PROJECT CONCEPT NOTE

REPUBLIC OF KAZAKHSTAN AND KYRGYZ REPUBLIC

TIEN SHAN ECOSYSTEM DEVELOPMENT PROJECT

OCTOBER 13, 2007

CONTENTS

1. Key Development Issues and Rationale for Bank Involvement

1 The Tien Shan is a mountain range shared among the Kyrgyz Republic, Kazakhstan, and to a smaller extent 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" for the high number of endemic[1] species and level of threat. For instance the concentration of different species in West Tien Shan is much higher than in Central Asia: 63 times for birds and 37 times for mammals.

2 The reason for such concentration of biodiversity is that this mountain range represents an oasis surrounded by vast arid and semi-desert planes and steppes, particularly toward the north. After traveling undisturbed for long distances over the planes, winds are lifted by the mountains causing a temperature reduction which produces condensation and therefore a concentration of precipitations. In addition, the acutely continental climate, with extremely cold winter (extremes below -50C) and hot summers (extremes above 40C), makes this region almost unique. This high concentration of different natural ecosystems, from glaciers to deserts, in a relatively small part of Central Asia requires special attention to biodiversity conservation.

3 The importance of the Tien Shan for biodiversity conservation is recognized at national level. The percentage of Protected Area (PA) in the Tien Shan range (10.6%) is higher than in the average of the two countries (7.5%). Table 1 below summarizes the importance of PAs in the region.

Table 1 – Areas under Protection

		Protected Areas (reserves and parks)		
	Country area (km2)	**Number**	**Area** (km2)	**% of country**
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%**
Proposed Project Area (Tien Shan)	239,290	21	25,687	10,6%

4 The Tien Shan is also extremely important in terms of agro-biodiversity. According to some paleobotanic theories, several important fruit trees originated in this region: walnuts and apples are the two main examples (indeed the name Almaty or Alma-Ata, the commercial capital of Kazakhstan, means "*father of apples*"). Among others, some tulips seem to have originated from this mountain range, and indeed some species are endemic (because of this, the Kyrgyz unrest during the 2005 spring was called "tulip revolution").

5 Forest ecosystems play an extremely important role in biodiversity protection by providing habitat for species, reduction of water and wind erosion, and carbon sequestration.

6 The Kyrgyz Republic has around 1 million ha of forests. Before the Second World War, it had around twice this amount of forested area. The main reasons for the reduction have been

[1] A species is endemic when naturally present only in a particular geographic region. There is some confusion and "endemic" is at times referred to species which originated in a particular geographic region. This report will use the first definition.

unsustainable logging, overgrazing, and fuelwood collection, and fires. Forest resources are very important for the Kyrgyz economy and sustainability of mountain ecosystem. According to FAO statistics, the value of forest products import is around US$20 million per year, and according to some local experts this may be underestimation. This amount is larger than value of coal imports. Therefore reforestation and the improvement of forest management are important socio-economic and environmental objectives for the Government of Kyrgyz Republic.

7 State efforts to develop forests are however insufficient. During the period of 1998-2003, the State Forest Program reforested an area of around 16,400 ha, but with extremely low survival rate, which hardly exceed 10% on average. This is less than 2% pf the potential reforestation area which exceeds 1 million ha. Availability of sufficient financial resources is a major obstacle to reforestation. To implement the State Forest Program, the Kyrgyz government covers only personnel administrative costs whereas investment costs for plantation establishment are not covered. As a consequence, survival rate is only 10%. The low budget allocation of US$ 25 – 45 /ha is a planning exercise rather than a feasible intervention. In addition, no resources are allocated for reforestation at village level (Aiyl Okmotu), where potentials for reforestation are high.

Rationale for Bank Involvement

8 The rationale for Bank involvement is based on the following two aspects: (a) the proposal will build on the experience of the recently closed Central Asia Transboundary Biodiversity Project (see Implementation Completion and Result Report at http://imagebank.worldbank.org/servlet/WDSContentServer/IW3P/IB/2007/03/16/000020953_20070316085710/Rendered/PDF/ICR0000357.pdf), and (b) the World Bank has the capacity to develop a carbon payment scheme through the BioCarbon Fund, and thus help address the main shortcoming of the recently closed project, particularly in terms of financial sustainability.

Table 2 - Table 1 - Comparison between the recently closed and the proposed project

Recently closed Central Asia Transboundary Biodiversity Project (CATBP)	Proposed Tien Shan Ecosystem Development Project
Focus concentrated on biodiversity conservation in protected areas	Stronger emphasis on activities productive landscapes outside of protected areas such as improved forest management, hunting management, and eco-tourism development
Relatively small area concentrated on 5 strictly protected areas (one created by the project) in the Western Tien Shan (3,449 Km^2)	Almost 8 times larger area covering 25,687 Km^2 of 21 PAs including strict nature reserves and parks in all the Tien Shan range under the two participating countries
Funding of PA administration is mostly public	Financial sustainability of the forestry departments, including PAs, is a priority of the carbon trading scheme
No carbon trading scheme	Development of a carbon trading scheme based on reforestation in the Kyrgyz Republic to increase financial sustainability of the forest department and mitigate Climate Change

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

- One of the four pillars of the recently approved Joint Country Support Strategy[2] (JCSS) for the Kyrgyz Republic is ensuring environmental sustainability and natural resource management;
- The forth pillar of Kazakhstan Country Partnership Strategy is ensuring sustainable growth through a focus on the environment, with particular emphasis on regional environmental issues;
- The ECA Regional Environmental Strategy which supports investments for forestry and biodiversity conservation

10 Water resource management is the top environmental priority of Central Asia. Indeed much larger investments than those proposed under this project are under implementation and design for irrigation, drainage and water supply in Central Asia. However concern about climate change has been recently increasing, and the no-action does present some risk (see below).

11 **Climate Change.** Public concern toward climate change has increased significantly during the last few month, particularly since the publication of various reports by the Intergovernmental Panel on Climate Change (IPCC, see www.ipcc.ch). The IPCC was established in the late 80s and has produced four reports to date which pull together scientific knowledge and draw out the implications of global warming. In the first three IPCC reports, there was still debate over the nature/probability of climate change trends and the extent to which they were caused by 'natural' events or anthropogenic (human) activity. In the fourth report, which has been coming out in stages since early 2007, there is a much greater consensus within the scientific community about the trends, and the (major) extent played by anthropogenic drivers. The Fourth report is also placing a far greater emphasis on adaptation -- earlier reports focused more on mitigation, but the Fourth report argues that whatever the world does on the mitigation front, climate change is happening, the consequences are extremely serious and coming much more quickly than most governments anticipated, and therefore the world needs to pay much greater attention to working on adaptation strategies. The Fourth Report has been coming out in stages, largely because of the intense debates surrounding the climate change implications/trends and adaptation needs for different regions. The First Working Group deals with the status of scientific knowledge/the main models. The Second Working Group deals with adaptation, globally and by region, though regional sections are still undergoing final sign off. The Third Working Group is dealing mainly with mitigation issues.

12 The recent crescendo of concern about climate change is also consequence of the presentation in December 2006 of the Stern report to the UK Government on the Economics of Climate Change (http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm), and then the presentation in late January 2007 of the draft report to policy makers by the IPCC. Al Gore's An Inconvenient Truth has also helped to popularize some of the issues.

13 The **BioCarbon Fund** targets projects that sequester or conserve greenhouse gases in forests and agroecosystems to mitigate climate change. The objective of the Fund is to foster the role of Land Use, Land-Use Change and Forestry (LULUCF) in the carbon market and Clean Development Mechanism (CDM) and therefore extend benefits of the carbon market to the rural,

[2] The JCSS is 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

poorest areas, and to the local environment. These projects also represent an opportunity for the BioCarbon Fund to develop clear and robust methodologies for carbon sequestration calculations and to address outstanding issues regarding permanence of the project providing the carbon emission reductions and the crediting of biological carbon. It focuses on learning-by-doing, to build up substantial experience as the rules regarding eligibility of land-use activities are further developed. The BioCarbon Fund at the World Bank has been pivotal in developing the forest carbon market.

14 **Adaptation to Climate Change in Central Asia.** Central Asian countries are expected to be disproportionately impacted by climate change, with impacts cutting across major sectors of the region's economies, including water, energy, agriculture, forestry, and health, among other sectors. According to the Fourth Assessment Report of the IPCC (2007), warming will be greatest in the continental interior of Asia and the projected decrease in mean precipitation in Central Asia will be accompanied by an increase in the frequency of very dry spring, summer and autumn seasons. Climate change-related melting of glaciers could seriously affect half a billion people in the Himalaya-Hindu-Kush region who depend on glacial melt for their water supplies (Stern, 2007). Doing nothing can be a much costlier strategy than implementing a mix of mitigation and adaptation measures, compatible with growth objectives.

15 **Regional approach.** The project will be implemented in two countries: Kazakhstan and the Kyrgyz Republic. However it does have a potential for replication in other countries of the region. For instance, on the basis of the current proposal, Uzbekistan developed a similar Project Idea Note. If some form of follow-up to the Kyoto protocol will be agreed upon, there is potential for replication and scaling-up also the proposed approach in other countries of the region.

2. Proposed Project Development Objective(s)

16 The project has global and local objectives. Main global objectives are:

(i) Improve biodiversity conservation by strengthening the protected area network and increase forest habitat to sustain biodiversity

(ii) Reduce pressure on natural resources by increasing the environmental benefits generated by improved forest management and eco-tourism

(iii) Mitigation of climate change through reforestation to sequester greenhouse gases (CO2) in the Kyrgyz Republic

(iv) Increased sustainability of the Tien Shan Mountain Ecosystem of Kazakhstan and the Kyrgyz Republic

17 Main local objectives are:

(v) Contribution to increase income and reduce pressure on natural resources by developing sustainable tourism

(vi) Demonstrate viable and credible approaches for carbon payment from forestry in the Kyrgyz Republic to serve as a model for the region

(vii) Improve the local economy of the project's rural areas by increasing access to forest products such as fruits, nuts, fuel and construction wood, and carbon revenue

(viii) Promote ecosystem-based forest restoration for erosion control in local livelihoods and on adjacent agricultural lands. Plant 18,000 ha of new forests to create wind breaks and retention of snow charges for neighboring agricultural lands, reducing water and wind erosion, and reducing water logging caused by deteriorated drainage systems

(ix) Increase financial sustainability of the State Agency for Forestry and Aiyl Okmotu of the Kyrgyz Republic thanks to revenue generated by carbon trading

3. Preliminary Project Description

18 The project covers the whole Tien Shan region of the Kyrgyz Republic and Kazakhstan. This covers most of the Kyrgyz Republic and the southern part of Kazakhstan, along the border with the Kyrgyz Republic. The project comprises the following three components:

19 ***(a) Strengthening Biodiversity Conservation in Protected Areas and Productive Landscapes (approx. cost US$6.4 million).*** The component will have mostly global objectives of biodiversity protection. It will contribute to improve in-situ biodiversity protection by (i) increasing the capacity and coverage of protected areas (PA) (ii) promoting environmental friendly practices and improve the management of the productive landscapes including forests, natural parks, and hunting reserves. To increase the coverage, the component will support the creation of the "Western Tien Shan Biosphere" which was started under the Central Asia Transboundary Biodiversity Project. It will also provide technical assistance and goods for the management of different categories of protected areas in the region (such as natural reserves, parks, game reserves), so that they increase their effectiveness in protecting biodiversity.

20 The component would also promote integration of protected areas into broader landscapes and sectors so as to maintain ecological structure and functions in order to reduce the threat to biodiversity.

21 Activities of this component will contribute to development of Tien Shan ecological network including PAs of different categories (such as natural reserves, parks, game reserves), buffer zones and ecological corridors. This will be done based on development a closer cooperation between PAs and (i) neighboring local communities, (ii) local authorities; and (iii) educational and scientific institutes both at national and international levels.

22 The component will support productive landscapes by improving the management of exiting forests and supporting sustainable tourism to increase the local benefits generated by protected areas and to generate income for local communities and for parks and protected areas. Productive landscapes activities will support improved forest management, including fire prevention, and increasing demand for and supply of eco-tourism services by mainstreaming biodiversity concerns in tourism development.

23 To increase demand for eco-tourism services the project will finance the steps required to include a network of protected areas in the Western Tien Shan into the UNESCO list of world heritage natural sites. Inclusion in this list has been proved to be a useful step to increase awareness of the natural sites and thus increase demand by tourists and eco-tourists.

24 To increase the supply of eco-tourism services the project will promote nature-friendly tourism activities that will help to maximize positive benefits from tourism to biodiversity, ecosystems and economic and social development. The project will strengthen regional (transboundary) and local capacity for sustainable tourism development, in order to ensure that benefits resulting from tourism activities are shared by local communities, while preserving natural and cultural heritage values of the Tien Shan. To do so the component will finance small-grants to communities to develop eco-tourism activities such as development of hiking paths, organization of horse riding and camping/yourta activities, development of guides and brochures on existing flora and fauna.

25 To mainstream environmental and biodiversity concerns in tourism development the project will provide small matching-grants and training to existing and developing tourist resorts,

particularly in the Issyk-kul lake region, to reduce their environmental impact. Example could be matching grants to improve the environmental standards of their washing machines, environmental management and awareness, etc.

26 ***(b) Reforestation and Carbon Trading in the Kyrgyz Republic (approx. cost US$12.2 million).*** This component will contribute to reforest 18,000 ha to (i) mitigate climate change by sequestering greenhouse gases into forests; (ii) develop a carbon trading mechanism so that the country will be paid for the carbon it has sequestered; (iii) recreate habitat for biodiversity, and (iv) generate local benefits such as wind breaks and retention of snow charges for neighboring agricultural lands, reducing water and wind erosion, and reducing water logging caused by deteriorated drainage systems.

27 The component will be implemented with two different management models: through existing State Owned Forest Enterprises or Lezkhozes, and through communities, village organizations such as Aiyl Okmotus, and individuals.

28 Reforestation will be carried out in various steps, first the sites will be assessed against tree species, subsequently plantations will be established and silvicultural interventions done. Nurseries with simple greenhouses will be established to prepare seedlings. The technology to be employed will be basic manual labor. As in the past, most of the planting will be done by hand tools, however with adequate human resources and planting material. Tractors and sowing machines, kart ploughs, additional horses, fencing material and nursery equipment will be provided to the Lezkhozes.

Table 3 – Estimated Area to be Reforested and Related Costs

Species	Total Area Reforested (Ha)	Cost per Ha ($/ha)	Total Cost ($ '000)
Poplar	7,100	708	5,030
Spruce	4,000	639	2,558
Saxaul	1,650	662	1,093
Elm	1,500	653	980
Juniper	1,250	616	771
Diverse fruits	750	750	562
Wall-nut	550	722	397
Willow	500	653	327
Pine	400	653	261
Others	350	673	236
Total/Average	**18,050**	**677**	**12,215**

29 Initial estimates show that reforesting an area of around 18,000 ha should sequester around 980,000 tons of CO2 by 2017, which, adjusted for baseline sequestration and leakage risk, are equivalent to around 784,000 tCO2e of Certified Emission Reduction (CER). The BioCarbon Fund could be available to purchase around 600,000 tCO2. This however will be revised on the basis of more detailed carbon sequestration estimates and particularly the potential level of emission reduction which could be achieved by 2012.

30 The carbon financing scheme was presented to the BioCarbon Fund Participants. The scheme was formally approved and included into the BioCarbon Fund's portfolio with the objective of purchasing up to one million tons of CO2e emission reductions. Since the inclusion

of the project into the portfolio, IDA funding is no longer available and the size of the project might be smaller than the one million tons originally envisaged. The next steps in the processing of the scheme are the World Bank preparation process and the parallel external CDM processing (preparing the Project Design Document, independent project validation, etc.).

31 **(c) Project Management *(approx. cost US$0.8 million)*.** Overall coordination of project activities and the fiduciary aspects of project management will be handled by the State Agency for Environmental Protection and Forestry of the Kyrgyz Republic and the Forest Committee of the Kazakh Republic. Both institutions significantly developed their capacity during the Central Asia Transboundary Biodiversity Project. In addition, the Forestry Committee of Kazakhstan is implementing a new Forestry Project with IBRD financing and the possibility of sharing the implementation unit will be explored. Also, in the Kyrgyz Republic there is possibility of collaborating with the Village Investment Project (VIP/ARIS) for reforestation by communities in those areas which are not covered by Lezkoses.

4. Preliminary Financing Plan

	Component (a) Strengthening Biodiversity Conservation in Protected Areas and Productive Landscapes	Component (b) Reforestation and Carbon Trading in the Kyrgyz Republic	Component (c) Project Management	TOTAL
IFAD	0.1	2.8	0.1	**3.0**
GEF	3.0	0.0	0.4	**3.4**
Government of The Kyrgyz Republic	0.6	6.1	0.3	**7.0**
Government of the Republic of Kazakhstan	2.8		0.1	**2.9**
Rural Communities	0.2	2.5		**2.7**
PHRD		0.6		**0.6**
FAO		0.2		**0.2**
IDA	0.0	0.0		**0.0**
TOTAL	**6.7**	**12.2**	**0.9**	**19.8**

32 The Biocarbon Fund contribution is not considered as part of the above plan because it is expected it will only contribute to finance WB preparation costs and the purchase of CERs once these will be generated. However, the purchase of the CERs will contribute to the maintenance costs and sustainability of the project.

5. Potential Risks and Mitigation

Risk factors	*Description of risk*	*Rating of risk*[3]	*Mitigation measures*	*Rating*[3] *of residual risk*
I. Country and/or Sub-National Level Risks[4]				
Relationships among implementing countries not conducive to adequate coordination	The experience of the Central Asia Transboundary Biodiversity project showed that overall relationships among the countries is key to allow achievements in regional development (this is indeed the main cause which did not allow the adoption of the Western Tien Shan Biosphere)	Substantial	The proposal is to work with only two countries, Kazakhstan and the Kyrgyz Republic, which have excellent overall relationships at the moment.	Moderate
II. Sector Governance, Policies and Institutions[5]				
Governance	Environment in the region attracts limited public attention and therefore limited controls (this affects also biodiversity conservation and forestry)	Moderate	The project will contribute to increase public attention to environmental management, particularly making more visible the value and benefits of natural resources	Moderate
III. Operation-specific Risks				
Technical/design	Grazing and firewood extraction practices may generate excessive pressure on forest ecosystems	Substantial	Strong community involvement, community contribution and access to reforested plots designated for fuel wood production; cooperation with projects for integrated land management and improvement of pastures, such as AISP; conservative	Moderate

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

[4] Since the proposed project is covering two countries, specific country risks will be addressed in two separate Risk Identification Worksheets

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			leakage estimates in project calculations	
Implementation capacity and sustainability	Lack of funding to sustain project interventions	Substantial	The carbon payment scheme will allow revenues generation over a long period of time (until 2017)	Low
Financial management	Financial Management capacity built under the CATB Project no longer exists, while Kazakhstan Forestry Project is in the process of developing FM capacity.	Substantial	Project specific Financial Management arrangements will need to be established within the Forestry Departments of Kyrgyz Republic and Kazakhstan	Moderate
Procurement	The public procurement environment in Kazakhstan is not conducive to open, transparent, economic and efficient procurement, while weak capacity and implementation is the main problem in the Kyrgyz Republic	Substantial	Requirement that Bank procurement guidelines are applied	Moderate
Social and environmental safeguards	Potential impact of civil works and other physical interventions	Moderate	Environmental Assessment	Low
Other (for example project specific corruption risks, country ownership of project/program, cost escalation, prevalence of failures in similar projects, adverse external developments affecting costs/benefits of the project)	Low technical capacity at local level could lead to high plantation mortality rates and levitate costs	High	Earmarked resources for training/extension services; PHRD grant for capacity building.	Moderate
IV. Overall Risk (including Reputational Risks)				Moderate

[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.

6. Issues on Which the Team Seeks Guidance

33 The project is currently being prepared without IDA resources because of the insufficient IDA country allocation. However the plan is to revisit this decision in May 2008. If additional IDA will have become available, the team will scale up the project to include IDA financing.

However will the preparation schedule/process suggested below be acceptable in case IDA resources will become available?

34 Can the project be implemented by the same unit currently responsible for the implementation of the Forestry project in Kazakhstan?

35 Working with VIP/ARIS would be a great advantage for the project. However there is also the risk to overload VIP/ARIS. What could measure could be adopted to mitigate this risk?

7. Proposed Preparation Schedule and Resource Estimate

Preparation Schedule:

Concept Review Meeting	Nov 8, 2007
Project Preparation (development of a Project Design Document, PDD, and PIF)	October 2007-June 2008
Quality Enhancement Review (QER)	January 2008
Decision meeting, including decision about eventual additional IDA allocation	May 2008
Authorization to negotiate Emission Reduction Purchase Agreement (ERPA)	May 2008
Appraisal Mission/Negotiations	June 2008
Signing of the Emission Reduction Purchase Agreement (ERPA)	July 2008

Project Team:

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Resources Estimates:

36 **Project preparation**: The Work Program Agreement (WPA) earmarked $207,000 for project preparation (US$107,000 from the Biocarbon Fund and US$100,000 from the GEF). Bank resources from the BioCarbon Fund are deductible from future carbon payments and could reach up to US$250,000. More funds than currently planned may be needed if the Japanese authorities will not approve the PHRD proposal.

RAS uses the adapted techniques and methods of consultations and training in rayons and oblasts by means of "visits-training", "reception-consultation" and groups. The mentioned approaches are developed and introduced based on experience of previous pilot projects of TASIC, ADAS, ÀÒÀS, Caritas, Helvetas, involved International advisors and consultants.

For instance, in 2005 RAS conducted 10288 training sessions, including training where 80292 rural citizens, specialists and members of 2793 groups trained. 61 information leaflets and brochures of more than 100 thousand copies are published and passed out to the rural with the purpose of education. Besides this, 1041 field demonstrations were conducted. 101 technical works were improved, 57 villages were appraised, 24 innovative works were demonstrated on the day of "Rural Advisory Services". Totally RAS resulted up with 185282 training, consultations and demonstrations participants.

With the purpose of extension of knowledge and experience 52 trainings were conducted, where 737 participants took part. 14 brochures are published as the training aids for the specialists.

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Bishkek, May, 2006.

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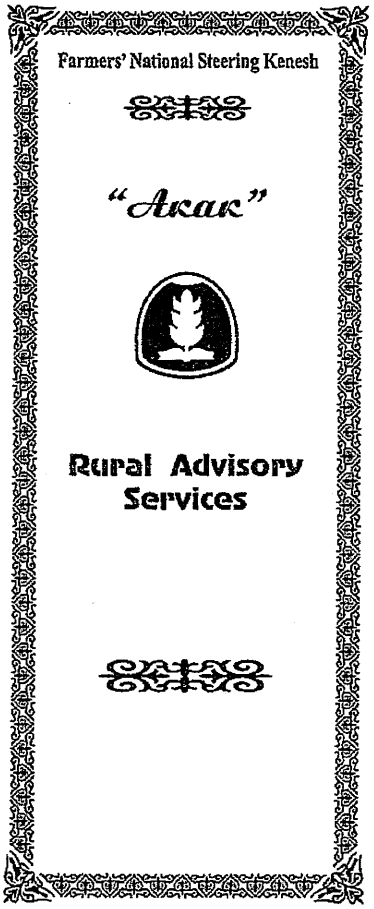

The rural residents of Kyrgyzstan amount up to nearly 3 million of people, i.e. 60 % of the total population. In consequence of reforms presently about two hundred forty thousand private farms have emerged in Kyrgyz Republic. It was specified by the independent researches that the private farm owners as well as other rural residents nowadays need very much knowledge and skills, various data and information for agricultural crops cultivation and production, farm management, planning and marketing of their own products.

Rural Advisory Services was founded based on actual need to provide knowledge and information to farmers on the initiation of Kyrgyz and Swiss Governments Ministry of Agriculture, Water Resources & Processing Industries, World Bank, TASIS, Helvetas Kyrgyz Swiss Agricultural Program, farmers and others. Due to the Agricultural Support Services Project and Kyrgyz Swiss Agricultural Program, Rural Advisory Services began to work in all areas of the Kyrgyz Republic.

Rural Advisory Services has an infrastructure, owned by the peasants and the rural people and is steered by them through Councils elected by the villagers and the peasants. The Supreme body of Rural Advisory Services is National Steering Kenesh represented by selected farmers – representatives of Regional Councils.

RAS is funded by the Kyrgyz and Swiss Governments, Swiss Development Cooperation (SDC)6 World Bank and International Fund for Agricultural Development.

The goal of RAS reads as follows: to support the villagers and peasants engaged in agricultural production by means of providing them knowledge, information and training based on their particular needs, rise of income, poverty reduction in rural area.

The slogan of RAS reads, «Our advice is your success». Presently totally 41 rayon and 7 regional offices are functioning within RAS. Two units of RAS at national level are functioning: Advisory Training Centre and Rural Advisory Services Co-ordination Unit. Two to four advisers work in each rayon and three to five subject matter specialists in regional offices. Presently about 240 consultants and specialists work in rural areas. Selection of RAS advisors and staff is made on competition based by a Selection Committee, by the contract. They have 7 regional monthly printed newspapers, about 7000 copies.

The Rural Advisory Services provides consultation services related on various topics based on farmers' needs and demand, on 25-35 themes. The basic topics are crop production, animal husbandry, mechanisation, marketing, farm economy and management. Also RAS advisors support income generated projects in rural areas like family jailoo-tourism, agricultural home scale processing, handicrafts and artisans. RAS advisors help farmers to calculate and make business plans, assistance in getting social collateral, create and educate self-help groups, promote gender related issues and problems, provide reliable information and assist in group-development.

A planning and reporting system based on a "bottom-up"» principle has been introduced within RAS.

Qualification of RAS staff and consultants is an essential matter to be improved in all ways and appropriate working conditions are provided.

The advisers' work and services are evaluated by monitoring and researches, by the following basic criteria:

- Number of permanent clients
- Number of farmers' RAS Public Association members
- Number of valid filled in client-sheets
- Client's input, amount of income from client
- Number of villages covered
- Number households covered
- Number of client-contacts
- Number of training-persons-days
- Number of newly formed and active groups
- Number of farmers who increased their income due to RAS advisers' assistance

Besides training and consultations, RAS supports introduction of innovations and researches useful for farmers, results of which are demonstrated on Innovation fairs organised during annual Extension Days with all Regional RAS Public associations' participation to display the achievements. Since years of RAS activity there have been 229 innovations presented as novelty of particular results and benefit. They are appropriate and could be reapplied by farmers themselves in their local conditions.

RAS co-operates with a National Academy of Sciences, Agro Science and Advisory Services Centre under the MAWR &PI. Research and development institutes, Kyrgyz Agrarian University, Kyrgyz Agricultural Market Informational System and other components of Agricultural Support Services Project, Kyrgyz Finance Agricultural Corporation, United Nations' Development Program and with other interested units and parties.

Brief characteristic of the Ak-Suu lesnichestvo (independent account)

Ak-Suu lesnichestvo is located on the east part of the Issyk-Kul oblast, in the Ak-Suu rayon and was established by the Decree # 135 of the State Forest Service on 25.07.2003.
The total area of the lesnichestvo is 21858, 4 hectares.

Location/Features
Forest Fund of this lesnichestvo is a part of the Issyk-Kul forest rayon of north oblast of the dark coniferous forest. Issyk-Kul forest rayon is located in the north part of the Tyan-Shan at a height from 1608 m (Issyk-Kul Lake level) to 4500-5000 m above the sea level. The main feature of this rayon is an interchange (or alternation) of spruce forests with meadow steppe and meadow on the north slopes as well as steppe, meadow steppe and dumetosous tangle on the south slopes. Spruce forests are mainly growing on the north slopes establishing the belt of 1000-1200 wide, it's inferior border makes up the absolute height of 1800 m while the above border is at the height of 3100-3200 m above the sea level. Spruce forests do not grow as the belts, but grow by the separate massif, islands, and mixed with meadows, pastures, steep slopes and rocks.
The sub-alpine belt with miscellaneous herbs and tangles are located above the forest belts, after that there are the alpine belt with alpine miscellaneous herbs and meadows.

Climate
Climate of this rayon is mainly sharply continental. But, due to the pronounced zonal verticality the microclimate condition is extremely variegated depending on the height above the sea level as well as exposition and steep of the slope. Usually, by the increasing of the height above the sea level the temperature of the air is decreasing, the amount of the precipitations, absolute and relative air moisture is increasing, and vegetation period is reducing comparing to valley area. Regarding the exposition the north slopes are colder and moister, while the south are warmer and dryer.

Relief and soil
On the territory of the forest fund there are great variety of soil-plant cover due to the existence of the high bio-climate zones. In the frame of forest-meadow-steppe belt you can notice the alternation of the soil types that is connected to the vertical zonality of the climate as well as to the vegetation.

According to prof. Samusenko V.F. (1962), two sub-types of forest, dark-color, dry-peaty soils are forming under the spruce forests depending on moisture condition:

1. Dark color peaty usual soils in fresh and dry spruces (typical soft-sour) are disseminated on the down part of the spruce forests in the less moisture condition; soil-forming breed is deep forest type carbonate loam; has fully developed profile, with capacity of 1 meter and with huge content of the humus (22%), with it's gradual drop, gross peaty layer, huge content of absorbed calcium, as well as movable nutrition elements; fresh within the whole profile;
2. Dark color peaty leached soils under the moisture spruces (sour) characterized by less content of nutrition elements, absorbed calcium, and more high acidity of leached horizon, humus content till the 8-9%; mechanical content is an average- or heavy- loamy, forming on products of the destructed granites; average capacity, moist, with depth of 40-50 cm inclusion of root breed cobs, that in some areas come out on surface.

Hydrography and hydrological condition
The territory of this forestry is located on the basin of Ak-Suu and Arashan Rivers. Key inflow of the above mentioned rivers together with small rivers and rivulet are forming the developed hydrographical network.

The reason of proposing this forestry area for the reforestation activity
The main way of reforestation in leshoz is the planting of the forest crops. Reforestation activities together with the sanitary cutting are one of the main factors forwarding the forming of sustainable, high-productive and valuable planting. In order to achieve these goals following objectives were set up:

- Reforestation of the uncovered forest areas by taking into account the enlargement of the areas with high technical, water protective and sanitary-hygienic properties;
- Increasing of forest land production by maximal using of natural ground fertility as well as by introducing and using of valuable and sustainable forestry species;
- Increasing the effectiveness of reforestation activities by correct choosing of tree species, strict following the agrotechnics of forestry activities, using of high quality seeding materials, timely and qualitative care of forests.

The main part of this reforestation activities are planned to be done on gap areas, hayfields, pastures by the considering of the natural rehabilitation conditions, steepness of the slopes as well as transport availability.

- Incline less then 10°
- Exposition – c, cz
- Absolute height – less then 2500 meters above the sea level

Brief characteristic of Ak-Sy leshoz

Ak-Sy leshoz is located on the territory of Ak-Sy rayon, Djalal-Abad oblast.

The post address: Jalal-Abad oblast, Ak-Sy, Janyjol village. Ak-Sy leshoz.

The geographical location of Ak-Sy leshoz is defined by such coordinates as 41° 20 '-41° 45 ' northern breadth 72° 10 ' - 72° 31 ' east longitude.

The distance between Office of Ak-Sy leshoz and rayon center (Kerben village) is 50 kms, while the distance between Office of Ak-Sy leshoz and oblast center (Jalal-Abad city) is 250 kms, to the nearest railway station "Tashkumyr" is also 50 kms.

The total area of Ak-Sy leshoz is **200462589,2 hectares**

Territory of Ak-Sy leshoz is divided into 5 lesnivhestvo (or forest areas): Aksu, Janyjol, Koitash, Kurpsai, Renjit.

Forests of Ak-Sy leshoz are placed not equally. They are located on the north - east part of rayon, below the belts of the Alpine and subalpine meadows. Forestry activities in this rayon are carried out by Avletim, Ak-Sy, Arkit leshozes. Also in order to save the biodivirsity of the Republic two reservations was formed: national reservation "Sarychelek", and national reservation "Padyshaata".

Forests zone of Ak-Sy leshoz is located on height from 1100-1300 up to 2000-2200 meters above the sea level. This is characterised by black - brown and brown soil, a moderate warm and moist Mediterranean climate, rather low temperature of air in summer and high temperature in winter, and high (up to 1000 mm) precipitation per one year. In moist years the amount of precipitation increases up to 1370 mm.

Walnut-apple forests are the main species of this leshoz territory. Walnut forests are characterized by second growth, seed origin, as well as multiple-aged and occupy the slopes of north sites.

Apple forests consist of such species as Kyrgyz and Siversa, as a rule they origins from root-sucker plant and occupy the southern sites. Maple forests occupy the top margin of walnut-apple forests, rising up to height of 2500-2600м above the sea level.

"Turkestani" maple and sometimes "Semenova" maple in some natural boundaries are the part of the second circle of walnut forests, and in some places they grow and substitute the ex-walnut forests. Some sites among the walnut forests, especially on abrupt slopes are occupied by dumetums (pearlbush, woodbine, etc.). And also on small sites there are some endemic bush species of a natural origin: Turkestani grape, wild fig.

Climate

The area of walnut forests are sharply characterized by rather favorable climatic conditions as well as by severe condition (areas of pistachio forests) on the background of sharply continental climate. The solid wall of high mountains in the north, west and east protects walnut forests area from direct occurrence of cold air from the north.

In winter cold air covers the Fergana valley, while the location of walnut forests area is above this cold layer. And the climate is usually warmer on mountains, than on valleys. In summer the temperature of air in walnut forests area is lower than in Fergana valley due to high position above sea level.

Relief
Ak-Sy leshoz is located on the east part of southeast slope of Chatkal ridge. All sites of Ak-Sy leshoz, except Renjit forest area, located among the mountains. The territory of the leshoz has very complex relief. Alternation of low, average and high mountains with valleys and hilly sites of intermountain downturn characterize this leshoz territory. Territory of Koitash, Janyjol, Kurpsai, Ak-Sy forest areas is characterized by sharp differences of heights.

The territory of Renjit forest area is located in a belt of 700 - 1200 above the sea level characterized by strong crossed hilly relief.

Hydrography and hydrological conditions.
On the territory of the leshoz there are many small rivers and rivulets feeding by ground and snow waters. Greatest of them are Kichijol, Kechyy, Kurpsai, Kyzylbeit, Malkaldy, Aksuu, Jalpaktash, running basically in the Karasuu River and being the right inflow of Naryn River.

On all the extent of the river there are twisting stony channel with abrupt steep coast. Due to significant slope the flow of all rivers are rough. During the spring period the rivers are full flowing due to huge amount of precipitation and snow melting.

East border of Ak-Sy forest area about several kilometers goes through the Karasuu River. Southern border of Kurpsai forest area goes through the Naryn River. The Kurpsai HYDROELECTRIC POWER STATION was constructed on the cross of Kyzylbeit River and Naryn River. On the territory of Renjit forest area there are no any rivers and rivulets. Instead of them there are so-called " dry channels ", which is filled by water during the period of snow melting and after rains.

Ground waters on the territory of leshoz located quite deeply, especially on convex elements of the relief. It appears on the surface in the form of the small springs on the top of the rivers. Water in springs is fresh and cold.

Reforestation activities.
Reforestation activities in this leshoze are carried out since 1951. During the last auditing period it were planted about 894,3 hectares of forest crops.

According to it functional purpose the crops created by leshoze are subdivided into: forests crops (on the leshoz sites) and antierosion crops (on the village sites).

Joint Forest Management
Leshoz transferred to community (under Joint Forest Mannagement approach) about 125,9 hectares of land. From these: 66,2 hectares is орвый forests; 59,7 hectares – mixed forests; number of families is 23.

Underground waters on the territory of leshoz are located deeply, especially on convex elements of a relief.

On the territory of Kara-Suu lesnichestvo (forest area) there is a Kara-Kamysh Lake with the area of 44,6 hectares. The area of bogs on this territory makes up 0,8 hectares.

Melioration.
In leshoz the Agro-forest-melioration fund consist of landslides. These areas are located in Kyzyl – Tuu and Kara-Suu forest areas, except Turduk area. Unlimited and unmanaged cattle grazing causes the landslides. With the purpose of involving these unused grounds in economic circulation the leshoz carried out antierosion plantings.

Economic conditions.
Leading branch of the economy in this area is the agriculture in the form of cattle breeding. Almost all population of the area works in agriculture sector while only small part of them works at the local enterprises.

Joint Forest Management
Leshoze transferred to community (under the Joint Forest Management approach) about 757,9 hecatres of land, from them 164 hectares – walnut forests; 592,9 hectares – mixed forests; number of families is 50.

Brief characteristics of Arkyt leshoz

Arkyt leshoz is located on the north part of Jalal-Abad oblast, Kyrgyz Republic, Ak-Sy rayon. Rayon center is located in Kerben village.

Address: Index 715706, Jalal-Abad oblast, Ak-Sy rayon, Jylgyn village.

The distance from leshoz office to rayon center (Kerben village) is 45 km, to Jalal-Abad - 240 km.

Total area of leshoz is **52 175 hectares.** The territory of leshoz is divided into 3 lesnichestvos: Kyzyl-Tuu; Kara-Suu; Turduk.

Arkyt leshoz was established by the Decree of State forestry Inspection #13 on March 1,1993 due to dividing of Arkyt and Aksy leshozes.

Forestry zone and climate
The climate of the walnut forestry rayon is quit favourable comparing to the sharp continental and mainly dry South Kyrgyzstan. High mountaince range on the north, west and east protect this walnut forestry rayon from direct cold air of the north.

During the winter time the cold air cover all the fergana valley, and the walnut forest rayon is located higher then this cold layer, and in mountains the weather is usually warmer, then in valley.

During the summer time the temprature in walnut forests rayon is lower comparing to the temprature in Fergana valley, due to high location above the sea level. For the characteristic of climate in Arkyt leshoz the datas of Sary-Chelek State Reservation is used, which is located at height of 1233 метres above the sea level.

Table 1.3.1. Climate characteristic according to Meteostation .

Month	Температура воздуха			Precipitation Amount	Snow cover	Relative air moisture
	Average many-years	Absolute				
		Max	Min			
	C°	C°	C°	мм	sm	%
1	2	3	4	5	6	7
January	-4,3	8,9	-17,5		23,9	56
February	-2,5	11,1	-16,0		14,0	58
March	+2,2	15,8	-11,4	101,2	4,9	65
April	9,1	21,0	-2,8	120,0	0,8	57
May	14,4	27,4	+1,3	126,2	-	60
June	16,3	27,7	4,9	98,7	-	56
July	19,9	31,2	8,6	55,3	-	43
August	18,7	30,3	7,0	37,0	-	42
September	12,2	27,1	-2,7	12,4	-	44
October	8,6	22,1	-5,0	43,4	-	51
November	0,8	15,2	-13,6	51,1	1,5	54
December	-1,6	11,6	-14,7	34,5	5,8	55

Hydrography and hydrological conditions.
Within the whole massif of leshoz is cut by small rivers and rivulets, which are feeding by ground snow waters. Some of the biggest rivers are Kojo-Ata, Turduk, Jaryk-Tash, Kara-Suu.

Rivers have a twisting stony channel with abrupt steep coast. Due to significant slope the flow of the all rivers are very rough. During the spring period the rivers are deepest due to maximum amount of precipitation and melted snows.

Brief characteristic of Avletim leshoz

Avletim leshoz was established in 1948 year on the base of Avletim, Padysha-Ata, Alabuka and Kasan summer forestry residences.

Avletim leshoz of walnut forests located on the north part the Jalal-Abad oblast of Kyrgyz Republic, in Aksy rayon. Rayon center is located in Kerben village.

Extension of the leshoz territory from the north on the south is 30 km, from the east on the west is 20 km.

Distance from leshoz office to the rayon center (Kerben village) is 25 km, to the Jalal-Abad city - 180 km.

From the north the leshoz borders with the lands of Chatkal, Alabuka and Aksy rayons, from the west with Padysha-Ata reservation, from the east with Sary-Chelek biosphere reservation and Arkyt leshoz, from the south with Uzbekistan Republic, with the grounds Alabukinskogo and areas Aksyjskogo.

The total area of leshoz makes up **47068.6 hectares.** The territory of this leshoz is divided into 2 lesnichestvos (forest areas): Avletim and Itagar.

Forests of the Aksy rayon are located not equally, so, the major percent of the forests are located on the north part of the area, while the less percent on southern part.

Other forests consisting of separate sites with a different configuration and size are scattered on all territory of the rayon.

Climate

Forests zone of leshoz located at height from 1100-1300 up to 2000-2200 m above sea level. This leshoz is characterized by moderately warm moist Mediterranean climate, the temperature of air is rather low during the summer and high during the winter, the amount of precipitations is up to 1000 mm per one year (in some years up to 1370 mm). The duration of the summer drought is till 35 days, and for this period the precipitation amount makes up about 0.5 mm per one day. Mid-annual temperature of the air is +9 degrees. Walnut-apple forests are mainly concentrated in forests belt. Walnut forests are basically located on the slopes of northern expositions, while apple forests occupy southern expositions. Maple forests are occupy the top area of walnut-apple forests. Separate sites among the walnut forests are occupied with thrickets of bushes (woodbine, etc.).

The climate is moderately cold and less moist, than in a forestry belt. In the bottom part of this belt there are bushes, Turkestani maple, Tyan-Shan spruces, and high grass subalpine meadows.

In general climatic conditions of Southern Kyrgyzstan are positively influenced on growth, development and stability of the growing forests and bushes as well as on Greece walnut. The spring frosts coming quite often during the walnut flowering is key negative moment in climatic conditions, which deadly influence on crop.

The precipitation is one of the distinctive factors, which is sharply distinguishes the climatic features of southwest slopes of Chatkal ridge from a climate of the Fergana valley. The large amount of precipitation falls at spring (March - May). In first half of summer the amount of precipitation is decreased, but this amount is quite sufficient for normal growth of vegetation. The second half of the summer is characterized by small amount of precipitation. The drought is usual for this period. By the autumn the amount of precipitation increases.

The snow cover exists during the 4.5 months. The depth of a snow cover is about from 6 up to 21 sm.

According to a meteorological station the average relative moisture per months for the last 25 years were not lower then 50% and higher then 65%. In the first half of the summer within the day the

relative moisture makes up 40 %. While the second half of the summer is characterized by reduction of not only precipitation, but also relative moisture (up to 35 %).

Hydrography and hydrological conditions.
The hydrographic network of fruit forests in Southern Kyrghyzstan is characterized by a plenty of rivulets, small rivers, rivers. All of them concern to the basin of Syr-Darya River.

Territory of Avletim leshoz occupies the water-modular area of the Avletim and Itagar rivers. The basic direction of a drain goes from the north to the south.

The basic sources of the rivers feed is thawed snow of high-mountainous snows and less significant share makes up a rain feed, springs. The maximum volume of mountain small rivers is observed in July - August. Width of small rivers is about 10-15 meters, depth about 1 meter. Owing to the big slope they have the high velocity. During the summer period some of the rivulets dries up. Despite of the large slopes, a number of climatic and soil - geological factors reduce a volume of water inflow. Evaporation from a soil surface and leaves of plants is a result of such climatic factors. Especially on southern, east and western slopes, and from soil - geological factors – absorption of precipitation into soil and ground, and very favorable conditions for absorption of moisture and reduction of a superficial drain are available in walnut-fruit plantings on deep darkly brown friable soil. Therefore the walnut forests strongly slow down a runoff of water on the territory of forestry belt and reduce a spring runoff. Minus moisture spent on transpiration, all water absorbing in ground fills up underground water, which frequently appears on a surface as springs. Spring precipitation in April, May promotes more equal expenditure of soil moisture on months of vegetation.

All rivers existing in the area plays important role in field irrigation.

On the territory of leshoz there are no any mountain lakes and, therefore the bogging process is not observed. Annually leshoz carry out some activities on maintenance of an irrigating network, which is used for nurseries watering in valley zone of Avletim and Itagar forests areas. Watering is made through the irrigation ditch.

Joint Forest Management
The leshoz transferred to community (under Joint Forest Management approach) about 565 hectares of land, from them 234,1 hectares is a walnut forests; 330,9 hectares – mixed forests; the number of families is 96.

Brief information on Jety-Oguz leshoz

Jety-Oguz leshoz of SAEPF is located in the central part of the Issyk-Kul oblast in the Jety-Oguz rayon.

The extension of the leshoz territory from east to west makes up 90 km, from north to south is 53 km. The leshoz office is situated in Kyzyl-Suu village on the distance of 35 km from the Karakol city. The distance to the nearest railway in Balykchy constitutes 180 km.

Jety Oguz leshoz consist of 5 lesnichestvos:

1. Barskoon (18822 hectares)
2. Jargylchak (11928,2 hectares)
3. Juukin (21874,4 hectares)
4. Kyzyl-Suu (20766,2 hectares)
5. Jety-Oguz (18126,2 hectares)

Total area of leshoz is 91517 hectares, from this covered by forests is 31205,2 hectares.

Jety Oguz leshoz was established by the USSR Ministry Union in 1947 on the base of the Decree of #856 on April 4, 1947.

According to the Decree of #225 "On creation of protective afforestation around Issyk-Kul lake" of the USSR Ministry Union in 1960 this leshoz was reorganized to mechanized leshoz.

Geographical location
The territory of Jety-Oguz leshoz is located on the north slope of Teskey Ala-Too, that is a part of Tyan-Shan mountain system (from 1609m (the level of Isyk-Kul lake) to 4500-5000 m above the see level). According to forestry regionalization of the State Forest Fund's land the Jety-Oguz leshoz consist of mountain's dark coniferous forest of Kyrgyztan.

Climate
Climate conditions of Jety-Oguz rayon are variegated and purely reflected the vertical zone in mountain. During the cold period in Jety-Oguz rayon the inland air mass of the temperate latitude is played one of the main roles in weather formulating process. In this period the influence of warm tropical air mass, coming from the side of Mediterranean is quite noticeable. And precipitations are connected to this mass. In the warm period the tropical air masses causing sustainable dry and sunny weather is mainly dominated within this territory. So, getting too much warm and little moisture during this period the air is warming up especially in the foothills zones. Cyclonic activity is becoming weak therefore its influence during this period is almost not sensible.

Hydrography and Hydrological conditions
Hydrographical network of this leshoz territory is quite developed. From south to north the territory of leshoz is crossed by lots of mountain rivers. All of them is coming from north slope of Teskey Ala-Too and belongs to Issyk-Kul Lake basin.

The biggest rivers of this leshoz territories are Juuku, Chon-Kyzyl-Suu, Barskoon, Jety-Oguz.

Economical conditions
Key activity of this rayon is an agriculture production. The main role belongs to livestock production by meat-wooly direction. The big areas of the pastures and haymaking areas in this rayon are forwarding livestock development.

Grain crops and potatoes are the main agriculture crops. The most popular grain crops are wheat, barley, oat, and corn. Gardening is also popular is also developed here. Such fruit trees as apples, apricots, pears and some berries are mainly cultivated in garden.

There are no any forest, wood and chemical processing industries in this rayon.

The forested area of this leshoz makes up 20,5%.

Forestry is not a leading field in national economics of this rayon and its proportion in gross output is insignificant. Although in national economy of the rayon the forest of leshoz plays big role.

Such activities as pasturing and haymaking plays not less important role in rayon economics. And the existing land is fully used by the rayon population.

Other types of using as berrying, mushroom and herb harvesting as well as hunting in a small amount do is not significant in rayon economics.

Beside the above-mentioned info, the leshoz forests play very important role serve as a protection, water protective function as well as sanitary-hygienic role.

Joint Forest Management/Tenants

7645,2 hectares of Jety-Oguz leshoz sites have been transferred to the tenants. So, they concluded **147** leasing contracts with tenants, from this **136 contracts** with the area of 7614,9 hectares take the land for the pasturing, while other 11 contracts with the area of 30,3 hectares take the land for the establishing the forest plantations, private nurseries as well as fruit garden.