be leased to third parties.

9. For project activities implemented on Aiyl Okmotu lands, the provision on land withdrawal is complemented by ARIS procedures. Responsibilities and criteria for sustainability of activities are clearly defined in the two-stage contracts between micro project participant, ARIS, Aiyl Okmotu and the Local Investment Union Executive Committee (LIC) and provide the basis for arbitration. The LIC is the most important institution to defend the legal rights of micro project participants, and in the unlikely case that LIC is not be present in the long term, the village council (Aiyl Kenesh) can fulfill this role.

Annex 17: Collaborative Natural Resource Management

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

Background to Collaborative Natural Resource Management (CNRM)

1. Collaborative or Participatory Natural Resource Management involves the management of natural resources under a detailed plan, developed and agreed upon by local stakeholders. Under such arrangements, resource users and resource-dependent communities often share the legal responsibilities and the economic benefits in the sustainable exploitation of natural resources. This approach of sharing responsibility for resource management with local resource users strikes a balance between a free-for-all exploitation of natural resources, and the inefficiencies and injustices that typify top-down technocratic management systems. Also, localizing responsibility for, and the benefits from, resource use ensures a more sustainable supply of ecosystem goods and services, and benefits such as community empowerment, poverty alleviation, and more equitable and efficient forms of resource governance (Zulu 2008).

2. 93. However, challenges associated with this approach include the risk of elite capture by more powerful and wealthier resource users, limited law enforcement agency support, no legal authority for the community to enforce its rules against outsiders, and internal community tensions (Tucker 2004).

3. To overcome these challenges some principles must be observed: (a) a system of transparency and accountability to the wider community, including the disadvantaged and more vulnerable; (b) a locally controlled system to track and monitor the condition and use of the natural resource; (c) legal mechanisms to prevent outsiders from accessing the resource at a low cost; (d) clear resource boundaries; (e) clearly defined, small, and relatively homogenous groups of resource users; (f) equitable cost and benefit allocation mechanisms; (g) ability to apply a system of escalating sanctions against those who violate the rules; and (h) conflict-resolution mechanisms. (Zulu 2008, Basurto 2005, Armitage 2005, Tucker 2005).

Experiences relevant to CNRM in the Kyrgyz Republic.

4. Long-term leases held by households or small household groups have been the most common mechanism for collaborating with local people in forest management on State Forest Fund lands, administered by LHs. Yet, the conditions and arrangements of such leases vary, and there are no clear mechanisms for participatory decisionmaking or coordinated forest management among LHs, the local population, Aiyl Okmotus, and other stakeholders. Only recently has forest policy moved towards privatization and joint management arrangements, most notably the regulations for Collaborative Forest Management (decrees No. 377 and 482) developed with the support of the Kyrgyz-Swiss KIRFOR project. Apart from State Forest Fund lands, significant potential exists for scaling up tree-planting activities on currently unproductive and barren lands of local self-governments (Aiyl Okmotus).

5. ***Kyrgyz-Swiss KIRFOR Project: Collaborative Forest Management in Walnut Forests.*** Since 1998 there has been experience with Collaborative Management of Walnut Forests, initially initiated as a pilot in several LHs by the Kyrgyz-Swiss cooperation project. The main features of the CFM scheme are: (a) the tenant has user rights for all products harvested on the plot and in exchange the tenant provides LHs with labour; (b) after forest plots are leased for five probationary years, the lease can be extended for additional 49 years; and (c) CFM Board and Commission were established to institutionalize partnerships among stakeholders for plot arbitration and allocation.

6. The reasonably successful experience in pilot projects was soon extended within the walnut forest and as a broader national CFM program adopted in 2001. At the same time, several problems emerged because essential principles and requirements of the scheme were not closely followed. Some were impracticable, unclear, or beyond the interest of the stakeholders: (a) allocations were biased towards

more influential tenants, although CFM regulations advocate equitable distribution of opportunities and benefits; (b) decisionmaking was dominated by the most influential and by LHs officials. (c) comprehensive concepts for sustainable forest management as originally envisaged by the project, including the regulation of grazing, participatory decisionmaking or poverty alleviation, were not implemented; (d) a Soviet-era legacy prevailed of stakeholder reluctance to engage in collaborative management, group, or participatory organization; and (e) CFM plot availability was limited based on the labor needs of LHs, with most annual work plans fulfilled through the scheme.

7. Subsequently, the CFM regulation was amended and modified to address these problems, resulting in decrees No 482 and 377. The promotion of improved collaboration and coordination among stakeholders, including the Aiyl Okmotus, has shown significant improvements in equity and transparency. In addition, plot size is now limited to a maximum area that is based on forest type. Decree No. 377 was revised to stipulate that payment for using a forest plot within the CFM activities should still be the fulfilment of forest management activities, under contract, and that the volume activities must be proportional to the income derived from using the forest plot. In the absence of forestry management activities, and with the consent of LHs, works can be replaced by stable cash payments.

8. Most of the existing CFM experience is specific to the seasonally high-productive walnut forests with people living in relatively high population density within or adjacent to State Forest Fund lands. While in theory, the latest CFM regulations cover all principles required for a functioning, equitable and sustainable CRNM scheme, the walnut forest experience is not completely applicable to the Tien Shan project, which focuses on collaborative forestation on Aiyl Okmotu lands. Unlike walnut harvesting, productive forestation activities require high initial investment, delayed but potentially high return, and the need at an early stage to diversify types of tree-planting, and benefits in particular. Also, the project provides significantly more capital input, including carbon incentives in the early years, which may encourage a more thorough implementation of CFM regulations. Given the significant project opportunities and benefits to be generated, comprehensive, transparent and practicable participatory procedures are essential.

9. ***Community Development and Investment Agency (ARIS) / Village Investment Project (VIP).*** The experience of community involvement in local decisionmaking under VIP through ARIS has been very positive. This project provides grant resources to villages to construct and improve social infrastructure, and supports income-generating activities designed to alleviate poverty. By encouraging local community inclusion in decisionmaking and implementation, the project increased the efficiency of public fund management and confidence in local governance. Local communities are responsible for implementing micro-projects, financial management, and procurement of project inputs. So far, over 3,000 social infrastructure investments and income-generating micro-projects have been completed. Contributing to the success of the project was that it built on the pre-existing Aiyl Okmotu local self-government structures. Building on the processes and institutions established by ARIS, the World Bank Agricultural Investment and Services Project (AISP) will introduce community-based pasture management to strengthen pasture users' involvement in allocating, using, monitoring and decisionmaking to improve oversight, equitable distribution, and sustainability of this crucial over-exploited asset.

10. **CNRM in the Tien Shan Project.** Because relevant institutions and capacity for effective participatory involvement are lacking, and reluctance to engage in group activities beyond family ties or kinship is widespread, a micro project-based implementation approach adapted from successful ARIS practice was selected as the most appropriate mechanism for reforestation activities of the Tien Shan project. The design of CNRM approaches to be used in the Tien Shan project is based on regulations for collaborative forest management (No. 377 and 482), pasture renting, the successful Village Investment Program managed by ARIS, consultations with stakeholders, and assessments of existing efforts relevant

to CNRM in the Kyrgyz Republic. Detailed procedures will be refined using results from pilot activities initiated in two Aiyl Okmotus and two LHs, financed by the PHRD grant. Furthermore, the project's social implications are being examined at the village level by the Social and Environmental Assessment. The CNRM approaches are most relevant to plantings of productive plantations and fruit trees implemented as micro-projects by individuals or groups on 7,650 ha of Aiyl Okmotu and private lands with local communities and managed by ARIS.

11. **Aiyl Okmotu/ARIS.** For activities on Aiyl Okmotu land, CNRM approaches are based on the processes and institutions established by the VIP and managed by ARIS. Village-level institutions responsible for coordinating micro-projects include: Local Investment Unions (LIUs) and their Executive Committees (LICs); Village Investment Unions (VIUs) and their Executive Committees (VICs); and Aiyl Kenesh and Aiyl Okmotu administration, complemented by ARIS administrations at Oblast level. The ARIS social mobilization approach (see separate note on poverty targeting) represents the core of CNRM, whose objective is to reduce local elite capture and allow all local citizens, without discrimination of gender, age, religion, ethnic group, to fairly participate in the process. This is directly coordinated by Community Development Support Officers (CDSOs), each overseeing three to five Aiyl Okmotus.

12. While this concept was developed for village-level social investments and business projects, it is appropriate for the Tien Shan project because it includes all elements commonly applied for CNRM. Additional tools are introduced to further adapt the concept to CNRM, including: (a) participatory diagnosis using tools such as concept models and resource mapping; (b) establishing clearly defined, small, and relatively homogenous groups of resource users; and (c) establishing conflict resolution and sanctions mechanisms.

13. ***Training of Trainers for CNRM in the Tien Shan Project.*** To enhance capacity among ARIS, AO, NGOs, and Community Leaders to mainstream participatory principles in the Tien Shan project, a specially designed training-of-trainers program will be provided. Training participants will include heads of villages, VIC, LIC, and CDSOs, nominated by four different Aiyl Okmotus. Lessons learned will be taken back to the community and passed on to village-level resource users through social mobilization. The following are the key elements of the proposed six-day training program:

- **Natural Resource Diagnosis** (see Box 2). Training participants will be introduced to essential diagnostic tools for establishing clear natural resource boundaries, identifying small homogenous groups of resource users, and providing the basis for tracking and monitoring the condition and use of resources. (2 days)
- **Biodiversity Protection.** This component will include lessons on species and habitat identification, and livestock protection. (1 day)
- **Micro-project selection.** This module will introduce the main criteria for assessing applicants' micro project proposals: location, technical and management capacity, employment potential, financing plan, no other activities generating carbon productions, number of beneficiaries, group proposals, biodiversity restoration preservation, species type, pest susceptibility, drought susceptibility, inclusion of diagnostic exercises. (1.5 days)
- **Natural Resource Monitoring and Transparency.** This component will provide information on establishing locally controlled systems for monitoring and tracking the use of natural resources by local stakeholders, including systems of local accountability and transparency. (1 day)
- **The Legislative Environment and Vertical Coordination.** This component will inform stakeholders about legal mechanisms for excluding outsiders from resource use, the degree to which local stakeholders can organize and manage the resource, and mechanisms for coordination with external government authorities. (0.5 days)

Box 2- Natural Resource Diagnosis

Conceptual Model. A diagram of a set of relationships among factors believed to impact or lead to a final target condition. Conceptual models show relationships among factors, highlight more relevant factors, and indicate major threats affecting the target condition (soil quality, water quality and availability). Conceptual models are useful to demonstrate causes and effects between stakeholder problems and reasons for environmental problems, while raising public awareness of environmental issues. Models are developed collectively by stakeholders.

Resource mapping. This is a tool for collating and plotting information on the occurrence, distribution, access, and use of resources, and threats to resources, within the specific economic and cultural domain of stakeholders. Variations that can be introduced include disaggregating by gender, or adding a stage to generate topographic map-related information, a two-stage resource mapping process.

Preference or pair-wise ranking. This tool is used to determine priorities and preferences of individuals and groups among a set of items. It allows participants to compare priorities among different groups, for example, men and women, young and old, rich and poor, and so forth.

Community Environmental Assessment. This tool is used to analyze the environmental effects of planned and/or completed activities; it provides a framework in which participants can observe and evaluate changes. Value is determined by assigning a numeric value to each environmental factor to establish an environmental score and demonstrate the relative values among factors. Values can also indicate which factors should be monitored closely.

14. Ten sessions are anticipated in the first project year to provide opportunities for nominees from all project-affected Aiyl Okmotus to benefit from the training provided.

Targets for training of trainers

Participants per Training Session	Participant per AO's	Number of AO's covered by each session	Total Number of Sessions	Total number of beneficiaries
20	5	4	10	200

Annex 18: Maps
TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT