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Forestry Outlook Study for West and Central Asia
(FOWECA)

Thematic paper

Land use dynamics and institutional changes in Central Asia

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1 INTRODUCTION

Central Asia and the Caucasus presently undergo distinct political, economic and social transformations due to the collapse of socialism and break-up of the Soviet Union. All of the countries have declared their willingness to establish a market economy and democracy. However, the level of associated reforms varies substantially across the region and, most probably, the countries will follow different post-socialist developmental paths.

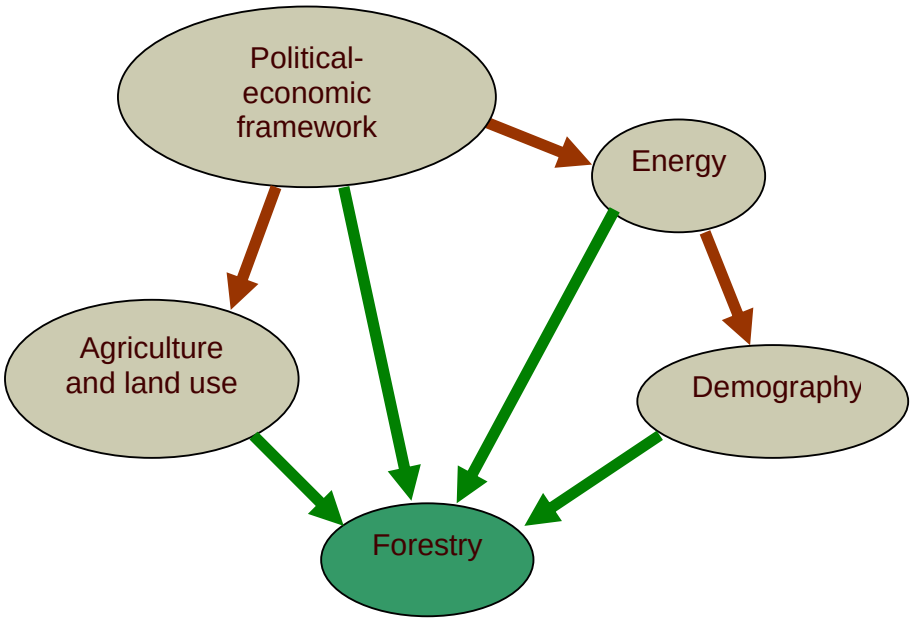
Although the contribution of the forestry sector to the region's economy is very modest (less than 1.5% of the share in GDP, much less than the average global level of 3%, FAO, 2003), forests still play huge ecological, social and cultural role. Forestry cannot be considered in isolation from the overall political, economic and social context. Recent changes in the overall political and economic environment have affected the quality of forest management and will continue to do so in the future. The developments and changes in demography, energy, agriculture and rural land use will also significantly impact the forestry sector (see Figure 1).

Using 2020 as a time horizon, this report examines the current land use dynamics and policy, legal and institutional developments within and outside the forestry sector. Based on this information, some future implications are identified. The following questions are addressed:

1. To what extent have democratization, decentralization and economic reforms taken place and have these developments affected forests?
2. What are the impacts of present and future demographic tendencies upon the forests?
3. Is there any potential to address the energy crisis in the near future?
4. What is the impact of the developments in agriculture and rural land use upon forests?
5. Are there major changes in government priorities in terms of forest management and what are the associated institutional and legal developments?
6. Has there been any diversification of actors in the forestry sector?
7. What impacts have these changes had upon the quality of forest management and forest condition?

Chapter 2 describes the current political governance system and economic situation with major foci given to the levels of democratization, decentralization, public participation and economic reforms. Recent developments in demography, energy, land use and agriculture are evaluated in Chapters 3-6 (respectively). Chapter 7 analyses the policy, institutional and legal changes in the forestry sector as a consequence of the impact of overall political-economic process. The final chapter (Conclusion and prospects) summarises major findings of the report and briefly considers future development prospects.

Figure 1 Forestry within the wider political-economic context in the region



2 EMERGING POLITICAL-ECONOMIC AND INSTITUTIONAL SCENARIO

2.1 Political governance

In the early 1990s, despite the collapse of socialist system in the region, there was poor public understanding of the alternative political, economic and social arrangements. The understanding of democracy was basically translated into free elections. Other essential attributes of democracy such as the rule of law and strong civil society remained underdeveloped. This political vacuum was rapidly filled by a centralized system of governance. The majority of the first presidents of newly emerged states were former communist rulers. The initial changes in governance system were very slow, as the new leaders maintained that the transition to democracy and a market economy should be gradual. According to their opinion, the public in general was not ready for rapid reforms (Bendersky, 2005). Therefore, a typical 'top-down' approach prevailed.

The new constitutions, adopted in the mid-1990s, formally established democratic states with market economies. They have provided for the distribution of powers among the executive, legislative and judicial branches of the government. In reality, the balance of real political power has been skewed in favour of the executive branches controlled by the heads of states. The latter almost unilaterally make key political and economic decisions in most countries (EP, 2005). However, the centralization of political power varies significantly across the region (Table 1, see also Box 1).

Table 1 The different levels of centralization of political power in the region

	The levels of centralization			
Country	Extremely high	Very high	High	Moderate*
Georgia				√
Kyrgyzstan				√
Armenia			√	
Kazakhstan			√	
Tajikistan			√	
Azerbaijan		√		
Uzbekistan		√		
Turkmenistan	√			

Note: *Recent political events in Kyrgyzstan are taken into account
Source: EP, 2005

Box 1 Contrasting Political Systems in the Region

Presidential rule in Turkmenistan is much stronger than in any other country in the region. The President Niyazov has a strict control over political and economic life of the republic. In 1999, amendments were made in the constitution, which enabled Niyazov to remain as President for an unlimited period. Nearly every candidate in parliamentary elections is a member of the presidential party. The President is a head of the Cabinet of Ministers and appoints the procurator general. The Committee for the Preservation of State Secrets is responsible for registering and approving all Turkmen newspapers, which places the mass-media under strict official control. Nevertheless, the role of illegal economy and tribal links is very significant, which in the longer term may undermine political and economic stability of the country. The majority of population experience serious economic hardships, while strategic programs aimed at the achievement of economic prosperity have largely failed.

The situation is diametrically different in Georgia, where the grievances associated with the widespread corruption among government officials have been deeply enrooted in the minds of the general public. In November 2003, massive protests took place in the country against President Shevardnadze, who was alleged to have rigged the recent parliamentary elections. These protests resulted in the resignation of Shevardnadze. In January 2004, Michael Saakashvili (the former leader of the opposition) was elected as the new President. At present, the establishent of genuine democracy and economic reforms largely depends on the determination of the young leaders to continue with promised democratic changes.

Similar revolution, though less organized and more violent, has recently occurred in Kyrgyzstan. Motivated by rigged parliamentary elections, and fears that President Akaev had intended to stay in power indefinitely (and conduct even more suppressive policies), the protestors, led by the opposition groups, forced the president to leave the country. Whether stabilization and more democratic system will prevail in the near future, is still uncertain, however.

(The Economist, 2005; EP, 2005)

As the table above shows, the countries can be classified into four very broad groups in accordance with the levels of centralization and strength of presidential power: Extremely high, very high, fairly high and moderate. This classification is based on various criteria, such as the role of opposition, independent mass-media and NGOs in political life. In general, the roles of the latter are still quite limited in much of the region. Many national and international observers point out the absence of fairness of presidential and parliamentary elections. Opposition leaders often complain about political suppression and harassment from government officials and ruling parties (The Economist, 2005). The situation is very different in Georgia, where the weakness of the presidential power (and central authorities in general) combined with the strength and determination of the opposition resulted in the replacement of the presidents. In Georgia public protests were strengthened by the support of a number of human rights advocacy groups (such as the Liberty Institute based in Tbilisi). These groups received considerable support in building their capacity (including funding and training) from international human rights and civil society organizations. Many of their employees have completed their education in Western universities.

The cause of such great variation in the political systems is quite complex. In general, the traditional culture of the Central Asian societies supports stronger government authority (Bendersky, 2005). Also, the level of centralization of political power is usually positively correlated with the availability of strategic energy resources such as oil and natural gas (and thus relatively stable sources of income, used to strengthen the central authorities, Levitsky

and Way, 2002). There is generally weaker public support to drastic political/economic changes in such countries, because of the societies' fear of losing relative economic stability.

2.2 Decentralization

According to the New Agriculturist (2004), decentralization is not an aim in itself, it is rather a means of improving democratic governance and, in this way, may assist poverty alleviation and more sustainable forest management. If the decentralization is to be effective, it should not be imposed upon local communities 'from above'. There should be willingness and readiness of the communities to actively participate in decision-making at the local level. Also, the success of decentralization largely depends on the availability of sufficient resources and the possibility to use these resources at the local level autonomously (New Agriculturist, 2004).

In each country of the region, there are three basic levels of governance: central, regional and local (district, city and village administrations). Local representative bodies (councils) are normally elected, while heads of regional and local administrations (executives) are directly appointed by the presidents. The interaction between the central, regional and local governments is predominantly hierarchical (EP, 2005). Nearly all of the political and economic decisions, including those which are of local importance, are made at the national level.

Most of the national governments have recently expressed their intention to shift greater rights and responsibilities to local authorities. This has been reflected in the adoption of a number of laws on municipal services, local self-government and budget laws at the end of the 1990s. However, the process of actual transfer of power and resources has encountered a number of difficulties. The laws and decrees providing for the interactions between various levels of government are often inconsistent and even conflicting (Dabla-Norris et al, 2000; Doane et al, 2000; KDG, 2005). These legislation gaps are mainly caused by a lack of clearly defined criteria for the distribution of functions between the central and local authorities. Also, in a number of cases, the transfer of responsibilities rather than rights has occurred. In other words, the decentralization of responsibilities is rarely matched by sufficient resources. This has undermined local budgets and, consequently, led to the failure to address many local issues. Some of the directly appointed heads of administrations often unilaterally decide (in both formal and informal sense) upon the issues concerning local resource allocation and use (see Box 2). This undermines transparency and public participation at the local level, which can negatively affect forest management.

Box 2 Problems of Decentralization in Kazakhstan

In Kazakhstan, the legislative branches of regional and district governments, the Maslikhats, are elected. However, the regional and district administrations are headed by centrally appointed Akims, many of whom exercise a large degree of control over land and resource allocation (thus reducing the effective power of Maslikhats). The LGUs have very limited financial autonomy, since their authority to determine or even adjust local expenditures is severely constrained. The responsibility for the provision of social services has already been largely shifted to the LGUs. For instance, the majority of nature protection expenditures are made by local sources. The limited autonomy on one hand and increased responsibilities on the other have undermined local budgets.

(UNECE, 2002b; Kushlin et al., 2003)

Some countries (e.g. Kazakhstan, Georgia, Uzbekistan, etc) are ethnically and culturally quite diverse. Serious mistakes made in national politics of the Communist Party in the past and political turmoil after the collapse of USSR caused serious ethnic conflicts at the early 1990s. The specific causes of these conflicts are complex and have deep political, economic and social roots. Therefore, they are beyond the scope of this report. Although the military phase is long over, firm political settlements have not been found. Consequently, decentralization is a particularly sensitive issue in these countries and should be considered within a different political, economic and social-cultural context.

Unfortunately, existing political, legal and institutional systems fail to adequately protect the rights of ethnic minorities and prevent them from full-scale participation in the governance (at all levels). For instance, the representation of ethnic minorities in national parliaments is often inadequate. In some countries, central authorities are reluctant to transfer political or economic power to the ethnically diverse territorial entities because they fear that this would undermine territorial integrity of their countries. The absence of progress in this sphere may renew inter-ethnic hostilities and undermine all efforts towards the achievement of democracy and civil freedom.

2.3 Public participation

At present, public awareness about democratic values and the necessity to participate in decision-making at all levels is still very limited. The participation in decision-making process is confined to the limited number of interested parties (see Box 3). NGOs, civil rights groups and liberty institutions can be regarded as major promoters of public involvement in decision-making. Their activities mainly involve the dissemination of information and awareness-raising. However, their financial and human capacities are generally weak (CSRDG and UNAG, 2003).

All of the countries of the region have ratified the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (UNECE, 2005). As a result, various ministries (such as environment, health, agriculture, foreign affairs, etc) have started to disseminate the information about the definition and importance of public participation in the form of seminars, publications and websites. However, this information usually becomes available to specialists and ministry employees and remains beyond the reach of the public in much broader sense.

Box 3 Public participation in Armenia

Key stakeholders participated in the preparation of the National Environmental Action Plan in Armenia (NEAP, approved by the Government in 1998). A number of meetings were conducted with representatives of ministries, other institutions and local governments. Consultations were also held with academic and research institutions and NGOs. The draft of the document was mainly discussed with the specialists in the field of environmental and related fields, with limited participation of the general public. At the local level, Armenian citizens are aware of the limited capacity of local authorities to deliver even basic services. Consequently, they have little interest or incentive to participate in the decision-making. They feel that under present circumstances, local governments cannot significantly improve their livelihoods. Without genuine public participation and support, local governments have much less confidence to claim greater administrative or financial autonomy from the central government.

(Doane, et al. 2000; UNECE, 2002)

There is overall scepticism and disbelief that participation in decision-making can yield any tangible results. This has probably been inherited from past socialist ideologies, which has been aggravated by present difficulties associated with the transition process. The feeling that top government officials should resolve their problems is still dominant, especially among the older generation. Often, a major cause of limited public participation is as simple as the shortage of financial means to reach discussion venues (e.g. central offices of ministries or headquarters of NGOs). People simply have more immediate concerns. Finally, viable economic mechanisms of rewarding the participants in actual conservation work (such as waste collection, planting trees, etc) are also very few. For instance, the wages of temporary forestry workers involved in forest conservation and tree planting activities are extremely low.

2.4 Economic policy

2.4.1 Economic reforms

The contrasting political governance systems across the region have largely determined economic policies and reforms (see Box 4). In the more reform-oriented countries, the post-socialist economic reforms were based on the recommendations of international financial institutions such as World Bank. The relevant programs included privatization, economic stabilization and liberalization measures. The implementation of these programs resulted in the stabilization of the national currencies and the growth of the GDPs, especially in the early 2000s (between 5-10% per annum).

However, because the states failed to adequately protect most vulnerable social groups, price liberalization aggravated the problems of poverty and low standards of living. The hasty and inadequately planned privatization (especially at the initial stage) and a lack of transparency resulted in the creation of a large number of inefficient private enterprises and further decreases in production levels. The failure to conduct further structural adjustment measures, corruption and excessive bureaucracy has created unfavorable business conditions (Marashlian, 2000; ADB, 2005a).

Other countries, especially Uzbekistan and Turkmenistan, have adopted more gradual economic reform policies relying on the use of state planning, trade control, directed credits and large public investments. At the beginning, this helped avoid dramatic collapse in

economic output and severe impoverishment of the population. Also, significant economic growth was achieved due to the development of fossil energy resources and, specifically, high oil prices. However, growing macroeconomic distortions, a lack of economic freedom and unfavourable business environment have restricted foreign investments and limited the potential for economic growth. In addition, the problems of poverty and unemployment are still very serious in these countries. Without structural reforms, achieving long-term macroeconomic stability and higher living standards is not realistic (Sirajiddinov, 2004; WBG 2004).

Box 4 Turkmenistan and Georgia: Contrasting economic systems

Turkmenistan has been very conservative in terms of economic reforms. Privatization has been virtually halted since the mid-1990s. State investment accounts for around 30% of the GDP, mainly covering oil, textiles, food processing, transportation and construction. The services sector has been mostly privatized and, currently, private sector controls more than 90% of retail trade. In contrast, the state share in industry is more than 80%, while medium and large-scale enterprises remain in state hands. These enterprises are subject to the mandatory state plans. The supply of basic commodities such as water and natural gas is either free or very heavily subsidized. The tight state control of the economy and a lack of transparency severely restrict private investments.

In Georgia, the Structural Adjustment Programs have been implemented by International Monetary Fund (IMF) and World Bank since the mid-1990s. The associated measures have included privatization, price liberalization, cutting social expenditure and freezing wages. Though painful, these measures helped to overcome the problems of inflation and economic stagnation. Privatization at the early 1990s was poorly organized and non-transparent. After the end of 2003, the new Government has accelerated the economic reform and restructuring process. This includes selling some of the state-run strategic enterprises, such as mining enterprises and metallurgical plants, the simplification of the Tax Code and removal of excessive bureaucracy. These policies aim to attract foreign investments and reduce the share of a 'shadow economy'. Their success will depend on the maintenance of political stability, international assistance and firm determination of the government.

(Kochladze, 2002; NCA, 2003; WBG 2004; CIVIL.GE, 2004)

2.4.2 Trade liberalization

The economy of the region is becoming increasingly open with Georgia, Armenia and Kyrgyzstan having joined the World Trade Organization (WTO) and others planning to do so in the near future. In theory, greater liberalization of markets, free trade and the establishment of favourable trade regimes with partner countries through bilateral and multilateral agreements (e.g. General System of Preferences) should promote the growth of exports, including agricultural and forestry products and attract foreign investments. Whether membership of the WTO will actually bring these benefits, however, is still not very clear, as the influx of cheaper imports could undermine domestic industries. Also, the access to Western markets is still largely restricted, as many countries successfully use non-tariff trade barriers to protect their own markets, such as import quotas, licenses, and technical requirements, including those for agricultural products (CFS, 2005; Hall, 2005).

2.5 The impact upon forest

The highly centralized political system leaves very limited space for autonomous decision-making in the forestry sector and impedes the introduction of adequate reforms. Such a system tends to produce simplified institutional arrangements, failing to address multipurpose and complex forest management tasks (Hue, 2004). According to CARPE (2005), the concentration of management authority in the hands of a few people almost always results in unfair distribution of forestry-related benefits. In this way, it triggers the violation of legislation, including illegal forest harvesting by disadvantaged stakeholders. Within a highly centralized and non-transparent system, there is almost always a strong incentive for the authorities to seek profits from large-scale production and export of natural resources (CARPE, 2005). Unfortunately, this picture can largely be observed in the region. The state control over forest resources is very week, due to the lack of financial and human resources (despite state monopoly over the sector). In the absence of transparency and civil control, an overwhelming majority of illegal activities remain unpunished. Individuals with real decision making power, such as high ranking government officials, lack sufficient forestry-related knowledge.

In such circumstances, the future development of the sector is highly dependent on the personal priorities of top leaders. The sector can benefit in the short term, if it is among the priorities of a central government. However, it may also become very vulnerable to rapid changes in these priorities, or the government itself. Whether the recent political changes will have any significant impact upon the forestry sectors of Georgia and Kyrgyzstan is still to be seen. In the very short term, these changes may even slightly delay the introduction of reforms, until the uncertainties associated with the drastic political change are finally settled. However, in the longer term they could support greater public participation and transparency.

Scarce local budgets, excessive power of many local authorities and a lack of transparency negatively affect forest management. For instance, local governors often unilaterally decide upon the allocation of forest-based resources without consulting relevant forestry authorities. Often such decisions are based on illegal and corrupt deals.

Trade liberalization (i.e. the reduction or removal of import/export tariffs) could increase the volumes of traded forest products which is negatively perceived be environmental groups (Ramsey, 1999). The lowering of import tariffs would reduce timber import costs and thus increase the volumes of imported wood. Because the region is heavily dependent on imports of wood products, this would reduce the pressure upon domestic forest resources. However, trade liberalization would also promote roundwood exports, which, considering the existing problems of corruption, weak enforcement institutions, permeable borders and shortage in domestic wood resources, would be very harmful for forests. On the other hand, export restriction could result in proliferation of the domestic low-capacity and inefficient processing industries, which would eventually even boost (rather than reduce) the pressure upon forests (FAO and WB, 1998). Therefore, any trade restrictions in forest products should only be short-term.

2.6 Conclusion

Despite formal recognition of democratic principles, political governance in most of the region has been highly centralized, while public participation in decision-making has been

very limited. Weak institutions, corruption, a lack of relevant experience and limited public awareness about democratic values (inherited from the socialist past) are among major causes of this problem. Although economic reforms have brought relative stabilization and modest GDP growth, the problems of poverty and welfare loss still persist. The excessive centralization combined with resource misallocation and limited accountability at the local level fails to create favourable conditions for sustainable and multipurpose forest management. The continuation of economic reforms and trade liberalization and, at the same time, the protection of most vulnerable groups, appears to be essential prerequisite for the long-term, sustainable economic growth and development. The welfare improvement in turn would significantly contribute to more sustainable forest management.

3 DEMOGRAPHY

3.1 Current trends

The post-socialist demographic changes have been significant. Economic and political problems have reduced the rates of population growth and have created new patterns of migration. Table 2 presents the overall demographic changes in the region, which have occurred over the last 15 years. These estimations are very approximate, as accurate and reliable demographic data about the region is not available. This is attributable to the severe shortages of state funding as well as very rapid changes in the population dynamics.

Table 2 Recent and anticipated demographic changes in the region

Country	Arm.	Aze.	Geo.	Kaz.	Kyr.	Taj.	Tur.	Uzb.
1990								
Total pop. (m)	3.5	7.2	5.5	16.8	4.4	5.3	3.7	20.5
Density (p./ km^2)	123	84	79	6	23	37	8	48
Rural %	32	46	44	42	62	68	55	59
1995								
Total	3.3	7.8	5.2	16.6	4.6	5.7	4.2	22.8
Density	116	91	75	6	24	40	9	54
Rural %	31	44	42	40	61	68	55	59
2000								
Total	3.1	8.2	5.1	15.6	4.9	6.1	4.6	24.9
Density	109	96	73	6	25	43	10	59
Rural %	30	43	39	38	60	67	54	58
2005								
Total	3.0	8.5	5.0	15.4	5.2	6.4	5.0	26.9
Density	106	100	72	6	26	45	11	64
Rural %	29	41	37	36	58	66	53	56
2020								
Total (projected)	3.5	9.9	5.7	15.4	6.2	7.8	6.2	32.3
Density	123	116	65	6	31	55	14	77
Rural %	23	34	30	30	49	57	45	47

Source: adapted from UN, 2001; 2002, UN Habitat, 2005, FAO, 2005

As the table above shows, Armenia is the most densely populated country in the region, followed by Azerbaijan and Georgia. Kazakhstan has the lowest population density. In general, the Caucasus is more populated than Central Asia. The population is very unevenly distributed in the latter, with the majority concentrated in lowlands and valleys.

Hundreds of thousands of people have left each country overt the last ten years. Most of these emigrants, predominantly of working age, go abroad (mainly to the Russian Federation) to find employment and support their families. Over the last 15 years, the overall population numbers have been declining in Armenia, Georgia and Kazakhstan. The former two have been severely affected by the economic crisis and ethnic conflicts, which caused much more rapid emigration and the reduction in birth rates (GA, 2001; Metreveli, 2002). In Kazakhstan,

emigration and low birth rates appear to be less severe problems (and, hence, lower net growth rate, IOM, 2003). In the remaining countries, high birth rates have outweighed the recent negative impacts and, consequently, the positive population growth can be observed (CIA, 2005).

The overall age of population varies significantly across the region, with the proportion of 0-14 year-old population highest in Tajikistan (39.2%) and lowest in Georgia (18.7%). Consequently, the population is 'oldest' in Georgia (with median age of 37 years) and 'youngest' in Tajikistan (19.5 years). In general, Central Asian countries are 'younger' with 0-14 year-old population representing well over 30% in most countries (except Kazakhstan, CIA, 2005). Therefore, the availability of workforce will significantly increase in these countries within the next 10-15 years, which will boost the pressure upon the agricultural and forest land, unless substantial increases in job opportunities in other sectors are achieved.

The urbanization trend can be observed in every country, due to the deterioration of livelihoods in rural areas. Poverty, unemployment, deterioration of the quality and productivity of agricultural land and associated environmental problems have forced the rural residents to move to the cities in search for jobs and better lives in general. The influx of rural population to the cities causes significant socio-economic problems. Nevertheless, despite the severe socio-economic problems, the countryside appears to have the high population growth potential (PK, 2000).

3.2 A lack of demography-related policy

At present, there is a lack of comprehensive demographic policy in the region. The countries with negative population growth have attempted to improve demographic balance by helping young families through financial transfers, the amount of which has been very limited. There have been no clear policies specifically targeted at changing the balance in the current pattern of rural-urban migration. Nevertheless, the improvement of rural livelihoods (e.g. the promotion of education, communication technologies, infrastructure, job opportunities, etc) is targeted through various programs such as Millennium Development Goals, mainly funded by international donors (UNDP, 2005). These programs, however, can only have very limited impact upon current migration trends, due to the limited funding.

3.3 The impact upon forest

In the longer term the overall population in the region will continue to increase and, by 2020, will reach roughly 120-125% of the level of 2000. This will be attributable to the economic recovery and the maintenance of the present birth rates. The population will also increase (though at much lower rates) or at least stabilize in the countries with currently negative growth. The present tendency of migration from rural to urban areas will continue, as the improvement of livelihoods is mainly expected in urban areas.

At this stage, it is hard to predict whether these changes will significantly affect the overall demand for wood in rural areas. Although the proportion of rural population will decrease, it is not very certain whether this will result in the reduction of a total number of rural residents (as the overall population will continue to grow). In Georgia, Armenia and Kazakhstan rural depopulation is more likely to occur (see Table 2), which might result in slight ease of the

pressure upon forests. In general, however, due to the overall increase of population (especially that of the working age), the pressure upon forests will undoubtedly increase, if other factors remain unchanged. This also implies the increased fuelwood demand in urban areas, unless the overall welfare level is substantially improved. In such circumstances, the only way of reducing the demand for forest resources is the creation of additional job opportunities in non-agricultural sectors.

3.4 Conclusion

The currently observed trend towards migration from rural to urban areas will probably continue. The major causes are the better employment opportunities and living conditions in urban areas on one hand and land degradation combined with poor living conditions in rural areas on the other. Therefore, both the so-called 'push' (e.g. poverty and unemployment in rural areas) and 'pull' (higher standards of living and greater employment opportunities in urban areas) factors have been involved in causing such migration pattern. The rural-urban migration in itself can only affect the overall demand for forest resources to a limited extent. If the energy crisis is not resolved and the livelihoods not improved, the increased overall population numbers will almost certainly boost the wood demand.

4 ENERGY POLICY

4.1 Energy resources of the region

It is extremely important to resolve the energy crisis, a major cause of illegal harvesting of wood (see Chapter 7, 'The problem of illegal forest utilization'). This in turn depends on the availability of energy resources as well as adequate policies. Georgia, Armenia, Tajikistan and Kyrgyzstan possess very limited amounts of fossil fuel. However, they have considerable hydro-electric power resources. According to recent estimations, Azerbaijan and Kazakhstan are very rich in oil and natural gas, while Turkmenistan and Uzbekistan are mainly rich in gas (see Table 3). Some of the countries (e.g. Kazakhstan) have significant coal reserves. However, the use of coal as an energy resource is diminishing because of the increasingly high transportation costs.

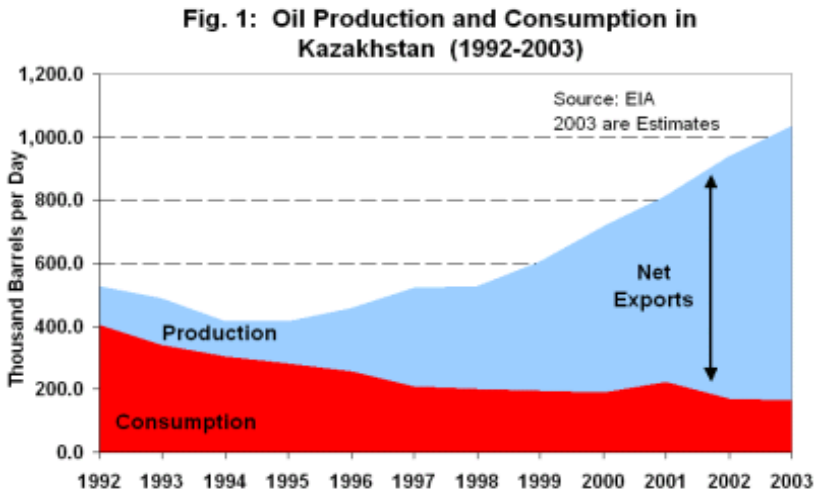
Table 3 Available energy resources in the region (2002 and 2003)

	Proven oil reserves (bbl)	**Proven natural gas reserves (bm3)**	**Electric generation capacity (gw)**
Armenia	0	0	2.6
Azerbaijan	7-13	870	5.2
Georgia	0.012	8.7	4.4
Kazakhstan	9-17.6	2,030	17
Kyrgyzstan	0.04	5.8	3.6
Tajikistan	0.012	5.8	4.4
Turkmenistan	0.55	2,900	3.9
Uzbekistan	0.6	2,100	11.8

Note: bl barrels; bbl – billion barrels, bm3 – billion cubic meters, gw – gigawatts, bkwh – billion kilowatt-hour, th – thermal, hd – hydroelectric.
Source: CBA, 2002; EIA, 2004; USDOE, 2003; USDOE, 2003a

Azerbaijan and Kazakhstan are net exporters of oil (see Figure 2), while Turkmenistan is a net exporter of both oil and natural gas. The current shares of oil in total budget revenues of Azerbaijan and Kazakhstan well exceed 50%. The volumes of oil production are steadily increasing, while more rapid increase in natural gas production is a longer-term perspective (EIA, 2004).

Figure 2 Oil Production and consumption in Kazakhstan over the period 1992-2003



Source: EIA, 2004

4.2 Government policies

The variation in availability of energy resources as well as political governance systems has resulted in different energy policies. The net energy importer countries mainly focus on alternative energy resources, including renewable ones. Their immediate priorities include the increases in natural gas imports, diversification of the sources and energy transits (see Box 5). In contrast, in the fossil energy-rich countries (which tend to be more politically centralized) the energy sector subsidises other sectors (Sharma, 2003; Tsalik, 2003). Privatization, removal of subsidies and price liberalization are necessary preconditions to attract greater foreign investments (EIA, 2004). Based on the recommendations of international financial institutions, some countries have privatized electric energy systems and liberalized prices. The price liberalization has negatively affected the population, due to the lack of adequate protection mechanisms for the vulnerable groups.

Box 5 Baku-Tbilisi-Ceyhan and Baku-Tbilisi Erzurum pipelines

Around 240 km of the pipeline corridor extending from the city of Baku (Azerbaijan) to the Mediterranean port of Ceyhan (in Turkey) pass through Georgia. This corridor includes the Baku-Tbilisi-Ceyhan oil pipeline (to be completed in 2005) and the Baku-Tbilisi-Erzurum natural gas pipeline (to be completed in 2006). Regional governments and international investors expect these pipelines to become two of the primary conduits for Caspian oil and gas exports within the next decades. Georgia will be paid transit tariffs and will be allotted a percentage of fuel passing through its territory. The implementation of this project will significantly mitigate the energy crisis experienced in the country. However, for the total satisfaction of the energy demand, it will be necessary to search for additional supplies.

(EIA, 2004)

Nevertheless, reforms and reduced state intervention helped attract significant foreign investments. The severe energy crises experienced at the early 1990s was a major driving force for the improvement in energy self-sufficiency and efficiency in fossil-energy poor countries (Table 4).

Table 4 The increase in self-sufficiency and efficiency of the Georgian energy sector

Energy self-sufficiency and efficiency	**2000**	**2001**	**2002**
TPES (1,000 toe)	3.40	2.59	2.56
Indigenous production (1,000 toe)	1.33	1.27	1.33
Import (1,000 toe)	2.15	1.46	1.31
Indigenous production/TPES	0.39	0.49	0.52
TPES (toe)/GDP US$1,000 (1995 prices)	0.81	0.69	0.65

Note: TPES – Total Primary Energy Supply; toe – ton oil equivalent.
Source: BEE, 2004

The politically more centralized fossil energy-rich states have retained greater shares in the privatized companies and retained total ownership in the remaining ones. They have continued to heavily subsidise energy supplies to the population (see Box 6). Little has been done in terms of reforming the pricing and reducing state intervention. The privatization process has been neither open nor transparent in most countries. In general, a lack of transparency in the energy sector is characteristic of the region (Kochladze et al., 2002; Sharma, et al., 2003; Tsalik, 2003; Europa, 2004; PFMC, 2004). The energy sectors of Turkmenistan and Uzbekistan have received less foreign investment, supposedly for the excessively centralized political governance systems and a lack of reforms (Tsalik, 2003; EIA, 2004). In contrast, Azerbaijan and Kazakhstan have pursued relatively liberal energy policies, which helped them attract considerable foreign investments (EIA, 2004).

Box 6 Energy policy of Uzbekistan

Uzbekistan is rich in fossil fuels, while the energy sector is fully state-owned. The policy responsibilities are with the Fuel Energy Complex, while regulatory responsibilities are split between several institutions. Nevertheless, the sector is considered as strategically important and all key decisions, including pricing and private sector participation are made by the President. Oil and gas are sold to the local population and industrial enterprises at a fraction of market prices and the extraction costs. Such a form of subsidization is inefficient and unsustainable because of the highly wasteful use of energy and increasing fiscal deficits. In 2002, the authorities adopted a medium-term price program aiming at gradual energy price increases. However, these price increases were virtually leveled off by the inflation. The increasing of energy export and meeting the energy demand of the country in a sustainable way require large-scale investments, sizeable proportions of which should come from foreign investors. This in turn depends on the liberalization of the sector, above all the adjustment of the prices to a market level.

(Sharma et al., 2003)

4.3 Potential contribution to economic development and diversification

To date the contribution of the sector to the improvement of livelihoods has mainly occurred in the form of subsidised energy supplies to the population. However, the subsidies are neither efficient nor sustainable in the long term. By 2010, the share of the sector in GDP may increase to as much as one third in fossil-rich countries, which will be attributable to the increases of the extraction volumes and domestic energy prices. It is anticipated that transport and construction sectors will benefit most from the 'energy boom', unlike agriculture and public services (CSL, 1999). Much of the produced oil and gas will be utilized domestically in Kazakhstan and Uzbekistan, due to the high capacity of the metal industry in the former and huge demand for natural gas in the latter (because of the high population density). Domestic crude oil consumption will be much lower in Azerbaijan and Turkmenistan, which will be largely export-oriented. Azerbaijan already exports more than half of the produced oil (CSL, 1999; Tsalik, 2003). Therefore, the economic development and diversification will largely depend on the ways of utilization of oil revenues (see Box 7).

Box 7 Azerbaijan: Attempts to diversify the economy

The State Oil Fund of Azerbaijan (SOFAZ) has been established on the basis of the Decree of the President in 1999. The fund should enable the state to avoid macroeconomic distortions. The major sources of revenue for the fund will be incomes generated from the country's share of sales of crude oil and natural gas, royalties and rental fees for the use of state property by foreign companies under oil and gas contracts and other revenues from joint activities with foreign companies. Currently, over 800 million US$ have been accumulated in the fund. About 10% of the total annual revenue of the fund (approximately 18 m US$ out of 180 m US$) is used to finance housing and improvement of socio-economic conditions of socio-economically most vulnerable groups. The bulk of the revenue is transferred to the state budget. Criteria on how the available funds will be utilized have not been clearly defined. In addition, like the Kazakhstan's National Fund, SOFAZ is directly subordinated to the president and lacks sufficient oversight mechanisms.

Some efforts have been made to ease the heavy dependence of the economy on oil and gas revenues and to achieve greater diversification. In 1999, the Government of Azerbaijan passed a law on 'State Support for Small Enterprises' and a decree on 'Measures to Accelerate Reforms in the Agricultural Sector'. Lower interest loans were provided for small and medium-sized enterprises and agricultural producers were exempted from a number of taxes for the period of five years. The number of licences required for the registration of businesses has been enormously reduced. However, these steps were still quite modest, as major obstacles, such as access to credits and excess bureaucracy still remain.

(SOFAZ, 2005; Tsalik, 2003)

4.4 Alternative energy resources

The region includes some of the most suitable locations in the world to develop renewable energy resources. According to the World Bank (2004), about 740 MW of small hydro, wind and geothermal energy sources have been identified in Armenia, which, if implemented, would account for 25% of the present energy consumption of the country. The steppes of Kazakhstan are ideal locations to harness the power of prevalent strong winds potentially accounting for 1,820 billion KW-hr. By 2030, wind energy is expected to provide for 12% of Kazakhstan's energy consumption (or about 1.8 billion KWh annually). Solar energy is particularly economical for heating water. Consequently, at present the utilization of solar energy is mainly carried out in the direction of creating solar water heating plants. There is also significant potential for the development of biofuel resources (such as biogas), especially in the countries lacking traditional fossil fuels. For instance, in Kyrgyzstan, due to the large amounts of agricultural waste biogas could provide up to 30% of rural families with heating (BVI, 2002). At present hydropower generates much greater share of electricity, while its potential is not fully utilized. It should be mentioned, however, that although it is renewable, there can be significant negative environmental impacts such as the reduction of water quality and changes to surrounding environment.

Nevertheless, renewable energy development is still in its infancy. Despite the recognition of the importance of renewable energy resources by the governments, their share in the total energy supply is very low. At present, various donor-funded projects (mainly 2-3 years in scope) are being launched to develop the renewable energy sector. They envisage the construction of power plants of modest scale (a few megawatts) to prepare a basis for further investments in the sector (Irinnews, 2005). The current measures of the governments to

stimulate investments in renewable energy have faced a number of barriers, limiting the large scale development of these resources:

- Very low prices for traditional fuel prices;
- Perception of high risk for renewable energy projects;
- Absence of legislative base to promote renewable energy projects and a lack of state support (despite declared interest in these resources);
- A lack of know-how, limited finance and absence of local investors (WB, 2004; Irinnews, 2005).

Most probably, in the future greater incentives will be created to develop renewable resources because a) traditional fossil-based resources will become increasingly scarce (and thus the prices will increase, making renewable resources more economically attractive) and b) environmental problems such as global warming will become more severe (Lima, 1999). However, this is a very long-term perspective, extending well beyond the time scope of this research (i.e. the year 2020).

4.5 Conclusion

The availability of fossil energy resources varies considerably across the region, resulting in different energy policies. While the economic growth of fossil energy-rich countries will be highly dependent on the utilization of their oil and gas resources, the net importers will continue to focus on diversification and greater efficiency. Economic viability of the utilization of renewable energy resources at a significant scale (apart from hydropower) is a long-term perspective. The rehabilitation and growth of energy sectors require substantial foreign investments, the availability of which largely depends on the economic liberalization. Direct contribution of the sector to poverty reduction and resolution of the energy crisis will be limited. In fossil-rich countries there is a significant potential to use energy export revenues for the improvement of livelihoods. This in turn will depend on the transparency and the effectiveness of public oversight over the expenditures of the financial resources of the oil funds. Unfortunately, there is a lack of such transparency at present. Therefore, most probably the resolution of the energy crisis is a longer-term perspective (five years at least).

5 LAND USE POLICY AND DYNAMICS

At present, accurate information concerning land cover and dynamics of change in the region is not available. Table 5 shows currently available information on the major rural land use categories in the region. These figures, however, are very approximate.

Table 5 Land use in the region in the early 2000s (1,000 ha, % of the total land area)

	Arable land	**Permanent crops**	**Pastures**	**Forests**
Armenia	495 / 17.4%	65 / 2.3%	834 / 29.4%	351 / 12.4%
Azerbaijan	1760 / 20.4%	240 / 2.8%	2562 / 30.0%	1094 / 12.7%
Georgia	793 / 11.4%	269 / 3.9%	1938 / 27.8%	2988 / 43%
Kazakhstan	21535 / 8.1%	136 / 0.2%	185098 / 69.3%	12148 / 4.5%
Kyrgyzstan	1368 / 7.2%	67 / 0.4%	9291 / 48.6%	1003 / 5.2%
Tajikistan	930 / 6.5%	128 / 0.9%	3500 / 24.5%	400 / 2.8%
Turkmenistan	1850 / 3.8%	65 / 0.1%	30700 / 62.9%	3755 / 7.7%
Uzbekistan	4475 / 10.5%	350 / 0.8%	22800 / 53.6%	1969 / 4.6%
Total	**33206 / 7.9%**	**1320 / 0.3%**	**256723 / 61.4%**	**23708 / 5.6%**

Source: adapted from FAO, 2004, 2005; CIA, 2005

As it can be seen, the proportions of different land use categories vary considerably. The overall share of arable land is low, especially in Turkmenistan. Permanent crops occupy very limited area, especially in the Central Asian countries. Pastures (rangelands) are the most prominent features in the agricultural land use, occupying over 60% of the total land area. The rangelands occupy parts of the dry steppe zone, semi-deserts, deserts and foothills. The percentage forest cover is generally very low, except in Georgia. Finally, cities and towns occupy very small areas (in relative terms) in the region.

5.1 Land use during the socialist period and post-socialist challenges

Before the socialist period, livestock grazing involved seasonal movement of herds and flocks between upland (in the summer) and lowland (in the winter) pastures, the so-called transhumance. Frequent pasture changes allowed the regeneration of their productivity. These practices have proven sustainable over centuries. The soviet planning system exploited virgin steppes, creating a large area of over 35 m ha of arable lands at the expense of productive rangelands. Traditional rotational grazing systems were replaced by permanent state and collective farms with enormously increased livestock numbers. These factors resulted in the reduction of the area of productive rangelands. The lack of productive pastures was compensated by subsidized imports of animal feed from other republics of the ex-USSR (CEO, 2002; UNECE, 2002b; Schillborn van Veen et al., 2004). Arable land was also severely affected in the socialist past. Large-scale and uncontrolled usage of chemicals as well as inefficient irrigation and drainage systems caused soil contamination, salinization and waterlogging (CEO, 2002; CGIAR, 2005).

After the collapse of socialism, conventional markets were lost and the import of animal feed was no longer affordable. As a result, the overall number of livestock plummeted (see Figure 3) and there occurred a further decline in the practice of transhumance herding. The

fragmentation of livestock holdings and a lack of operating capital have made integration of seasonal pastures unfeasible. Only about one third of the rangeland area has been used due to the reduced mobility (Suleimenov and Oram, 2000). Herders have concentrated near population centers as well as locations with relatively developed infrastructure, easier access to water and markets. This has resulted in overgrazing and excessive cutting of shrubs for fuel in specific areas. Consequently, the productivity of these pastures has been depleted (Schillborn van Veen et al., 2004).

Almost 14 m ha of the ploughed lands (former rangelands) have been abandoned (UNECE, 2002b). The need for cash crop on one hand and self-sufficiency in staple foods (e.g. wheat) on the other, have triggered further establishment of monocultures. Ploughing up on steep slopes (mainly by subsistence farmers) without proper terracing became one of the major causes of soil erosion. A severe lack of fertilizers and pesticides combined with inappropriate farming practices reduced soil fertility and increased the risk of pests and diseases. In addition, desertification is increasingly becoming a serious problem, mainly connected with improper agriculture, soil erosion and salinization (CEO, 2002; UNECE, 2003, 2004, 2005).

Integrated land use approach is still quite new for most of the concerned government ministries/institutions (GTR 2002). Although current agroforesty-related experience is very limited, there is significant potential for its development (Box 8). The latter could ease potential conflict between afforestation needs and greater pressure on arable and pasture land.

Box 8 The fast growing tree project in Armenia

Agroforestry is a viable option for Armenia because the country has very limited soil suitable for the agricultural use. The purpose of this project is to carry out wood production by establishing plantations on the saline and alkaline degraded soils of the Ararat Valley, which are currently unsuitable for agriculture. Approximately 130,000 North American fast growing poplar trees from various hybrid clones have been planted at different sites in Armenia since 1994 as part of the project. Trees are planted wide enough to allow intercropping of traditional crops such as cabbages, tomatoes, melons, alfalfa, etc between the rows. The possibility of intercropping in the first few years would encourage local farmers to use their own land for wood production. These plantations could become the major source for the softwood lumber production, which would create jobs in sawmills and furniture factories.

(AESA, 2004)

Economically viable forest planting activities can only be carried out in irrigated areas, currently occupied by agricultural crops. Therefore, such activities have very high opportunity costs and, therefore, need careful and all-inclusive economic evaluation. The majority of subsistence farmers have more immediate priorities and it would be very hard to convince them to adopt practices with much longer-term (at least 10-15 years) returns such as planting trees. However, it should also be emphasized that once the yield has been achieved the profits are generally very high, due to the strong demand for wood in the region. Considering the huge interest of the governments in annual returns for cash crops, significant promotion of agroforestry practices by the state seems doubtful.

5.2 Current policy, legal and institutional framework

There is a lack of clear government policies on land use, especially those integrating agriculture and environment. Multiple government agencies, such as ministries of agriculture and environment, departments of forestry and protected areas and land management committees are responsible for land use policies and their implementation. The co-ordination among these agencies is quite poor (see Box 9).

Box 9 Land use authorities in Tajikistan and Georgia

In Tajikistan, the State Committee for Land Administration is responsible for developing land-use policy and carrying out land reform. The Department for Land Use within the Ministry of Agriculture is responsible for issues related to the sustainable use of agricultural land. In Georgia, State Department for Land Management is responsible for land reform as well as monitoring and control over privatized land. Ministry of Environment is responsible for land protection, while Ministry of Agriculture is responsible for agrarian reforms. The division of responsibilities among these agencies is not very clear, while the co-ordination and information exchange is poor.

(UNECE, 2003; 2005)

As already mentioned, the political governance system in most countries of the region is highly centralized. Some of the centrally appointed local authorities enjoy excessive power at the local level at the expense of local communities. The huge power of these local authorities combined with vague and often contradicting legislation and a lack of proper state control creates favourable grounds for corruption and misallocation of resources in favour of more powerful groups. The participation, oversight and decision-making power of local communities is very limited. These factors undermine the sustainability of land use. Newly adopted land codes represent major legislation regulating land use and establishing a framework for the land division into different categories. They provide land classification in accordance with planned uses as well as ownership rules and procedures. However, to date these codes have failed to resolve major land use problems. They are imperfect, especially in the areas of land ownership, spatial planning and zoning (CEO, 2002; UNECE, 2002a; 2004; 2005).

Various programs aim to re-cultivate land, combat soil erosion and rehabilitate drainage systems. For instance, in Kyrgyzstan, the State Land Programme envisages measures against salinization and soil erosion and for the re-cultivation of soils. For this purpose, it is necessary to allocate over 630 m Soms. In Kazakhstan, the National Programme of Land Use Change will promote the reuse of 10 m ha (out of the total of 14 million ha) of ploughed-up steppes, of which nearly two millions will be cultivated and more than seven million converted back into pasture. However, there are serious doubts that these programs will be fully implemented, due to the severe financial and technical resources. Funding provided by international donors/creditors is usually very limited. In addition, there is little co-ordination among the donors, with each one using different criteria and methodologies (CEO, 2002; UNECE, 2002b, 2002c).

5.3 The magnitude of negative impacts

Unfortunately, as it can be seen, the undermining of productivity of agricultural land continued after the collapse of socialism. The overall area of productive land and grasslands

has significantly reduced over the last decade and this trend is continuing. Accurate estimates of damage are very difficult to obtain. However, there are certain indicators of the extent of the grazing and land degradation problems (see Box 10). In general, the above-mentioned problems have not resulted in large-scale conversions of one land use type to another. However, substantial land degradation and reduction of soil productivity may sharply increase the pressure upon the remaining productive land in the near future.

Box 10 The indicators of the extent of land degradation

In Uzbekistan, empty land areas over 0.5 million ha have been created around wells. More than 10,000 ha of pastures with valuable fodder are destroyed each year through overgrazing and three million ha of pastures have already become overgrown with moss because of the neglect. In Kyrgyzstan and Kazakhstan, the pastures within 150 km of the villages produce up to 1.5 times more biomass than those within five kilometres of the villages. In Central Asia in general, about 7% of the land is severely affected by desertification, 43% is moderately affected and the rest is slightly degraded. The most severely affected is Turkmenistan, where desertification accounts for the two thirds of the entire territory, including rangelands. In Central Asia, each year desertification-related losses amount to roughly 3% of the sub-region's total income. Salinization has affected 87% of the irrigated land in Turkmenistan, 60% in Uzbekistan and between 60-70% in Kazakhstan. Salinization causes annual losses in agricultural yields in the magnitude of 20-40%. In Armenia, more than 80% of the arable land experiences erosion of various types, while in Azerbaijan, about half of the total land area is affected by erosion. Erosion has affected about 380,000 arable lands and nearly 550,000 ha of pastures and hayfields in Georgia.

(GTR, 2000; CEO, 2002; APFED, 2003; LEAD, 2003)

5.4 The impact on forests

According to the FAO (2005), the total forest cover change in the region has been positive between 1990 and 2000, with the overall growth rate varying between 0.2% in Uzbekistan and 2.6% in Kyrgyzstan. This is mainly attributable to the re-colonization of abandoned agricultural land by secondary forest and reforestation. However, there might be some exceptions. For instance, according to AZG (2005), illegal forest harvesting has substantially reduced the total forest area in Armenia. If this tendency prevails, the forest cover will totally disappear in about 20 years (AZG, 2005). The real picture can only be obtained after careful assessment of forest resources, which in turn requires substantial financial means. The remaining forests and bushes are mainly located in the uplands and thus are difficult (as well as cost-ineffective) to convert to other land uses. However, the quality of the existing forest stands has been severely degraded. If continued, illegal forest harvesting and over-grazing would eventually result in the reduction of forest cover. Nevertheless, the loss of forest cover would still be quite slow.

The current impact of urban development in terms of city expansion is insignificant. The rate of expansion of cities has substantially slowed down after the independence, due to the serious economic problems. The present migration to the cities results in the increased density of the urban population, rather than in the territorial expansion of urban areas. However, if steady economic growth and the increase in the level of well-being prevail, greater mobility and higher demand for private houses in suburbs may result in rapid expansion of the cities. Such expansion could reduce the total area used as peri-urban agriculture, including some forests.

5.5 Conclusion

Desertification, soil erosion and land degradation as consequences of improper agricultural practices continue to pose major threats to the rural livelihoods. The existing policy and institutional framework fails to address this problem. If this situation remains unchanged, the pressure upon land resources is expected to continue. To date, the total area covered by forest has remained basically unchanged, which can be explained by the relatively remote location of forests. However, if present situation prevails, in the longer term the total forest cover may be reduced substantially. It is essential that the authorities involved in land management have clearly defined and specific roles and responsibilities. One state agency could take up the major responsibility for land use planning. Further decentralization of state power and integration of land use planning responsibilities at a local level are essential prerequisites for successful reforms.

6 AGRICULTURAL POLICY

Natural conditions in the region favor the growing of a large variety of agricultural products, such as cotton, wheat, potatoes, fruits and tea. However, predominantly dry climate necessitates irrigation. About 70% of the region's territory is classified as an agricultural land and over 60% as a rangeland. More than a half of the rangeland (or 186 million ha) is located in Kazakhstan. The area of arable land is quite restricted, representing about 15% of the entire territory of the region, due to the mountainous terrain (Schillborn van Veen et al., 2004; CGIAR, 2005).

6.1 Socialist period and the post-socialist collapse

During the socialist period, common market and highly subsidized inputs (fodder, fertilizers, fuel and machinery) allowed rapid growth of the sector. There occurred high degree of specialization with major focus given to livestock, fruit, tea, and cotton production. As a result, some of the basic food staff had to be imported. The excessive irrigation withdrawals from major rivers caused gradual evaporation of much of the Aral Sea. Inefficient irrigation networks combined with highly subsidized prices caused wasteful use of water resources. The plough up of fragile rangelands in northern Kazakhstan boosted the volumes of grain production. However, the success was only short-term, as the problems of soil erosion and land degradation became widespread (CEO, 2002; Schillborn van Veen et al., 2004; CGIAR, 2005). After the collapse of socialism, traditional economic links were disrupted and markets were lost, which caused a sharp decline in the agricultural production (CGIAR, 2005). Financial shortages, poorly planned reforms and declining land productivity became typical problems. Because of the collapse of the processing sector, much of the agricultural production has been consumed or exported as a raw material, or simply spoilt due to a lack of storage facilities (UNECE, 2004, 2005).

6.2 Recent policies and reforms

Major driving forces of the post-socialist agricultural policy changes were the transition to a market economy and the need for greater food self-sufficiency. Although there is a lack of comprehensive agricultural policy statements, several documents, laws and decrees define certain policy-related priorities and strategic objectives. The common priorities and objectives include:

- To increase food security and self-sufficiency;
- To fight poverty in rural areas;
- To complete the initiated land reforms (e.g. privatization and establishment of land markets), except in Turkmenistan and Uzbekistan (see below);
- To establish favorable private investment conditions;
- To increase the efficiency of utilization of agricultural inputs;
- To enlarge private holdings and to encourage the creation of producer associations, co-operatives and land markets (CGIAR, 2005; UNECE, 2005; Voskanyan, 2005).

The relative importance of each priority varies across the countries, depending on political, geographic and economic conditions. While liberalization occurred very rapidly in Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan and Tajikistan (Goletti and Chabot, 2000;

Aliyev, 2002; Revishvili, 2004; Voskanyan, 2005), others (namely, Turkmenistan and Uzbekistan) have largely maintained economic structures similar to those before independence (Goletti and Chabot, 2000). For instance, land is state property in Uzbekistan and can only be leased (either for lifelong usage with the right to pass it on heirs or short-term) or rented (UNECE, 2002a). Mainly arable land has been privatized in the region, while much of the rangeland has remained in the state ownership and can only be leased. The livestock has almost entirely been transferred to private ownership.

6.3 Emerging land ownership systems

The conducted reforms resulted in more complex land ownership structure. In general, three major ownership groups can be identified: small subsistence household plots, large individual private farms and collectively run farms (e.g. co-operatives, collective-peasant farms, joint stock companies and state farms). The land is either managed by the owners, or leased. The proportions of each group vary substantially across the countries. In general, there is a tendency of gradual diminishing of state farms in favour of private holdings. In general, large farms receive greater state and private support than smaller ones (a typical problem characteristic of bimodal agriculture, see Box 11).

6.3.1 Small-scale subsistence/household farms

These farms have already existed during the socialist period, though, their size was strictly limited. After the collapse of socialism and sharp increases in the unemployment levels, many people moved to subsistence agriculture (CGIAR, 2005). The privatization of arable land facilitated this process. The size of these farms is very small (often less than two hectares), which reduces their economic viability. The governments fail to provide adequate technical or financial support to these farms. The availability of credits is limited, while interest rates offered by commercial banks are very high (up to 15% per annum). Land lease prices often exceed the amounts which individual farmers can afford. As a result, large agricultural companies could prevail in the future, which would further marginalize the smaller-scale entrepreneurs. Consequently, the latter would only be able to increase their production by cultivating new, less productive areas.

Box 11 The Post-reform land ownership structure in Georgia

In Georgia, around 700,000 small peasant farms received an average of one hectare of land (or 25% of all agricultural lands). The remaining land has been concentrated in the hands of a small group of juridical and individual bodies on the basis of a long-term lease (up to 49 years). This is a typical example of dualism in agricultural land ownership. Large farms receive much greater assistance from both state and private sectors (in terms of credits and inputs), while small-scale farms are increasingly marginalized. The large-scale farmers often influence agricultural policies and reforms. Such situation can further aggravate the problems of rural poverty and land degradation (including forests). However, recently the Government has recognized the need to define minimum parcel size (i.e. three hectares) of the remaining state-owned agricultural land, which will be privatized through the auctions.

(Goletti and Chabot, 2000; CEO, 2002; Revishvili, 2004)

Small-scale farm owners can freely determine what crops to grow and where to market them (Peel, 2005; Voskanyan, 2005). As a result, their productivity and contribution to overall agricultural production have been increasing (Suleimenov and Oram, 2000; Tashmatov et al., 2000). In order to sustain this process, state policies should help such farms become more competitive in the market. This could include the creation of farmers associations and joint marketing facilities. Some steps have already been made in this direction (e.g. Farmers' Associations in Kazakhstan, Schillborn van Veen et al., 2004). However, a lack of relevant experience and overall resistance to any joint form of management (i.e. the fear 'to return to the socialist past') significantly impede this process.

6.3.2 Large farms

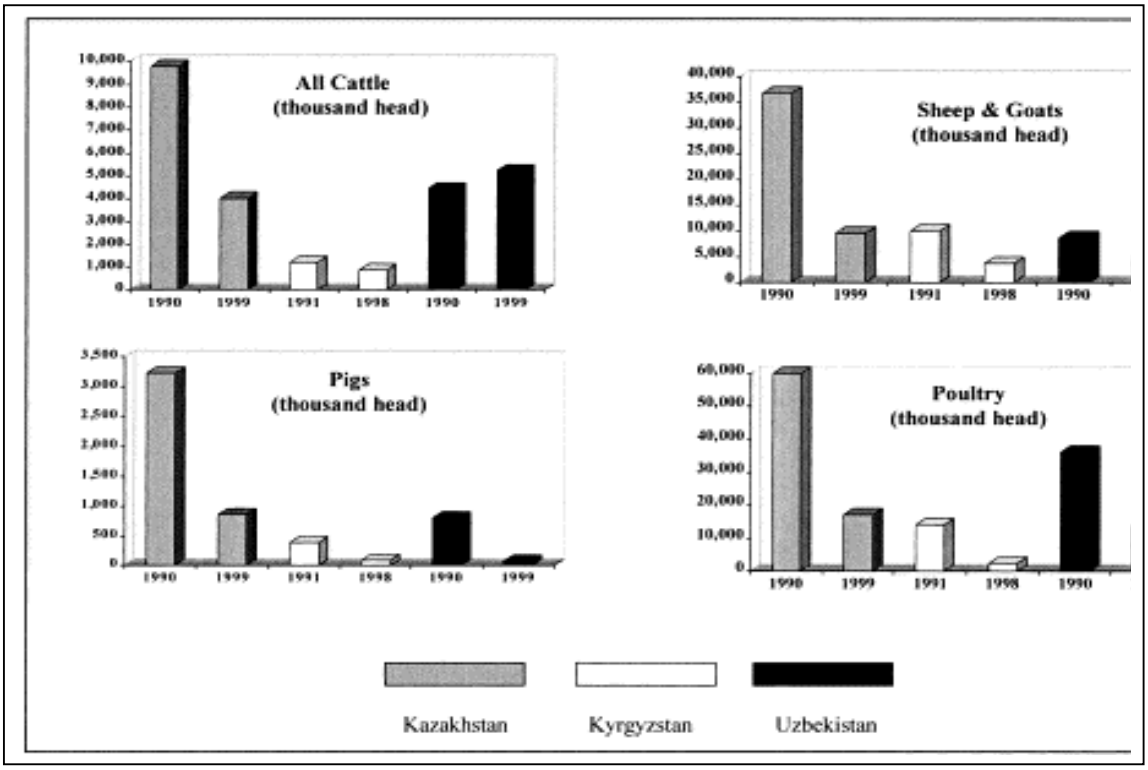
These include large individual farms and agricultural enterprises (comprising collectively run farms) involved in commercial production. They mainly produce strategic crops such as cotton and, consequently, central and local authorities tend to favor these farms (as larger farming units are easier to control than a large number of smaller ones). Cotton, as a source of currency revenue is most prominent in Central Asia, occupying much of the arable land. Cotton exports account for as much as one third of total exports in some of the countries (Tashmatov et al., 2000; ADB, 2005; UNECE, 2005). Cotton producing farmers enjoy very little freedom in terms of marketing their products and decision-making in general. Many of them are in an economically disadvantaged position, due to the imposition of production quotas and fixed procurement prices by the states. The purchasing prices are very low, while often the states fail to make even these limited payments. Furthermore, the farmers are charged market rates for the provision of fuel and fertilizers by the states. These factors undermine economic viability of the farms and sometimes even cause violent protests among the farmers (Peel, 2005). Another problem associated with large farms (with individual owners) is social inequity, where one person owns over 50% of the shares (and thousands of hectares of land) while several hundred laborers own the rest (Suleimenov and Oram, 2000).

Much of the collectively run agricultural area is located in northern Kazakhstan, representing formerly state-owned rain-fed grain production and livestock farms. They are very large (often tens of thousands of hectares) and are managed by various types of shareholding companies, mainly employing former state farm labourers. Because of the enormous size on one hand and a lack of resources on the other, their productivity is usually very low. Furthermore, significant proportions of their lands are not cultivated, being left as a weedy fallow covering millions of hectares (Suleimenov and Oram, 2000).

6.4 Livestock production

The livestock industry became unprofitable after the post-socialist collapse. The increased costs of provision of animal feed and the reduced demand for livestock products (and, consequently, sunken prices) have resulted in the reduction in overall number of cattle and sheep (see Figure 3).

Figure 3 Livestock number changes during the post-socialist period in three Central Asian states



Source: Suleimenov and Oram, 2000

The trend towards the reduction in the total area of fodder crops can also be observed (mainly due to neglect or conversion to grain-producing area). The remaining livestock has been increasingly concentrated in household plots (well over 60% of cattle, sheep and goats in 1997), mainly conducting subsistence agriculture. The capacity of the latter to increase the productivity of livestock is quite limited. As a result, the overall productivity of the sector has declined in some countries. For instance, meat production fell by 54% in Kazakhstan and nearly 27% in Kyrgyzstan from 1992 to 1998. In contrast, Uzbekistan has managed to increase the meat production value by nearly 50% during the same period. This was due to the following major factors: a) the country experienced less dramatic changes in economy and b) soviet-period livestock farms were not as large as, for instance, in Kazakhstan (Suleimenov and Oram, 2000).

6.5 Water issues

At present, over 70% of arable land is irrigated, except in Kazakhstan, where this figure is as low as 7% (Goletti and Chabot, 2000). The irrigation infrastructure is outdated and inefficient and, as a consequence, around half of the water is lost during the delivery. The restoration and further expansion of irrigated areas is only possible through the introduction of new, water-sparing techniques and rehabilitation of old irrigated lands degraded through improper practices (IFAS, 2000). These measures are very costly. For instance, in Tajikistan it would cost over US$100 m to rehabilitate irrigated land that is not included in ongoing World Bank projects (UNECE, 2005). Because the Soviet-designed irrigation systems are mainly suitable for very large farms, the newly created smaller farm units have experienced serious water

distribution problems. The creation of water users' associations is seen as a possible solution to this problem. Such associations have already been created in some countries, such as Armenia and Uzbekistan. Although they have played a positive role, several problems still remain unresolved (see Box 12).

Box 12 Water users' associations in Uzbekistan

Because irrigation and drainage systems were designed for the socialist-type large-scale farming, newly created smaller holdings have problems in sharing water resources. This led to the creation of water users' associations (WUAs) by private owners in Uzbekistan. At present, there are over 2,000 WUAs in the country with over 50,000 members, mainly growing cotton and wheat. Very few of the WUAs operate independently, as many of them have been created and headed by local officials (often without even notifying the farmers). In addition, problems such as difficulties in the collection of water usage fees are not uncommon.

(Irinnews, 2004; Interfax, 2005)

Irrigation water is still largely subsidized by the state. The inefficient utilization of water resources combined with outdated drainage systems further aggravate the problems of soil erosion and salinization. In addition, the unresolved international dispute over the water use rights further complicates the situation (see Box 13).

Box 13 Water use conflict in Central Asia

Since gaining independence, the Central Asian countries have been engaged in serious disputes over the use of main river systems of the region, the Syr Darya and Amu Darya Rivers. Being poor in fossil fuel resources, the upstream Kyrgyzstan and Tajikistan use their plentiful water resources for hydropower generation. In contrast, Uzbekistan and Kazakhstan (downstream states) believe that the disputed rivers should primarily be used for irrigation. A number of proposals on joint development and use of the water resources have been put forward. None of these initiatives, however, has found a positive response. The downstream states have continued to inflate the prices for their energy resources, while their upstream counterparts insist that water should be treated as a valuable commodity, the provision of which should be compensated by large amounts of fossil energy resources. The current situation creates huge economic losses associated with ineffective use of the water resources and negatively affects interstate relationships. Political tension is believed to be contributing to the lack of agreement on this issue. Therefore, this tension should be mitigated and eventually replaced by more flexible approach as well as constructive exchange of ideas. It is also suggested that a special committee could be established to facilitate the fair resolution of this disagreement. Such committee (preferably accountable to the United Nations) should have a due regard for the existing political and economic situation in the region and should be autonomous (i.e. free from any regional power's guidance or influence). It should also be authorised to make and enforce relevant decisions.

(Shalpykova, 2002)

6.6 Contribution to the economy and livelihoods

In the 1990s, the proportion of agriculture in the GDPs slightly increased, because of the collapse of other sectors of the economy. However, at the beginning of the 2000s, the share of agriculture decreased again, due to the adverse weather conditions and partial recovery of other sectors. Agriculture currently remains a backbone of the region's economy, accounting

for over 20% in GDP in most countries and as much as a half of the total employment in some. Most of the countries are net food importers, especially Tajikistan (Tashmatov et al., 2000). The productivity of the private sector has been much greater. For instance, during the late-1990s, in Kyrgyzstan state farms have earned 2,000-3,000 Soms of income per hectare (about 137-206 US$ in January 1997), collective farms earned 5,000-7,000 thousand Soms and private ones 24,000-27,000 thousand Soms. Furthermore, private farms produced their products with lower costs (Tashmatov et al., 2000). In Kazakhstan, household plots, representing less than 1% of the total agricultural area, produced 46% of the total agricultural output in 1997 (Suleimenov and Oram, 2000).

In the future, agricultural production is expected to play a major role in economic recovery and poverty reduction. Favorable natural conditions and cheap labor force (especially in the countries with higher population densities) could provide cost-effective opportunities for the recovery of the sector. To capitalize on these potential advantages, existing distortions and disincentives should be removed through the liberalization of prices, removal of subsidies and elimination of production quotas as well as state procurement systems. Farmers should be given greater access to credits as well as marketing opportunities.

6.7 The impact on forests

If the above-mentioned reforms succeed, more favorable ground will be created for cost-effective and environmentally sound agriculture. Secure land ownership or lease would promote more sustainable practices such as fallow systems, more rational utilization of water, soil conservation, etc. As a result, the increases in agricultural production would have been achieved without further expansion of agricultural land (and thus, without forest clearance). The increase in soil productivity would significantly reduce the pressure on the remaining land. In contrary, if small-scale farmers do not receive any assistance, in the longer term they may only be able to increase their production levels at the expense of forest clearance.

6.8 Conclusion

Inappropriate agricultural policies and practices during the socialist past have reduced land productivity. While the post-socialist agricultural policies and reforms have significantly increased food self-sufficiency, the problem of land degradation has persisted. Goletti and Chabot (2000) maintain that economies with excessive state intervention in agriculture tend to perform poorly, as they lose flexibility and dynamism of development. The huge economic dependence on cotton, especially in Uzbekistan and Turkmenistan (where the political power is highly centralized), reinforces the validity of this view. Most of the benefits associated with cotton and wheat production are presently reaped by the state, often at the expense of private farmers. As a result, the Central Asian economy is vulnerable to fluctuations in the world cotton prices.

The overall dependence on agricultural land has further increased. The productivity of recently emerged private sector is much higher than that of the state sector. State and private assistance and investments are mainly directed to large farms (mainly producing cash crops), with small-scale holdings being largely ignored. To avoid excessive dependence on land and forests in the future, agricultural policies should be more liberal, flexible and inclusive. Small

agricultural farms and households should receive much greater support through the transfer of improved management technologies and the creation of farmers' associations.

7 THE POST-SOCIALIST FORESTRY POLICY, INSTITUTIONAL AND LEGAL FRAMEWORK

7.1 Forestry sector during the socialist period

During the socialist period, all of the forests and timber-processing enterprises were owned by the state. State forestry authorities were responsible for both regulatory and actual management activities. The management was strictly centralized and local enterprises had very limited authority in decision-making. Despite substantial differences across the entire region in terms of natural conditions and forest cover, virtually uniform standards of management, based on economic priorities, were applied. Initially, the over-exploitation of timber resources, excessive grazing and the conversion of forests into pastures reduced the overall forest cover and deteriorated the quality of the remaining stands. The mishandling of forest resources later caused serious ecological problems such as flooding, avalanches, landslides and soil erosion. As a result, after in the late 1960s, harvesting volumes of timber were sharply reduced (Metreveli, 2002; Kushlin at al., 2003; Asanbaeva, 2005).

Forest management heavily depended on state budget transfers, which were sufficient for adequate conservation works. Cheap timber supplies from Russia satisfied the local demand for timber and thus allowed the focus on forest conservation. The wood processing and paper industries proliferated. There was no incentive for proper management of the region's own forests. Conservation, announced as a major management goal, resulted in the neglect of significant forest areas. Consequently, overgrowth and over-maturing of forest stands made them prone to diseases and fires. The situation changed radically after the collapse of socialism and the break-up of the Soviet Union. Forestry industries collapsed and the management of forests virtually stopped because of the economic problems (Ter-Gazarian et al., 1995; Metreveli, 2002; WB, 2002).

7.2 New government priorities after the collapse of socialism

After the collapse of socialism, forests remained in state ownership. The political priority given to the forestry sector is quite low in each country, because of the small economic contribution to the society. Because of the disruption of traditional economic links and sharp increases in the transportation costs, the import of Russian timber has become too expensive and virtually unaffordable. Consequently, an almost abrupt policy shift from forest conservation to multipurpose use and self-sufficiency has occurred. Despite these priority shifts, there is still a lack of written forestry policies. Although new policies and strategies have been recently adopted in some countries (for instance, in Kyrgyzstan and Armenia), at this stage it is not clear whether sufficient funding will be provided for their realization. Certain policy-related priorities can be seen in the new institutional and legal frameworks (Metreveli, 2002; Shakiliyev, 2003; GKR, 2004, 2004a; Uemoto, 2005).

7.3 Recent institutional changes

In the early-1990s, due of the new economic circumstances and priority shifts, the forestry sector was under the increasing pressure to become self-sufficient in financial terms. Consequently, there was a need for substantial institutional restructuring. According to FAO and WB (1998), the separation of economic responsibilities (e.g. timber harvesting and

processing) from those of monitoring, supervision and regulation can promote economic efficiency and profitability, increase transparency and improve accountability. At present, a tendency towards such separation can be observed. In Georgia and Kyrgyzstan, for instance, commercial activities such as wood harvesting became the responsibility of private sector while the forestry authorities mainly retained monitoring and oversight responsibilities (COP Georgia, 2005; COP Kyrgyzstan, 2005).

The status and profile of state forestry authorities has also changed considerably. State forestry bodies have either been incorporated into a Ministry of Environment (in Georgia), Ministry of Agriculture (in Armenia) or have remained as an independent authority (e.g. State Forestry Service in Kyrgyzstan, COP Georgia, 2005, COP Kyrgyzstan, 2005; Uemoto, 2005). These institutional changes probably reflect government priorities. The integration of a forestry authority into an environment ministry, for instance, indicates that forest is mainly perceived as an object of conservation and protection. In contrast, the incorporation of a state forestry body into an agricultural ministry indicates more utilitarian approach towards woodlands and forests. In other words, forests are expected to increase self-sufficiency of a nation in various products and to promote sustainable agriculture (through the establishment of shelterbelts and implementation of agroforestry schemes). Finally, an independent status of a forestry authority indicates a higher profile assigned to the sector. However, whether such institutional changes will be effective is still to be seen, as much depends on the identification of adequate financial and human resources.

Major sources of revenue for forestry authorities are state budget transfers, which are very limited. There are also a few exceptions. For instance, in Armenia the state agency responsible for forest management, 'Hayantar', is allowed to retain its revenues (created through logging activities) and reinvest them in forest management. Nevertheless, there are concerns that Hayantar's capacity to effectively and efficiently manage forests is limited (UNECE, 2002; Uemoto, 2005). In some countries, forestry or environment protection funds have been established. However, funding available under these funds is not sufficient to cover forestry operations (see Box 14).

Box 14 State forest fund of Azerbaijan

In Azerbaijan, forestry fund is administered by the Forestry Department and is used for financing forestry operations. The major sources of revenue of this fund are penalties collected for illegal forest harvesting and donations. However, the fund's contribution to the protection and rehabilitation of forests is rather limited, because the available financial resources are scarce and are mainly used to cover the salaries of employees.

(UNECE, 2004)

To a large extent, there still remains a soviet-style vertical integration with the local forestry enterprises directly subordinated to the central bodies. The former enjoy very limited autonomy, as key management objectives and targets are determined by the central authorities (WB, 2002; GKR, 2004; ERM, 2005; Uemoto, 2005a). The initial attempts at decentralization have not been very effective (see Box 15).

Box 15 Decentralization of forest management in Kazakhstan

In 2001, 15 republican state forestry enterprises (out of the total 16) were transferred to the municipal property of Oblasts (regions). The latter became responsible for funding forestry operations. Foresters demonstrated a very negative attitude to this decision. According to them, the transfer of forest management functions to Oblast administrations resulted in reduced financing of the forestry sector. Namely, Oblast governors (Akims) consider forest matters as having secondary importance (in comparison to agriculture, industry and social sphere), which results in less funding allocated for forest management.

(COP Kazakhstan, 2005; ERM, 2005)

The conditions for private investments are rather unfavorable, while state forestry enterprises experience severe financial shortages. Monitoring of forestry operations 'on the ground' is extremely difficult because of a lack of funding and adequately trained staff. Legal gaps and overlaps in forest management and protection responsibilities among different institutions (e.g. forestry authorities, ministries of environment/agriculture, departments of protected areas, regional authorities, etc) often create conflicts of interests (UNECE, 2002, 2004, 2005; WB, 2002; Asanbaeva, 2005).

New systems of protected areas compatible with international criteria are being established. The process of creating National Parks is underway. These parks will eventually cover entire ecosystems and watersheds and thus should be more effective. However, taking into account the huge population pressure for forest resources and limited state control, simple expansion of the protected areas does not appear to be effective. Adequate funding for the management of newly designated areas should be provided and the local populations should be actively involved (UNECE, 2002a; 2005; COP Georgia, 2005; COP Kazakhstan, 2005).

7.4 New legal framework

Most of the countries of the region have joined major international conventions and other agreements concerning forestry. The new forestry codes are based on the internationally recognized principles of sustainable, multipurpose and participatory forestry (such as the 1992 Rio Declaration). Unfortunately, these codes lack implementation mechanisms and, thus, fail to promote necessary structural reforms (see Box 16). Legal provisions are made for the long-term tenure and use rights and responsibilities. However, the rights and responsibilities of the forest users are not clearly defined and appropriate mechanisms for resolving disputes over tenure claims and use rights are still absent.

Box 16 New forestry codes and associated problems

The new Forestry Code of Georgia allows multiple forms of forest ownership, including state, private, church and municipal/communal. However, the laws on forest privatization and community forestry have not been adopted yet. It has not been decided which forests may be privatized, who should be entitled for privatization and in which form should the privatization itself take place (e.g. restitution or selling the forest parcels by the government). Some provisions are made for 'private forest estates' by the Kazakh and Armenian Codes, which imply the planting of forests and shelterbelts on privatised agricultural land. However, more specific regulations are needed to define the rights and obligations of farmers.

(Metreveli, 2002; UNECE, 2002, 2002b)

7.5 The involvement of other institutions in forest management

By recognising democratic principles and joining the Aarhus Convention (UNECE, 2005), the governments in the region have accepted the responsibility for ensuring proper public participation in environmental issues. Other major stakeholders in the forestry sector (apart from the state forestry authorities) can be divided into five broad categories: NGOs, the general public, recently privatized timber-processing enterprises and rural communities. Considering the current institutional framework (e.g. state monopoly over the forest management), there appears to be very little incentive for the state to involve other stakeholders in forest management. Mass-media remains the major source of environmental information. Sometimes the information is spread electronically. However, the majority of population (especially in rural areas) has very limited internet access. Although in general there is a good public awareness relating to the socio-ecological importance of forests, the practical elements of management are much less known. Accurate and objective information regarding the forest condition is rarely available. The NGO network is much stronger in the Caucasus in comparison to Central Asia. However, even the Caucasus-based NGOs often complain about existing problems in their relation with the state authorities (see Box 17).

Box 17 The NGO sector in the Caucasus

In Georgia and Armenia, the number of registered environmental NGOs is very high. However, only some of these organizations enjoy adequate funding (mainly obtained from international donors) and capacities. Their major activities include environmental monitoring, awareness-raising and campaigning against those state activities and policies which they regard as anti-environmental. The NGOs, which generally support more ecologically sound and socially-oriented forestry, deem that the governments do very little to stop the problems of corruption and illegal forest utilization, or to involve the general public in decision-making. In Azerbaijan, only a few environmental NGOs have managed to formally register with the Ministry of Justice, as the latter applies stringent bureaucratic procedures for the registration. The financial conditions of the majority of NGOs are very difficult and often foreign assistance remains the only source of funding for them.

(UNECE, 2002, 2004; CSRDG and UNAG, 2003)

The private sector is mainly represented by the recently privatized wood-processing enterprises. The existing legislation concerning business activities and taxation suffers a number of flaws and loopholes, which combined with excessive bureaucracy creates unfavourable investment conditions. As a result, the financial conditions of the timber-processing enterprises are very poor. Their equipment is inefficient and outdated and they

cannot afford to purchase timber in sufficient amounts. Consequently, the current output of the industry is extremely low (see Box 18).

Box 18 The privatization of the timber processing sector in Georgia

In the early 1990s, the privatisation of the state-owned timber industry enterprises was conducted in Georgia. Among the new owners there are mainly joint stock companies and limited partnership companies. Only a few enterprises remained in state ownership. However, less than ahalf of the shares in the privatised companies have been sold and only a few companies have been transferred to the total private ownership. This is due to the difficult political-economic situation in the country and limited financial capabilities of the domestic investors

(FAO and WB 1998; Metreveli 2002).

There are some legal provisions for the emergence of community-based forest management in the region. Pilot projects related to the transfer of management rights and responsibilities to local communities have been initiated (see Box 19). However, these projects are limited to very small areas and the harvesting of timber by local communities is not allowed. Many foresters working in the state sector fear that at this stage the communities are not ready to take up the full responsibility for forest management and will simply cut down and sell the trees.

Box 19 Collaborative forest management in Kyrgyzstan

Launched at the end of the 1990s, a Swiss-funded Collaborative Forest Management (CFM) project focuses on the walnut forests in the south of Kyrgyzstan. The CFM envisages local individuals performing certain forestry operations and in return harvesting walnuts and other fruits, as well as deadwood for fuel (but not timber). In this way, the local communities should increase their income generation opportunities. Other benefits should include the empowerment of local people, increased motivation to conserve the forest, the promotion of equity through group management of forests and, eventually, the improvement of local livelihoods. The willingness of local people to become involved in forest management is high. However, there are still strong reservations about group or community-based work, probably because of the association of such activities with the socialist past. Consequently, contracts with individuals or households rather than with communities, has been most common. However, most recently, a tendency of greater involvement of larger groups of local residents can be observed. To date, the number of CFM-based leases has exceeded 200, covering around 1,500 hectares of forest. The decisions regarding the forest management and resource use are jointly made by local population, forest rangers, local administration and businessmen.

(Carter et al., 2003; KIRFOR, 2004)

7.6 The problem of illegal forest utilization

The over-exploitation of forest resources has taken several forms in the region: illegal harvesting of wood, excessive grazing by privately owned cattle, illegal utilization of non-wood forest products (NWFP) and illegal hunting. Illegal wood harvesting is the most serious problem caused by overall political-economic difficulties (e.g. the disruption of the wood supply from Russia) and associated energy crisis. The countries which lack alternative energy resources (such as oil and natural gas) and, in addition, have experienced civil wars and ethnic conflicts, have suffered the most. The more or less accurate information about the actual

volumes of illegal harvesting is not available (Ter-Gazarian et al., 1995; Metreveli, 2002; Asanbaeva, 2005; UNECE, 2005).

Although some of the countries are rich in fossil fuel resources, the majority of their population (especially in rural areas) experience the shortage of energy. The transportation of natural gas and electricity to the villages is problematic because of the outworn (or often absent) pipelines and transmission lines, while the scarce state budgets do not allow their timely repair. Finally, a large proportion of the population cannot afford to pay bills (except Turkmenistan, where natural gas supply is free of charge, Burke, 2000; EIA, 2004; Uemoto, 2005a). As a result, most of the towns and villages in these countries largely depend on wood as an energy resource.

Over-grazing is another serious problem, causing virtual stoppage of natural regeneration and the compaction of forest soils. The farmers residing near forested areas release their cattle and sheep (in numbers far exceeding sustainable limits) in those forests. Forestry authorities cannot exercise a proper control over forest resources. The local communities in turn do not have any incentives to control the number of cattle released in the forest (UNECE, 2002a, 2002b; Asanbaeva, 2005).

The most important NWFP in the region are mushrooms, wild fruits, seeds, nuts, forest game and medicinal herbs. The officially harvested volumes of these products are quite low, because of the badly organized collection and processing. As a result, the contribution of NWFP to the economy is very limited. However, in some countries these products play a significant role as sources of income for local forestry enterprises (see Box 20).

Box 20 The importance of non-wood forest products in Uzbekistan

Forests supply a number of non-wood products (e.g. fruits, medicinal and food plants, nuts, etc) in Uzbekistan. For some local forestry enterprises, non-wood forest products are the main sources of revenue. For instance, basic activities of these enterprises involve harvesting and processing of fruit, beekeeping and collecting nuts. From sales of these products, the state forestry sector annually receives profits in the order of 100-150 million Uzbek Sum (or around 100-150 thousand US$). The value of exported medicinal plants as raw materials is between 5,000-10,000 US$ per annum.

(COP Uzbekistan, 2005)

Harvest of non-wood products in small quantities is allowed free of charge. However, many local villagers collect these products in large quantities and subsequently sell them on local markets. Some of the products, such as medicinal herbs and seeds, even reach international markets. This is regarded by relevant legislation as commercial activity, for which payments should be made to local forestry authorities. However, very few of such payments (despite their generally very low amounts) are actually made. Moreover, because of the very limited government control, the over-utilization of some of these products has created a real threat of their depletion. Illegal hunting is another significant problem arising from the weak control of the forestry authorities, unemployment and economic hardship of the majority of population (both rural and urban). As a result, over-hunting has become a serious problem across the region, which may even cause the extinction of already endangered wildlife (GKR, 2004; UNECE, 2005b; Asanbaeva, 2005).

7.7 The quality of forest management

As a result of the institutional and policy shortcomings mentioned above, forestry sectors receive very limited investment, which undermines the quality of management. One of the serious problems in the region is the absence of up-to-date forest inventory information. The last inventories were carried out in the 1980s and thus the existing information databases are largely outdated (FAO, 2005b; WB, 2002; UNECE, 2002). In such circumstances, the preparation of adequate management plans is very difficult, if not unrealistic. The mismanagement and illegal harvesting of forests causes considerable ecological problems in the region. The quality and productivity of forests has been degraded and decreased considerably. As a result, soil erosion, flooding, landslides (in mountainous areas), spring water decline, the alteration of the local climate, desertification and losses in biological diversity are becoming serious problems (Asanbaeva, 2003; UNECE, 2002; 2004; 2005).

7.8 Forest plantations

Planted forests occupy less than 5% of the total forest area in most of the countries (FAO, 2005). The low forest cover, recent energy crisis and environmental problems such as land degradation and desertification, have triggered large-scale reforestation programs (see Box 21).

Box 21 Reforestation in Azerbaijan and Kazakhstan

In Azerbaijan, the National Afforestation Programme (launched in 2003), aims to plant trees to satisfy the industrial and fuelwood demands and to reduce ecological problems. By 2020, the total forest cover (which is currently about 11%) should be doubled. Hundreds of hectares have already been planted despite unfavourable soil and climatic conditions. This includes walnut, chestnut, birch, pine, beech and oak. The Ministry of Ecology currently employs about 2,000 workers in planting activities. Hundreds of volunteers have already planted millions of trees under this program. The eventual success depends on the availability of funding for further planting and after-care work.

While some reforestation work has been carried out in Kazakhstan, the effectiveness of these activities has been very limited. Over the last 15 years, the overall planted area has shrunk by around 200,000 ha because of a lack of aftercare. Afforestation of the exposed Aral Sea bed has been poorly implemented and practically stopped in the mid-1990s due to a lack of funding. Although there is considerable potential for planting fast-growing species (such as poplar) in privately owned agricultural land (especially in lowland areas with greater humidity), the existing administrative barriers inhibit such activities. There is little hope for reversing this situation unless the Government undertakes a major reform to build the capacities of the supporting institutions and removes unnecessary bureaucratic barriers.

(Kushlin et al., 2003; Shakiliyev, 2003; Krylov, 2004)

These programs aim to mitigate environmental problems, provide shade and fodder for livestock and increase the value of timber and fuelwood. The majority of plantings are carried out in shelterbelts, farmland and, recently, on the dried Aral Sea bed. Unfortunately, these activities are facing serious difficulties, mainly associated with limited funding. Tree planting is a costly effort, especially in the Central Asian region, where total annual precipitation rarely exceeds 300 mm (Schillborn van Veen et al., 2004). Therefore, planted seedlings need irrigation at least within the first few years of planting (Uemoto, 2005; 2005a). The irrigated

land is mainly used for agricultural purposes and, therefore, most of the newly established plantations have to be planted elsewhere. Consequently, there is the need for substantial additional sources of water. Because of insufficient care most of the planted forests are prone to the degradation, disease and browsing from the cattle. Therefore, rapid expansion of the forest area appears to be unrealistic.

7.9 Conclusion

The centralized timber supply chain during the Soviet period benefited region's forests through the reduction in demand for domestic wood resources. After the collapse of socialism, self-sufficiency and multipurpose use of forest resources have become major policy goals. The establishment of supporting legal framework and institutions, however, has been very slow. The overall political-economic environment has largely shaped the current situation in the forestry sector, in particular the reforms. The governance system within the sector has remained very hierarchical with very limited decentralization taking place. The central governments and forestry authorities have been rather cautious in granting greater autonomy to the local forestry enterprises. However, certain institutional changes have occurred in each country. State forestry bodies have been incorporated into ministries of agriculture or environment, while actual management and control responsibilities are being split. However, it is essential that the sector retains sufficient autonomy and is managed by highly qualified professionals.

The involvement of other stakeholders in forest management has been quite limited. At the same time, the problems of illegal harvesting of forest resources and illegal browsing are quite serious. Therefore, at this stage the contribution of the forestry sector to economic development and poverty eradication is very limited. The only exception is fuelwood, significantly mitigating the hardships associated with the energy crisis. However, because of the uncontrolled, unsustainable and chaotic utilization of wood resources, the longer-term economic and ecological costs imposed upon the societies will be enormously higher. In these circumstances, it appears that the future of forestry largely depends on the overall political and socio-economic developments in the region.

8 CONCLUSIONS AND PROSPECTS

The influence of the overall political, economic and social developments in the region upon forests (both directly and indirectly) has been enormous, while the contribution of forests to the economic development has been minimal. At present, many problems are experienced by the forestry sector. The improvement of the situation in the sector largely depends on the creation of favorable political and economic environment. Table 6 summarizes the main findings of this report by answering all of the questions presented in the first chapter.

Table 6 Major findings of the report

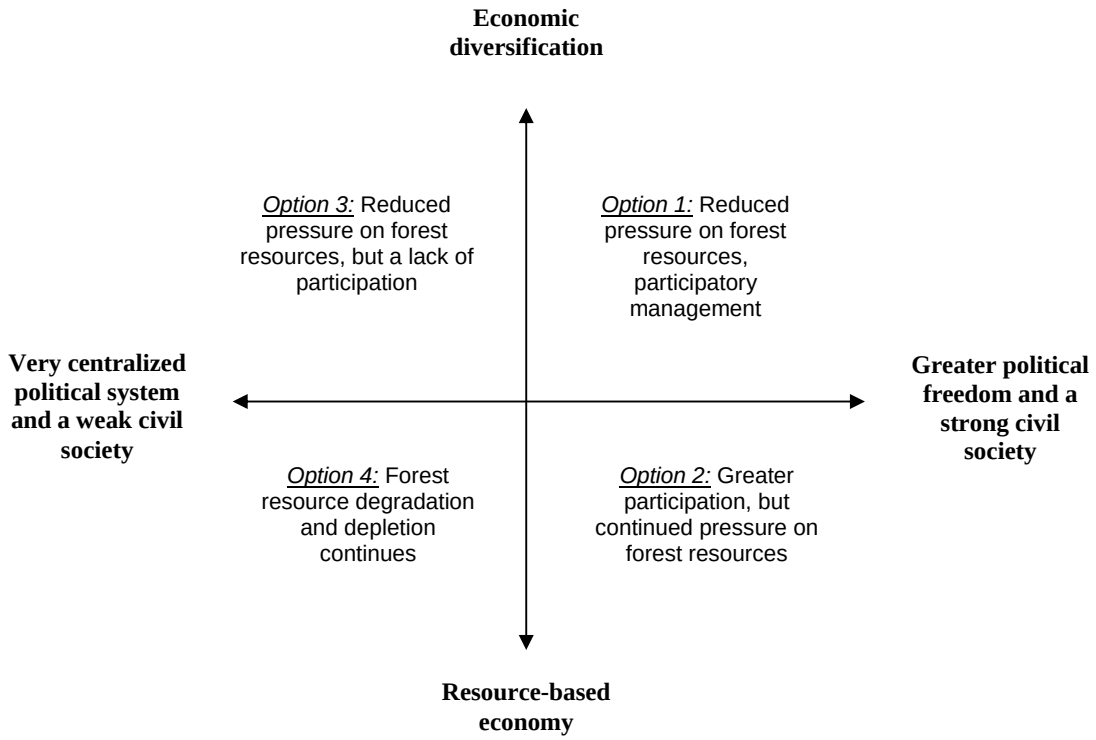
Questions	**Answers**
To what extent have democratization, decentralization and economic reforms taken place and have these developments affected forests?	To a limited extent, except Georgia and Kyrgyzstan; The excessive centralization, limited public participation and a lack of proper economic reforms contribute to the increased pressure upon agricultural land and forest resources
What are the impacts of present and future demographic tendencies upon forests?	Limited; Future rural depopulation may slightly ease the pressure upon forest resources in Armenia, Georgia and Kazakhstan
Is there any potential to address the energy crisis in the near future?	To a very limited extent. Significant progress can only be expected in about five years.
What is the impact of the developments in agriculture and rural land use upon forests?	Unless adequate structural reforms are carried out and small-scale farmers are properly supported, the pressure upon forests will continue and may even increase
Are there major changes in government priorities in terms of forest management and what are the associated institutional and legal developments?	More focus is given to self-sufficiency in forest products; The oversight and actual management responsibilities are being split, while structural changes occur within the state forestry sectors. New forestry codes have been adopted, though, there is a lack of written forestry policies; The involvement of the private sector is very limited
Has there been any diversification of actors in the forestry sector?	Yes, but to a very limited extent; Mainly NGOs and specialists participate in forestry and environment-related decision-making; Community forestry (in its true sense) is non-existent
What impacts have these changes had upon the quality of forest management and forest condition?	Very negative, especially due to the illegal forest harvesting caused by rural poverty and energy crisis; The investments are insignificant, which undermines the quality of management

The economic growth is mainly based on the export of natural resources, due to the excessive centralization of political power, a lack of transparency and unfavorable business conditions. The dependence on agricultural land is huge, while the production of cash crops (e.g. cotton) is strongly promoted by the central governments. The current macro-level policies and institutions are not conductive to sustainable and ecologically sound land use. Democratization, decentralization, economic liberalization and public participation are more likely to encourage greater economic diversification. This in turn could gradually reduce the dependence on agricultural and forest land. At this stage, however, it is not very clear how much power the central governments are going to relinquish and to what extent genuine

decentralization and public participation will occur. Some countries are characterized by seemingly strong and stable political regimes (for instance, Turkmenistan or Azerbaijan), where rapid political-economic changes or reforms seem unlikely to occur. However, recent successful opposition uprising in Kyrgyzstan as well as much more violent events in Uzbekistan may seriously challenge this view.

Currently observed differences in political-economic systems and levels of reforms across the region may provide insights into the potential consequences of certain macro-level development options and their impacts upon forest management. Namely, the degree of political freedom and the strength of a civil society, as well as the level of economic diversification appear to be positively correlated with the quality of forest management. Therefore, these two major factors could be used in determining future development options in terms of their impact upon forests (see Figure 4).

Figure 4 Possible future macro-level development options affecting the forestry sector



As it can be seen, Option 1 appears to be most desirable in terms of sustainable and participatory forest management. In contrast, the diametrically opposite Option 4 is basically the continuation of the present situation (i.e. business as usual). The remaining two options are apparently better than the fourth option, although they fail to fully promote sustainable forest management. For instance, despite reduced pressure on forests (Option 3), the lack of public participation may result in the failure to meet public expectations regarding forest management.

It should be mentioned, however, that Options 3 and 4 seem less likely to occur. For instance, democratic societies tend to favour economic diversification and reduce the pressure upon natural resources (including wood and non-wood forest products). In contrast, highly centralized political systems with limited transparency usually result in excessive natural resource exploitation aimed at increased currency revenues. Such systems are not sustainable in the long term. Nevertheless, for the purpose of comparison, it is worth to include these options as possible alternatives. Finally, more detailed evaluation of the future development options/scenarios and their impact upon forests is a subject for further research in its own right.

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