Utilisation and management changes in South Kyrgyzstan's mountain forests

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Utilisation and Management Changes in South Kyrgyzstan's Mountain Forests

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Abstract

Using political ecology as its conceptual framework, this paper focuses on the changes in forest utilisation and management of South Kyrgyzstan's walnut-fruit forests over the last century. The aim of this study on human-environment interactions is to investigate the relationship between actors on the one side, their interests and demands, and the forests and forested lands on the other. Forest resource utilisation and management — and even the recognition of different forest products as resources — are connected with political and socio-economic conditions that change with time. The walnut-fruit forests of South Kyrgyzstan are unique, characterised by high biodiversity and a multiplicity of usable products; and they have been utilised for a long time. Centralised and formal management of the forests started with the Russian occupation and was strengthened under Soviet rule, when the region became a part of the USSR. During this era, a state forest administration that was structured from Moscow all the way down to the local level drew up detailed plans and developed procedures for utilising the different forest products. Since the collapse of the Soviet Union, the socio-political and economic frame conditions have changed significantly, which has brought not only the sweeping changes in the managing institutions, but also the access rights and interests in the forest resources. At present, the region is suffering from a high unemployment rate, which has resulted in the forests' gaining considerable importance in the livelihood strategies of the local population. Political and economic liberalization, increased communication and trans-regional exchange relations have opened the door for international companies and agents interested in the valuable forest products. Today, walnut wood and burls, walnuts, wild apples and mushrooms are all exported to various countries in the world. Scientists and members of various international organisations stress the ecological value of the forests and are trying to establish nature conservation areas. Nevertheless, it is to fear that a multiplicity of interrelated factors —the present transformation and globalization processes, the appearance of new actors, the local population's insecure economic situation and the erosion of managing institutions — are all leading to an intensified and unregulated exploitation of the forests, resulting in their degradation.

Keywords: Kyrgyzstan; Tian Shan; walnut-fruit forest; political ecology; resource management; forest utilisation

Introduction

The mountain forests of South Kyrgyzstan have a long history of human influence. The political and socio-economic conditions prevailing in the region have changed dramatically several times over the last century and have played an important role in forest policy, management and use. To highlight the human-environment relationship, I have chosen here to use a political ecology approach as conceptual framework (cf. Bryant & Bailey 1997, Bryant 1998, Blaikie 1999). In this approach, environment is regarded as socially constructed and politicised, and resource identification and utilisation are embedded in a contradictory context of actors and their interests. Such a constructed landscape is shaped by different interests, which in turn are influenced by economic efforts and needs, within the framework of political conditions and specific cultural ideas and values. Thus, according to the political ecology concept the environment and its changes need to be examined in relation to society. Likewise, the different spheres of action — local, regional, national and global — as well as the institutions (cf. North 1992) governing forest usage also need to be looked at in their historical context. Natural resources do not have a specific use value, *per se*. Rather, the forms in which they are used and their value are a function of the interest

in and demand for them articulated by people within a specific context, dependent on the general political and social conditions, technological feasibility and economic needs. Resources are hence *relational* in the sense that their generation, interpretation and use are contingent on many factors (Glückler & Bathelt 2003). Thus the value of resources, their demand and utilisation, can change significantly over time. In particular, major historical events are often initiators of dramatic changes in resource demand, leading to increased exploitation of a specific resource, or the opposite.

This general principle applies to forest resources, as well. How people assess forest plants, animals and functions is dependent on interpretations and socio-economic conditions that change with time. Depending on how people interact with the forests — extracting specific products or changing the vegetation pattern through cutting, grafting or planting new species — they are responsible for the physical transition of the forest. Forest ecosystems, especially, are massively transformed through the interference of human beings. The varieties of flora and fauna species that comprise an ecosystem are relational to the way they are in demand and utilised by man. Since prehistoric times when people started searching for food and other materials as hunters and gatherers, they have selected specific forest products, extracting, converting or destroying them. In the course of time, both technological achievements and socio-political developments transformed man's perception of and interest in resources. Since human needs are modified by changing living standards, the development of new technologies for extracting and processing the resources, or by new perceptions of natural systems, the relevance of resources for man is dependent on the historical context.

Such transformation processes are going on all the time, but they are particularly distinct in connection with major historical events. Ecosystems are especially affected by colonization processes, that is, the colonization of formerly unpopulated regions by new settlers or the conquest of regions, with their concomitant introduction of new resource-utilisation systems. The historical landmarks relevant for this study are the conquest of Middle Asia by the Russians in the 19th century, the Russian October Revolution in 1917 with the establishment of the Soviet system and the collapse of the USSR in 1991. These events have been connected with far-reaching transformation processes that influenced the subsystems of policy, economy and society, not only on the macro- but also on the micro-level. Likewise, these processes have dramatically influenced the relationship between man and his environment.

Using the example of the walnut-fruit forests in South Kyrgyzstan, this paper will trace the changed relevance and the inter-relatedness of forest resources and forest functions over the last century. The aforementioned historical events are seen as initiators for new chapters of forest utilisation. My purpose here is to investigate the values given to the various forest resources during a specific political regime with its socio-economic conditions, and to highlight the relation of resources. Additionally, this paper shall question how the different political and economic regimes actually influenced the perception, utilisation and thus the condition of the forests, and demonstrate how various utilisation practices, demands and perceptions of forest functions influence forest composition, forest cover and the general state of the forest.

1 Methods

Empirical fieldwork was carried out in 2003 and 2004 at several locations in South Kyrgyzstan.[1] Information about historical and present forms of forest management and utilisation practices was gathered by qualitative and reconstructive forms of empirical social research, including participatory observation and focused interviews. I conducted semi-standardised interviews with residents of three villages (Arslanbob, Kyzyl-Unkur, Kara Alma), either in their homes, or at work in the forest or on the pasture. I selected interview partners according to the criteria, such as age, gender or socio-economic status, to obtain a multifaceted picture of personal views and opinions. Thematically focused interviews with members of the state forest enterprises (*leshoze*), village administrators (*ayl oekmoet*), international merchants and other experts provided more in-depth information about specific aspects, e.g., wood processing, bee keeping or socialist labour organisation. Oral statements from *aksakal* (respected elders) gave a deeper understanding of the historical and actual problems of the concerned people, as well as their living reality (oral history). Thereby, of course, it is important to bear in mind that the locals'

[1] This study is a product of a collaborative research project named "act of the transformation process on human-environmental interactions in Southern Kyrgyzstan", carried out by an interdisciplinary group of scholars from Germany (Erlangen, Greifswald, Hamburg, Bayreuth) and Kyrgyzstan (Bishkek, Osh). I want to express my gratitude to the Volkswagen Stiftung for their support of this project

accounts of the past only describe how the narrator imagines the past to have been; history is constructed rather than uncovered. Kyrgyz colleagues and various local persons assisted during fieldwork as interpreters and contact persons. Documents related to forest policy and measurements as well as administrative proceedings were collected and analysed in archives of Jalalabad, Osh and Bishkek. The state forest enterprises themselves provided recent documents and statistics. Information on actual forest structure and forest cover was gained by personal observation as well as discussions with project colleagues — landscape ecologists, biologists and forest scientists — who analyse these aspects using satellite images and by investigating stand structures.

2 Characteristics of Kyrgyzstan's Unique Walnut-fruit Forests

South Kyrgyzstan's walnut-fruit forests are located at altitudes between 1,500 and 2,000 metres on the south-facing slopes of the Fergana Range of the Tian Shan Mountains (Figure 1). The forests display a high diversity of trees and shrubs, including around 180 woody species (Sorg *et al*. 2003). Major tree species are walnut (*Juglans regia*), maple (*Acer turkestanica*) and various fruit-bearing species in their wild form, such as apple (*Malus sieversiana*), pear (*Pyrus korshinsky*), plum (*Prunus sogdiana*), barberry (*Berberis oblonga*), rosehip (*Rosa kokanica*) and sea buckthorn (*Hippophae rhamnoides*). It has been stated that walnut trees and several other fruit species originated in the mountains of Central Asia and their forests, while the present walnut-fruit forests represent only relicts of a much wider geographical extension (Kolov 1998). Although the forest area in South Kyrgyzstan is less than 30,000 ha (Musuraliev 1998), this probably represents the largest area of naturally occurring walnut-fruit forests in the world today (Hemery & Popov 1998). The current ecological conditions here — with warm summers (15~25°C), mild winters (-4 to - 8°C) and more than 1,000 mm annual precipitation, are just barely adequate for the growth of the walnut forests (Kolov 1998). The economic structure of the region is largely agricultural, with cotton production on irrigated fields in the Fergana Valley being the most important agricultural activity, followed by animal husbandry, fruit growing and grain cultivation. The limited number of industrial plants in the region are specialised in processing agricultural products, such as cotton, fruits and meat. The majority of the population lives in the Fergana Valley plains, of which only a small portion belongs to Kyrgyzstan. The major cities of South Kyrgyzstan are Osh (212,000) and Jalalabad (72,000) (National Statistics Committee of the Kyrgyz Republic 2000). However, the walnut-fruit forest area is also relatively densely inhabited, with around **40,000 people living close to the forests.**

Figure 1 Location of walnut-fruit forests within the mountain belts of Kyrgyzstan

3 Management and Utilisation of the Walnut-fruit Forests from the Historical Perspective

3.1 Local forest use in pre-Russian period

Information on the utilisation of the walnut-fruit forests prior to the Russian conquest of Turkestan is limited. Most likely, the mountain forests of South Kyrgyzstan served the people from the nearby settlements of the Fergana Valley as a source of timber, firewood, nuts and fruits, and especially charcoal, which they processed and sold in markets. Although the administration of the Khanates did not show much interest in the forests, they did hold the forest property rights and levied a specific tax on the people for tree felling (Lisnewsky 1884). Settlements in the region of the walnut-fruit forests were rare during this time, Arslanbob being the only larger village of any significance. Kyrgyz nomads used the alpine areas above the forests as pastures for their livestock, and traversed the trade routes between the Toktogul region and the Fergana Valley that led through the forests. They collected fruits and nuts in the forests on their way to the markets, where they exchanged their pasture-economy products, especially sheep, meat and butter, for grain, clothes and other manufactured products offered by the Fergana Valley merchants.

3.2 Establishment of regulated forestry under Russian administration

With the defeat of the Khanate of Kokand and the fall of Andishan in 1876, the Fergana area became part of the Russian Empire, falling under the aegis of their General Government of Turkestan (Krahmer 1898). At the end of the 19th century, the Russian Empire sent explorers to assess the economic structures and exploitable products of the area (e.g. Middendorff 1882). Under official orders from the forest department, a group of forest experts were sent to Turkestan. Between 1889 and 1897, they investigated all mountain forests of the Fergana region, with an eye particularly to their timber value. As a result of their investigation, a bill was passed in 1897 declaring all forests to be state property under the administration of the Russian Forest Service (Nawrosky 1900 in: Ashimov 2004), and eight forest districts (*datscha*) in succession were set up in the Andishan area.

When the Russian administration first introduced measures pertaining to the forest, the forests seemed to have been already massively degraded; this was due to fires set by Kyrgyz nomads to extend their grazing area and the cutting of trees for charcoal production (Lisnewsky 1884). At this time, charcoal was not only used by the local people for heating, but also exported to Hiva or Buchara (Ashimov 2004). This confirms the assumption that the mountain forests of Fergana and their products had already been of significant relevance for the local population. Remarkably, the important ecological role of the forests, with their impacts on water cycle, erosion control and climatic regime, was already recognised. This was demonstrated at the end of the 19th century when members of the Russian administration asked for a ban on destructive grazing practices in the forests (Rauner 1901). Other forest products such as timber, firewood, nuts and fruits were not extracted in any formally organised manner. Although one walnut burl was exported as far as Europe in 1885 (Ashimov 2004), no formal timber trade was established.

3.3 Strictly planned forest management under Soviet rule

After the fall of the Russian Tsar in 1917 and the ensuing civil war, the Bolsheviks first fostered their power base in the heartland of Russia. Their reorganisation of the territorial administrations in Siberia, the Caucasus and Central Asia followed with some delay. After the Bolsheviks took charge, however, they restructured the administration, the economy and the whole lifestyle of the people much more intensively than any previous power. Apart from establishing infrastructure programmes and fostering administrative structures, their most significant socio-economic measures were the brutal collectivisation and sovietisation in the early 1930s. They expropriated all farmers, nationalised or collectivised their land and livestock, and founded state farms (*sovkhoze*) and collective farms *(kolkhoze).*

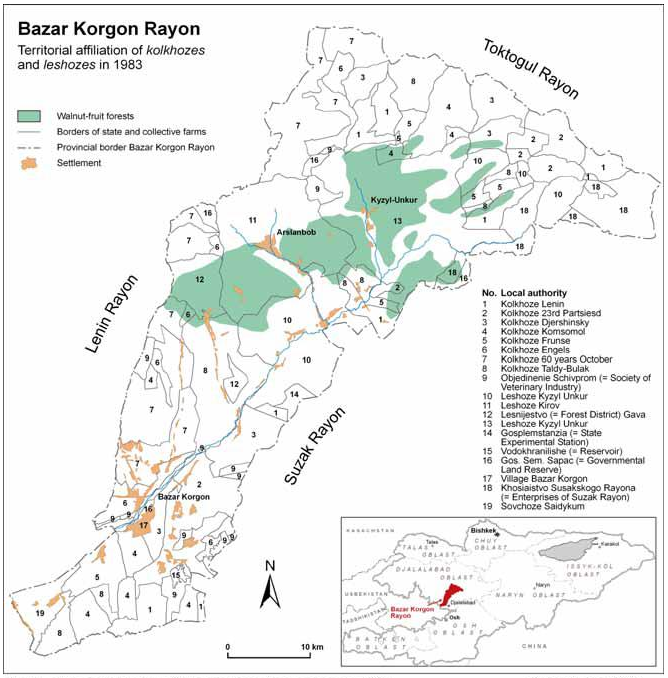
The forests, already defined as state property, were treated further as state territory, but new forest institutions were created, and the responsibility for the forests changed hands several times. Between 1930 and 1934, and again from 1939 to 1941, the People's Forest Committees (*Narkomles*) of the Kyrgyz SSR managed the forests.[2]

[2]In 1936, the Kyrgyz Soviet Socialist Republic was founded on the basis of ethno-linguistic factors. However, the republic was not able to handle its affairs independently, since all major questions were dealt with by the central party bodies in Moscow.

From 1934 to 1939, the Fruit and Vegetable Trade Authority of the People's Committee of Food Industry (*Narkompischeprom*) of the USSR was responsible for the walnut-fruit forests, and from 1941 to 1947, the Soviet Vitamin Industry (*Sovvitaminprom*) of the Ministry of Food Industry (Musuraliev 1998). At the end of this time, several *kolkhozes* and *sovkhozes* were situated within the walnut-fruit forest territory. With the aim of improving the land's productivity and avoiding dividing the responsibility for the forest further, the collective and state farms were reorganised into larger state forest enterprises (*leshozes*) and the scattered settlements were liquidated. By the end of the 1940s, twelve *leshozes* had been established, and they were responsible for forest management at the local levels under the authority of the Ministry of Forests (As an example, the administrative structure and territorial affiliation of Bazar Korgon Rayon is shown in Figure 2). The *leshozes'* functions and tasks included forest farming, conservation and protection, organising timber felling and processing, nut and fruit collection, and establishing commercial plantations.

The Academy of Sciences of the USSR carried out several scientific expeditions in South Kyrgyzstan for research and inventory purposes. They stressed the uniqueness of the walnut-fruit forests and conducted scientific investigations. Based on their recommendations, in 1945 the forests were declared to be a Fruit-Tree Forest Reserve per Decree of the People's Commissariat of the USSR and a strict use regime was imposed. This special status of the forests was confirmed in 1960 and again in 1993 by the Forest Code of the Kyrgyz Republic, in which the forests were defined as nature reserves (Goslesagenstvo & Lesic 1997). Inventories of the forest areas were conducted regularly every decade starting from the 1950s, using aerial images for landscape classification. Based on these inventories, the economic value of the forests was evaluated, as well as the possibilities for exploiting the timber, nuts and fruits.

Before the walnut-fruit forests were declared as protected areas, however, many trees had been felled for use as timber. According to the numbers recorded by the Academy of Sciences of the USSR, 140,000 m³ of timber, mainly walnut, was felled between 1938 and 1944 (Musuraliev 1998). The timber harvesting was very wasteful (Photo 1): sometimes, clear cutting had even been practiced with the intention of later rehabilitating the land as forest plantation. After the forests were subordinated under the Ministry of Forestry and classified as protected, woodcutting was permitted only in the form of sanitary felling — but the tree felling went on. Since 1962, in addition to sanitary and maintenance felling, complex and extensive felling was conducted on a commercial scale, with the aim of transforming the over-matured walnut stands into more productive forests to increase the nut yield (Musuraliev 1998). Most of the timber thus obtained was handled in the wood processing units of the *leshozes* and used to produce furniture.



Sources: Map of territorial affiliation in Bazar Korgon Rayon, 1983 © M. Schmidt 2004

Figure 2 Territorial affiliation of *kolkhozes* and *leshozes* in Bazar Korgon Rayon in 1983

Photo 1 Wood processing near Jalalabad in 1948
Source: Oblast Archive Jalalabad

One of the main tasks of the state forest enterprises was organising the walnut harvest. All households were included in the nut harvesting system. In contrast to the "normal" Soviet planning system, five-year plans for walnut yield could not be drawn up in advance since the amount of nuts to be harvested varied significantly from year to year as can be seen in Figure 3. However, each family was assigned a plan drawn up just before the harvest and based on expected yields, specifying the location and the amount of walnuts to be collected. The households had to deliver all collected walnuts to the *leshozes*, and received in return a small compensation of 0.3 roubles per kg of walnuts. The nuts were dried on special drying racks of the *leshozes* (Photo 2). After this process, a specific amount was kept by the *leshozes* for seed, while the rest was exchanged with other state enterprises or exported to cities all over the Soviet Union. Local households were not allowed to keep walnuts for their own consumption or to market them privately. Sometimes, if families did not fulfil their plan, their houses were searched for hidden nuts. Approximately 600~800 tons of walnuts were harvested each year in South Kyrgyzstan (Usolin 1984, Venglovsky 1998). As mentioned, the *leshozes* completely organised and managed the collection, drying and trading of walnuts. The same was true of the apple, plum and hawthorn berry harvests. The fruits were collected by the local people, and then sold by the *leshozes* to the fruit-processing factories of the area. These processing plants had a total capacity of processing 3,000 tons of apples, 600 tons of plums and 100 tons of hawthorn berries, producing juice, jam and fruit tins. Additionally, the *leshozes* gathered annually around 34 tons of medicinal plants, which were processed and supplied to pharmaceutical enterprises (Musuraliev 1998).[3]

Another major forest product was firewood: the *leshozes* cut and collected large amounts and gave them to the local population. But firewood was not the only fuel since many households were supplied with coal delivered from the mines of Tash Komur and Kok Jangak for heating purposes, and with gas containers for cooking. Many

[3]Irrespective of forestry and wood processing, the leshozes also organised and managed agricultural activities. Around 5% of the leshoze territories were arable fields and fruit gardens. People of the villages worked in brigades on these fields and cultivated mainly fodder crops for the leshozes' horses and livestock. The leshozes raised horses for transport purposes, while rearing sheep, cattle or rabbits for meat production. Russian settlers introduced bee keeping, which then became an important part of the leshoze economy. Since bees not only produced honey, but also pollinated the forests and gardens, the leshozes promoted bee keeping

households, however, still used wood for heating, cooking and especially baking bread, and shepherds on the alpine pastures (*jailoo*) used not large amount of firewood for cooking and processing milk.

From the 1970s, the recreational aspect of the forests became important, as well. More than 30 holiday camps (*pionirlager*, *pensionates*) were constructed in the walnut forest area. The forests' attractions, such as landscape, fresh air, natural beauty and coolness in the summer, attracted many people from the Fergana Valley and other regions all over Central Asia to spend some recreational days in the region. The local administrations estimated that almost 100,000 tourists spent their holidays in the walnut-fruit forest area each year. Since the capacity of the *pensionates* was not sufficient to house all the visitors, many people found shelter in private houses, providing additional revenue for the local population.

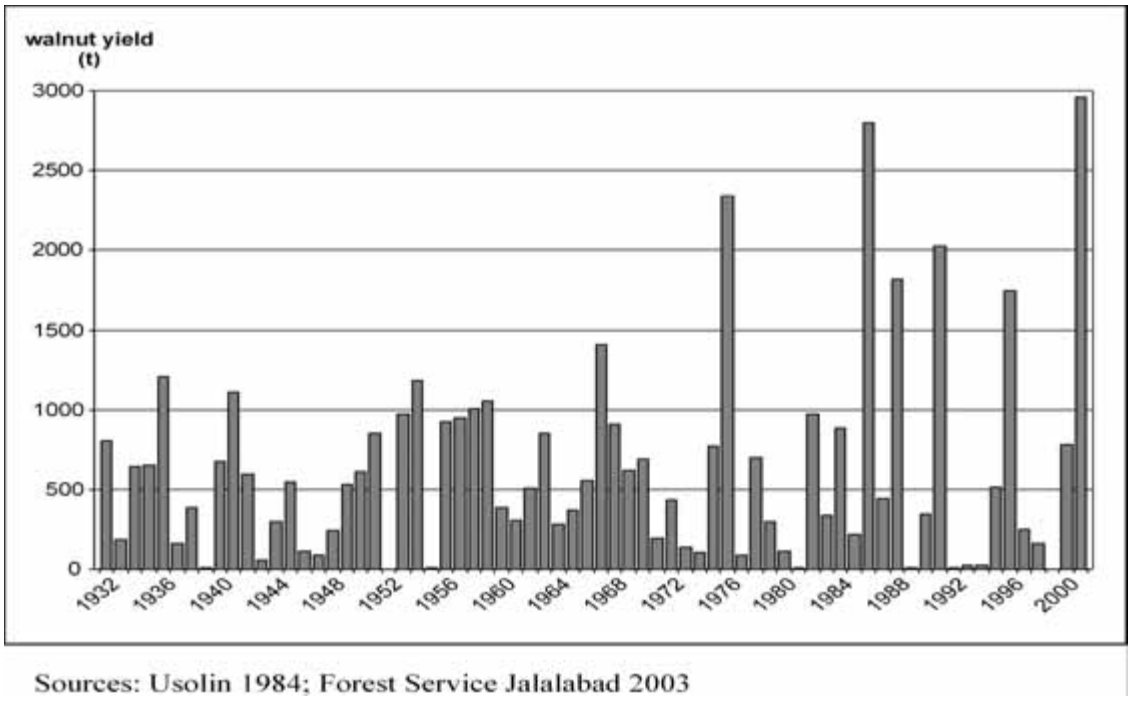


Figure 3 Walnut yields in South Kyrgyzstan from 1932 to 2001

Photo 2 Walnut drying racks near Arslanbob (Photo: M. Schmidt 2004)

3.4 Present situation: increasing pressure on the forest resources

With the collapse of the Soviet Union in 1991 and the shift from the socialist economic system to market economy, all *kolkhozes* and *sovkhozes* of Kyrgyzstan were shut down and all arable land and livestock privatised (cf. Bloch & Rasmussen 1998). Although the forests are still state property and are still managed by the state forest service, the general shift on the macro-level has also influenced the economic situation and everyday life on the micro-level. Where previously and virtually everybody worked for the *leshoze,* now most *leshoze* employees have lost their jobs. Since alternative jobs are lacking, people now need to sustain their livelihood by farming, using the limited land and livestock resources at their disposal. During the Soviet era, almost all households had a couple of animals and a small garden, where they grew vegetables, fruits and other crops. These resources played an important role in their livelihood system, and other goods (flour, sugar, meat, tea, etc.) could be purchased with their labour wages in the state shops. Nowadays, since only a small number of people are receiving regular wages (which in any case have only a tiny purchasing power), people are much more dependent on their farming activities and the collection of forest products to make their living. Under the Soviet system, most households had already been supplied with around 3 to 5 hectares of land in the forested area for hay collection. Although such land was allocated by oral arrangement only, landholders today regard these plots as their own by paying a small rent to the *leshoze* and hold them in a kind of permanent tenure. The respective landholders have the right to cut and collect grass on these plots, but the usufruct right does not automatically include the right to collect walnuts, which is allocated separately, with the contracts ranging in duration from seasonal to five years. Conflicts sometimes arise when people collect walnuts on their hay plot, since this right has been given to others.[4]

The *leshozes* thus still manage the forests, and are responsible for implementing all forest-related measures in their territories: they arrange all aspects of land allocation, lease agreements and forest control. However, both the financial means of the *leshoze* and its number of employees have been greatly reduced since independence. For the forest plots leased for walnut collection, the *leshoze* receive the monetary equivalent of 60% of the walnut yield from each tenant. In August, one month before nut collection, the expected yield is assessed and the amount of rent for each household is fixed.[5]

In connection with opening the Kyrgyz economy for foreign investments, in the 1990s new actors arrived to claim interest in some forest products. Today, Turkish merchants dominate the walnut trade, primarily organising the sorting, packaging and export of the nuts. Generally, the forest farmers sell the nuts at regional markets, where the nuts are sold to the people from the market towns. These latter crack the nuts by hand and sell the kernels mainly to the aforementioned Turkish merchants, who then export the nuts to Turkey and the Middle East. Although the forests are rich in mushrooms, they were not collected in former times. Only at the end of the 1990s, after merchants from France offered good prices for morels, did these mushrooms become resources with a significant market value. From mid-April till May, one can see many women and children collecting morels in the forests. After being dried, the morels are sold in the markets and exported to France and Japan. Additionally, a Chinese joint venture has opened an apple-processing factory in Jalalabad. Members of the company buy wild and garden apples in the villages and produce an apple concentrate, which is then exported to China.

The most prominent foreign influence on forest utilisation, however, are the salesmen from American and European wood companies, who came to the area immediately after the collapse of the USSR in search of walnut tree burls. In contrast to the Soviet times, where luxury items were neither asked for nor permitted to be shown, nowadays the burls bring extraordinarily high prices. The burls are peeled and processed into veneer, and used for the interior of luxury cars. Many large walnut trees have been cut down over the last decade to yield such burls. The burl trade is conducted in a "semi-official" way. Officially, a contract between the local forest administration and the client companies regulates the amount of burls and payment, but a lively trade seems also to exist outside the limits of these contracts. Many people of the respective villages claim that more trees than allowed are felled, and that high officials are receiving extra unofficial payments from the companies, while the

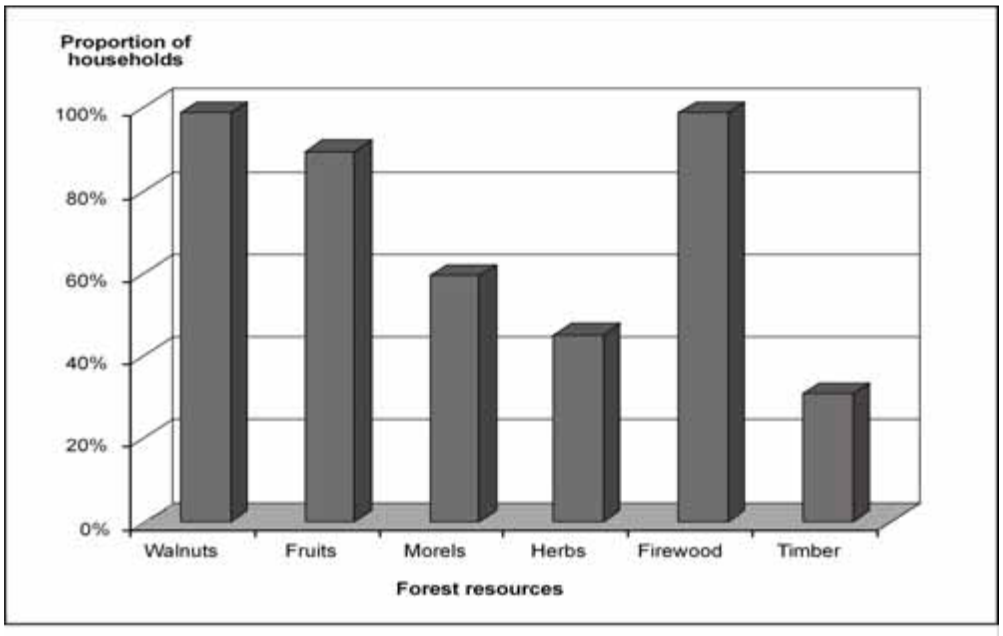
[4] The relatively small amount of arable land within the *leshozes* is also rented out to the households, but this constitutes only 0.3 to 0.5 hectare per household.

[5] The forestry sector of Kyrgyzstan is currently in the process of reorganisation. A Kyrgyz-Swiss Forestry Support Programme is trying to introduce collaborative forest management in the walnut-fruit forests; c.f. Carter *et al*. 2003, Fisher *et al*. 2004

local *leshoze* gets only a small amount of money and the villagers nothing. One agent from a British wood company donated some money for the local nursing station, the nursery school and the primary school of a concerned village, which I would interpret as an attempt to pacify the population. According to the official *leshoze* papers of this village, in 2003 only four walnut trees with burls were felled in the form of sanitary felling (Omoshev 2003). In fact, the number was much greater — as I personally witnessed. Almost all timber is exported nowadays and only small quantities are processed locally into furniture and souvenirs.

The local demand for firewood is extremely high these days. Due to the dramatic population growth within the last decades, and the fact that all coal and gas supplies broke down after the collapse of the Soviet Union, the demand for firewood has increased drastically. Furthermore, significant amounts of firewood are also sold at the markets in the Fergana Valley, to generate additional income. Officially, in order to collect firewood people need a permit from the *leshoze*, which specifies the place and amount of wood to be cut. In fact, wood is cut not only in the prescribed areas, but also in the forest territory, with the highest exploitation rates occurring near the settlements.

As can be seen in Figure 4, forest products play an important role today in the livelihood strategies of the local population. Members of almost all households collect walnuts and firewood to meet subsistence needs and to generate income. A high percentage of households regularly collect fruits and morels from the forests, and not insignificant numbers generate income by collecting and selling herbs. Because it is currently difficult for the local population to make their living mainly from local sources, the land itself is an important resource for different uses. People often transform parts of their rented forest plot into hay meadows or arable land, to gain arable crops (cf. Messerli 2002). Although the recreational function of the forest is as important as in the past, the number of tourists spending their holidays in the area has declined significantly. Two aspects are responsible for this trend: First, the independence of the former Soviet Republics created new borders, which became more difficult to cross; during Soviet times, most of the tourists originated from Andishan and its surroundings, which are today part of Usbekistan. Second, people's personal lack of financial means and the reduction of state subsidies make holidays for many people exorbitant. On the other hand, Kyrgyzstan today is more easily accessible for foreign visitors, and more and more tourists from Western Europe are arriving in the walnut-fruit forest area. Although the number is still very small, around 600 foreign tourists came to Arslanbob in 2004 (Information from CBT Arslanbob). These international tourists have other needs with respect to tourist infrastructures and recreational programmes. The Community-Based Tourism project (CBT) recently established by the Swiss organisation Helvetas tries to satisfy these requirements, and helps spread the profit from tourism to several households of the village.



Source: Own survey, 2004

Figure 4 Extraction of resources from walnut-fruit forests by local households

The scientific interest in the forests which has existed for several decades is demonstrated today not only by Kyrgyz scientists of the Institute of Forest and Nut-Farming of the National Academy of Sciences, but also by researchers from European countries. Several international research projects are active in the area, all of which have been attracted by the uniqueness of the walnut-fruit forests. Apart from the researchers' pure scientific interest, these projects are mostly linked with efforts to preserve the forests. This is justified by the global importance of these forests as a unique gene pool — a world heritage that should be protected (Sorg *et al*. 2003, Succow 2004).

4 Changing Forest Use and Its Impact on the Walnut-fruit Forests

South Kyrgyzstan's walnut-fruit forests are a valuable feature of the natural environment, but one, which is currently subject to a multiplicity of conflicting demands and uses. The forests function as sources of timber, nuts, fruits, hay and medicinal herbs, and are important in both their ecological role and as a recreational area. The various forest plants became valuable resources solely due to the demands articulated and realised by people. Over the course of time, the specific forest products and functions have been variously appraised, in differing modes and levels of intensity. The multifunctional use of the forests — how the demand for forest products and the valuation of forest functions have changed over time — is shown in Table 1.

Prior to the Russian occupation of Turkestan, the forests were highly esteemed as sources of firewood for subsistence and charcoal for income generation. Nuts and fruits played a role for direct consumption only and were probably not sold in markets. The main interests of the Russian administration were maintaining political control of the area, establishing a forest administration and generating economic output through the timber trade. It is remarkable that the Russians already acknowledged the significance of the forests' ecological functions in their forest policy.

The Soviet forest administration pursued three different goals with their forest policy: First, the forests provided economically valuable products, such as timber, firewood, walnuts and various fruits. These were to be used as intensively and effectively as possible for the welfare of the Soviet economy. They drew up detailed plans and developed procedures for utilising the different forest products, all of which was administered by a forest administration that was structured all the way down to the local level. Second, the forests fulfilled important ecological functions with regard to their influence on hydrology, climate and geomorphology. Thus, several laws were passed to regulate the forest use; e.g., livestock was totally banned from most parts of the forests. Third, the forest regions were considered an ideal recreation area, which led to the projected development of a tourist infrastructure. Since forest policy and management was drawn up and carried out solely by state institutions, hardly any potential conflict of interest between the three different aims was noticeable.

Table 1 Forest Utilisation form a historical perspective

	Pre-Russian (before 1876)	Russian Empire (1876 ~ 1917)	Soviet Union (1917 ~ 1991)	Kyrgyzstan (since 1991)
Extracted forest products	Firewood, charcoal, nuts, fruits	Firewood, timber, burls, nuts	Firewood, timber, nuts, fruits, grass, herbs	Firewood, timber, burls, nuts, fruits, grass, herbs, morels
Reason for demand	Subsistence, income generation	Raw materials for export, subsistence economy	Raw materials for Soviet economy	Raw materials for export, contribution to subsistence
Further forest utilisation	Grazing	Grazing	Recreation	Grazing, recreation
Actors	Locals, merchants	State Forest Administration, locals	Soviet Forest Administration, leshozes (~ locals)	State Forest Administration, leshozes, locals, merchants, international companies, tourists

Today, similar economic, ecological and recreational interests still prevail. But now the interests are modified in intensity, directed toward slightly different aims, and most important, they are articulated by multiple actors. Firewood and walnuts are important in the livelihood strategies of the local population. They are much more in demand than in former times simply due to the increased number of users, and because of limited alternatives for generating income. New demand for specific products, such as morels and burls, has increased their value significantly. Collecting these products today has become not only an important source of monetary income for almost all households of the region, but other actors also participate in this business: the *leshoze*, merchants, and both Kyrgyz and international companies. In ecological terms, today the most important factor on a global scale seems to be the forests' gene pool, although the scientists also stress the significance of other ecological functions, such as erosion control, influence on climate and water cycle. Tourism is often seen as a pivotal point for the economic development of the region. The values and needs of the tourists have changed, however, and are nowadays more difficult to satisfy than in the past. This is especially true of the demands of foreign tourists, in terms of tourist infrastructure, leisure activities and a clean environment.

Finally, the impact of the different forms of utilisation and management of the walnut-fruit forests needs to be discussed. According to statements by Russian explorers at the end of the 19th century, the high rate of wood-cutting, especially for charcoal production, and the nomads' practice of extending pastures by burning off forest plots had already led to a deterioration of forest cover (Lisnewsky 1884; Rauner 1901). During Soviet times, the impact on the forests was very intense: mainly for economic reasons, different forms of felling, even clear felling, were practised and many thousands of trees were planted, to achieve higher yields in nuts, fruits and timber. Furthermore, people were given plots for hay making, thus preventing the growth of seedlings. As a result of all these practices, the forest structure was altered dramatically and the density of the walnut stands decreased considerably (Venglovsky 1998). Today, there is even more pressure on the forests. Selective felling of the best timber, intense firewood collection, uncontrolled cattle grazing, extensive haymaking, etc., are all leading to a change in forest structure. There is a decrease in bio-diversity, a decline in forest cover, an overall degeneration — and resultantly, a reduction in forest productivity and a marked decline in the protective ecological functions.

5 Conclusion

The present poor condition of the walnut-fruit forests of South Kyrgyzstan is first and foremost the result of unsustainable forest utilisation. This process of misusing the resources had already begun before a forest administration was ever established, and the different forms of forest policy conducted over the last 120 years were unable to prevent it. As has been shown, this is only partly connected with an increased number of users; mainly it is due to the changing political conditions and economic concepts. The region has undergone three radical political upheavals, all of which influenced forest use and management. The most recent transformation process initiated by the collapse of the Soviet Union has indeed led to political and economic liberalization, but also to impoverishment of the local population. As a result of globalisation processes, new actors have appeared on the scene, interested in formerly sparsely demanded products or taking over control of trading processes. At the same time, although national forest policy is trying to keep control over the forests and their management, the local population is using the forest freely to meet the exigencies of their current situation. Due to this articulation of claims by a multiplicity of actors, the interests and aims of the various actors today are more divergent than during Soviet times, and conflicts of interest are rife. For example, intensified forestry could increase the economic profit in the short run, but may lead to a reduction of biodiversity and a decline in ecological attractiveness for tourists. Similarly, a strict forest protection policy would need to hinder people from collecting firewood and pasturing their animals in the forests — which, of course, would in turn create problems for local subsistence. As demonstrated here, the walnut-fruit forests are highly politicised and concerns are articulated by actors on local, regional, national and international levels. Today, existential needs and short-term economic interests are leading to a degeneration and even destruction of the forests. For this reason, it is necessary to design new and coherent criteria for the protection and utilisation of these unique mountain forests. Thereby, claims, which are in harmony with forest preservation should be satisfied, while utilisation practices that harm the forests must be inhibited or alternative utilisation means found.

Reference

Ashimov K. S. 2004. Efforts in forestry in Turkestan – History of walnut-fruit forests. Kyrgyz-Swiss Programme on support of forestry of Kyrgyzstan. Bishkek. (in Russian)

Blaikie P. 1999. A review of political ecology. Issues, epistemology and analytical narratives. Zeitschrift für Wirtschaftsgeographie 43 (3~4): 131~147

Bloch P. C. and Rasmussen K. 1998. Land reform in Kyrgyzstan. In: Wegren S. K. (ed.), Land reform in the former Soviet Union and Eastern Europe. London, New York: Routledge. Pp 111~135

Bryant R.L. 1998. Power, knowledge and political ecology in the third world: a review. Progress in Physical Geography 22: 79~94

Bryant R. L. and Bailey S. 1997. Third World political ecology. London, New York: Routledge.

Carter J., Steenhof B., Haldimann E. and Akenshaev N. 2003. Collaborative forest management in Kyrgyzstan: Moving from top-down to bottom-up decision-making. Gatekeeper Series 108, International Institute for Environment and Development. London.

Fisher R.J., Schmidt K., Steenhof B. and Akenshaev N. 2004. Poverty and forestry: a case study of Kyrgyzstan with reference to other countries in West and Central Asia. LSP Working Paper, FAO. Rome.

Glückler J. and Bathelt H. 2003. Zur Bedeutung von Ressourcen in der relationalen Wirtschaftsgeographie. Von einer substanzialistischen zu einer relationalen Perspektive. Zeitschrift für Wirtschaftsgeographie 47 (3~4): 249~267

Goslesagenstvo and Lesic 1997. Short description of Kyrgyz Leshozes. Bishkek.

Hemery G. E. and Popov S. I. 1998. The walnut (Juglans regia L.) forests of Kyrgyzstan and their importance as a genetic resource. Commonwealth Forestry Review 77 (4): 272~276

Kolov O. 1998. Ecological characteristics of the walnut-fruit forests of southern Kyrgyzstan. In: Blaser J., Carter J. and Gilmour, D. (eds.), Biodiversity and sustainable use of Kyrgyzstan´s walnut-fruit forests. IUCN, Gland and Cambridge, and INTERCOOPERATION, Bern. Pp 59~61

Krahmer G. 1898. Russland in Mittelasien. Leipzig: Zuckschwerdt.

Lisnewsky W.J. 1884. Mountain Forests of Fergana oblast. Nowi Margilan. (in Russian)

Messerli S. 2002. Agroforestry – A way forward to the sustainable management of the Walnut Fruit Forests in Kyrgyzstan. Schweizer Zeitschrift für Forstwesen 153 (10): 392~396

Middendorff A. 1882. Outline of the Fergana Valley. Saint Petersburg. (in Russian)

Musuraliev T.M. 1998. Forest management and policy for the walnut-fruit forests of the Kyrgyz Republic. In: Blaser J., Carter J. and Gilmour D. (eds.), Biodiversity and sustainable use of Kyrgyzstan´s walnut-fruit forests. IUCN, Gland and Cambridge, and INTERCOOPERATION, Bern. Pp 3~17

National Statistics Committee of the Kyrgyz Republic (2000): Population of Kyrgyzstan. Results of the First National Census of the Kyrgyz Republic of 1999 in Tables. Publication II (part one). Bishkek.

North D.C. 1990. Institutions, institutional change and economic performance. Cambridge: Cambridge University Press.

Omoshev E. 2003. Annual report of Kara Alma Leshoze. Kara Alma. (in Russian)

Rauner S.J. 1901. Mountain forests of Turkestan and their relevance for the water management of the region. Saint Petersburg. (in Russian)

Sorg J. P., Venglovsky B.I. and Schmidt K. 2003. ORECH-LES: Biodiversity and sustainable management of Kyrgyzstan's walnut-fruit forests: development of new silvicultural approaches. European Tropical Forest Research Network News 38: 65~67.

Succow M. 2004. Schutz der Naturlandschaften in Mittelasien. Geographische Rundschau 56 (10): 28~34.

Usolin A.I. 1984. Taxation dictionary of the walnut-fruit forests of South Kyrgyzstan. Frunse. (in Russian)

Venglovsky B.I. 1998. Potentials and constraints for the development of the walnut-fruit forests of Kyrgyzstan. In: Blaser J., Carter J. and Gilmour, D. (eds.), Biodiversity and sustainable use of Kyrgyzstan´s walnut-fruit forests. IUCN, Gland and Cambridge, and INTERCOOPERATION, Bern. Pp 73~76