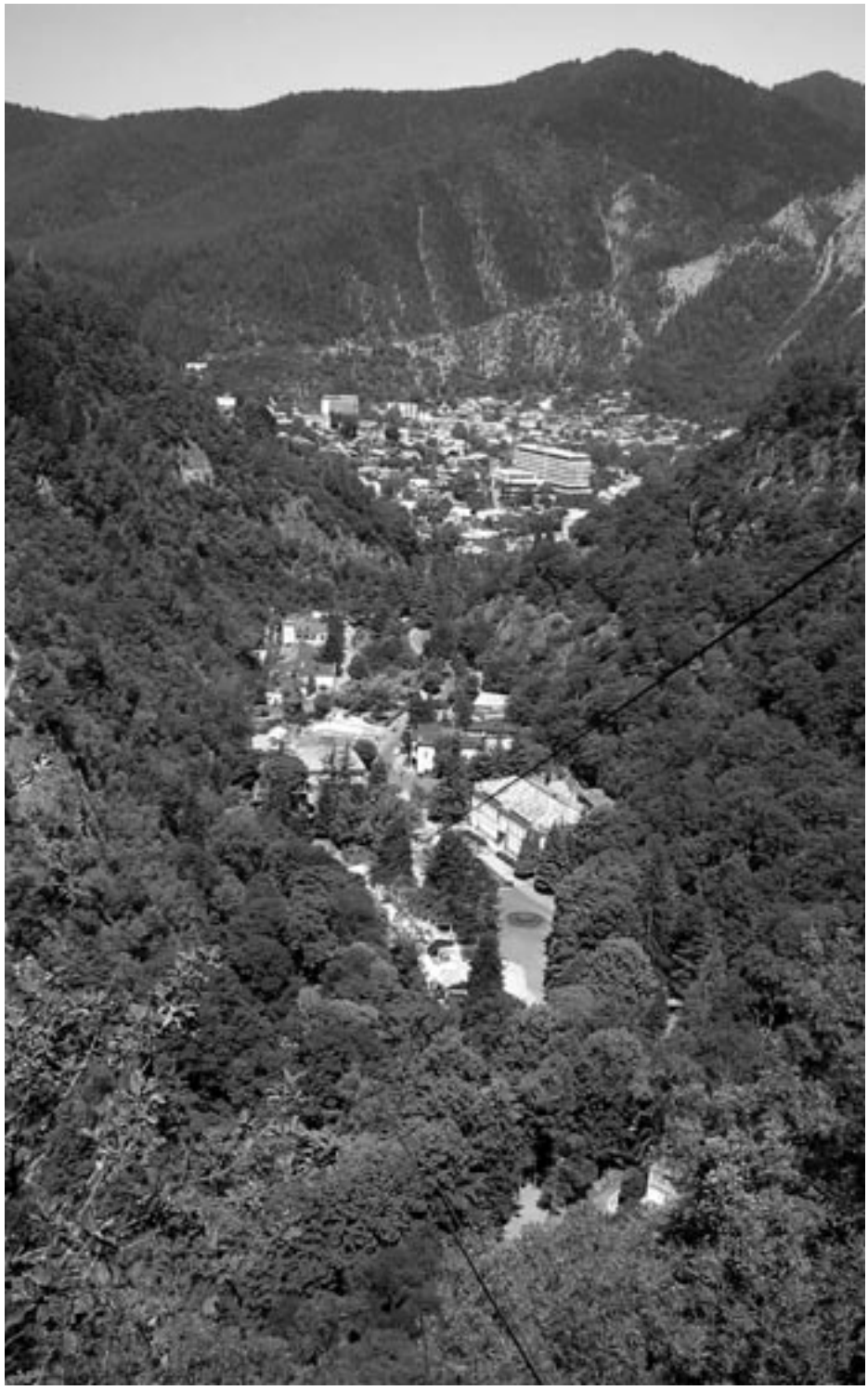


M. UEMOTO

Borjami-Kharagauli National Park, Georgia

4. Factors influencing forests and forestry

The forestry situation in the West and Central Asia region is influenced by a number of factors, both within and outside the sector, in particular how the various stakeholders respond to the changing opportunities. The state of forests and forestry reflects the overall state of societal development, what goods and services are required and how they are produced. Several factors directly and indirectly influence the evolution of the relationship between society and forests. Some factors affect the forest situation directly: these include forest cover, density, quality, production, demand for products and services. Other factors influence the forest indirectly through affecting sectors such as agriculture and industry. Broadly, the factors can be grouped into internal factors (pertaining to the situation within the country) and external factors (dealing with regional and global developments).

- Some key internal factors that influence forests and forestry are demographic changes, the pace of economic and social development, political and institutional evolution, environmental changes and developments in science and technology.
- External factors include the changes in geopolitics, global environmental concerns, shifts in competitiveness of countries and industries, and regional and global economic cooperation arrangements. The growing linkage among countries within the context of globalization affects the domestic situation in the countries. Many of the environmental issues are transboundary in nature and the actions or inactions in one country will have significant impact on others. Global changes in the forest sector, especially shifts in production, processing and trade, will also have important implications on the forest sector in the West and Central Asia region.

This chapter analyses the factors that will directly and indirectly influence the forestry situation in West and Central Asia in the next 15 years.

INTERNAL DRIVING FORCES

The most important internal factors in forests and forestry are:

- demographic changes;
- economic and social development;
- changes in policies and institutions;
- developments in science and technology.

Considering the complex nature of their impact, it is difficult to identify separately the cause and effect relationship of any one driving force. Within a given broad group, different components may have widely differing direct and indirect effects.

In addition, many of them are time dependent with a high probability of change, especially over a long-term period.

Demographic changes

Demographic changes significantly alter the demand for forest products and services and is, therefore, an important element influencing the long-term outlook. Table 4.1 summarizes the likely impact of key demographic variables on forests and forestry in the West and Central Asia region.

Population and its growth. Figure 4.1 illustrates population changes between 1980 and 2005 in the West and Central Asia region and provides estimates up to the year 2020 (specific country details of population changes are presented in the Annex, Table 4.1). Over the 1980-2005 period, the region's population grew from some 207 million to 361 million. Considering the projected average annual growth rate of about 2 percent, by 2020 the the West and Central Asia region will have a population of 487 million. However, as shown in Annex, Table 4.1, the size of the population and its growth rate differ considerably among the region's countries.

TABLE 4.1
Potential impact of demographic variables on forests and forestry

Demographic variable	Situation/direction of change	Potential impact on forests and woodlands
Size of population and its growth	Size of the population varies from less than 1 million to over 70 million in the region. Annual growth rate varies from negative to about 3.7 percent. But in view of the differences in the size of the population, the increase in absolute numbers is more important.	Depending on other factors, population growth will alter the demand for agricultural and forest products. Probable consequences include clearance of forest lands, increased collection of woodfuel and other forest products legal or illegal. Size of markets for wood and wood products and potential for economies of scale in processing industries. Availability of labour for forestry and forest industry. Decline in population tends to reduce pressure on land and other resources.
Urbanization	Proportion of urban population in the region varies from 40 percent to more than 90 percent. Urban migration is taking place at a much faster rate than population growth rates.	Reduction in direct pressure on land and forests. Changes in the pattern of demand (for example, changes in the demand for energy and the type of energy used). Increased demand for urban amenities (urban forestry) and recreational facilities. Shortage of labour for forestry activities.
Age structure	In many countries, the proportion of people below the age of 15 is high.	Increased demand for employment and better living conditions. Declining interest in traditional occupations, especially agriculture. Migration to other countries.
State of human resource development	Literacy rate and level of educational attainment varies considerably within and between countries	Availability of skilled and unskilled workers for forestry. Productivity and wage levels in forestry and forest industry. Ability to develop and adopt improved technologies. Awareness about the role of forests.

West Asia accounts for 80 percent of the population in the entire region, with six countries – Afghanistan, the Islamic Republic of Iran, Iraq, Saudi Arabia, Turkey and Yemen – having populations that exceed 20 million, accounting for 86 percent of the subregion's population (see Annex, Table 3.1). These countries also have the most forest and other wooded land in West Asia (in terms of total forest area). In Central Asia and the Caucasus, the two most populated countries are Uzbekistan (population exceeds 26 million) and Kazakhstan (14.8 million); together they account for 56 percent of the population in the subregion. The size of the population, combined with how it is dispersed (density, rural and urban distribution) and the economic situation will largely determine the likely pressure on land and forests.

The growth rate of the population is an important indicator of the potential future pressure on forests. Table 4.2 gives the variation in population growth rates in

FIGURE 4.1
Population changes in West and Central Asia

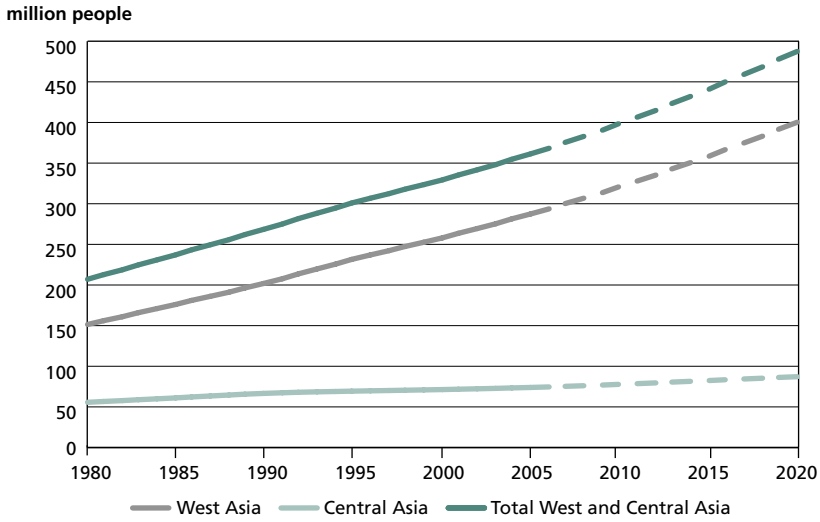


TABLE 4.2
Current and estimated future growth rate of population

Population growth rates	2000–2005	2005–2020
Negative	Armenia, Georgia, Kazakhstan	Armenia, Georgia
Very low (<0.5%)	–	Kazakhstan
Low (>0.5–1.0%)	Azerbaijan, Iran	Azerbaijan
Medium (>1.0–1.5%)	Kyrgyzstan, Tajikistan, Uzbekistan, Cyprus, Lebanon	Kyrgyzstan, Cyprus, Iran, Lebanon, Turkey
High (>1.5–2.5%)	Bahrain, Oman , Turkey	Tajikistan, Uzbekistan, Bahrain, Kuwait, Oman, Qatar
Very high (>2.5%)	Afghanistan, Iraq, Jordan, Kuwait, Qatar, Saudi Arabia, Syrian Arab Republicn Arab Republic, United Arab Emirates, Yemen	Afghanistan, Iraq, Jordan, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen

Source: UN, 2005.

the region. The population in the Central Asian and Caucasus countries is growing at a low rate, with a projected growth rate of about 0.8 percent to the year 2020. However, within the region, the growth rates range from negative figures in Georgia and Armenia to about 2.3 percent in Tajikistan. Uzbekistan, the most populated country in the subregion, is expected to grow at a rate of about 1.7 percent to the year 2020.

In comparison, West Asia has a higher population growth rate, averaging about 2.1 percent, and by 2020 the population will increase by 113 million. Of the West Asian countries, the populations of Afghanistan and Yemen – two countries where the incidence of poverty is very high – are expected to grow at a rate of 3.5 and 3.7 percent, respectively. On the other hand, Iran and Turkey, the region's most populated countries, will experience a continuing decline in their growth rate.

Population density in relation to available arable land is an important factor that determines the pressure on land and forests. The region's average population density varies from 5 persons per km^2 in Kazakhstan to more than 1 000 per km^2 in Bahrain. The large extent of arid and semi-arid land suggests intense pressure on the limited arable land, as well as forests and rangelands. Such pressure becomes particularly intense in the absence of alternate income earning opportunities.

Urbanization. The extent of urbanization varies in the region: in West Asia 72 percent of the population live in urban areas, while in Central Asia and the Caucasus it amounts to 44 percent. Considerable differences exist in the current and future levels of urbanization. In some countries such as Bahrain, Kuwait, Lebanon, Qatar, Saudi Arabia and the United Arab Emirates, more than 80 percent of the population lives in urban centres. In contrast, Afghanistan and Yemen in West Asia and Tajikistan, Kyrgyzstan, Uzbekistan and Turkmenistan in Central Asia predominantly have rural populations, with over 50 percent of the population living in rural areas (Akerlund, 2005). The implications of high rural populations on natural resource use will vary depending on issues such as the availability of arable land, access to inputs (including technology) and markets (see Box 4.1). Urbanization will continue at a rapid pace, increasing the proportion of the urban population from about 58 percent at present to about 63 percent in 2020.

Urbanization will have the following impacts on forests and woodlands:

- Land use and its intensity will change as people move to urban areas and take up jobs in the non-agricultural sector. This has the potential to slow forest conversion and, in some cases, land abandonment has paved the way for forest regrowth (as with Cyprus).
- It could possibly reduce the demand for wood as a source of fuel, especially if cheaper commercial fuels become available and accessible. However, this depends on the relative prices of different fuels and the households' ability to pay. If cheaper alternative fuels are not available, urbanization could increase the demand for wood as a source of energy.
- Demand for wood and wood products is expected to increase because housing, commerce and trade are expanding. Demand has grown for

BOX 4.1

Rural population and land dependency

Among the Central Asian countries, Kyrgyzstan and Tajikistan will still have more than 60 percent of the population living in rural areas. In West Asia, Yemen will continue to be predominantly rural with about 66 percent of its population rural. Afghanistan will also be primarily rural. This suggests continued dependence on land and other natural resources, including forests and trees, especially for woodfuel and non-wood forest products. High population growth rates in some of these countries (for example Afghanistan, Tajikistan and Yemen) will exacerbate the problem of resource depletion, especially in the absence of alternative sources of livelihood outside the agricultural sector or if there are insufficient investments to improve agricultural productivity.

construction materials and has increased imports, especially in view of the limited domestic supplies.

- One of the outcomes of urbanization is the increasing demand for green spaces, especially for amenity and recreation. Most Central Asian and Caucasus countries have a long tradition of urban planning, inherited from Soviet times when green spaces were incorporated into city planning. Some cities in West Asia are also making substantial investments to improve the greening of the urban environment, including of Abu Dhabi, Bahrain, Dubai, Kuwait and Riyadh. The growth of tourism has further encouraged investments in urban greening.

Age structure. Age structure is another important demographic variable that influences land use and forestry, directly and indirectly. Table 4.3 shows the distribution of the population in the various age groups for the different regions.

With the exception of the Caucasus countries, the other countries in the region have more than one-third of their population in the age group 0 to 14. In some of the countries, for example Afghanistan and Yemen, it amounts to nearly half of the population. Among the Central Asian countries, Tajikistan has about 39 percent of the population in the age group 0 to 14. Issues such as human resource development and employment will become critical in the next two decades, when the younger group reaches working age. Some implications are:

- Depending on education levels and exposure to the rest of the world, the younger generation will have different perceptions than previous generations. In general, the interest in agriculture and other low-paying, strenuous occupations (including forestry) is declining. One of the outcomes of urban migration is that young people are reluctant to pursue agriculture and are keen to take up jobs in urban areas.

TABLE 4.3
Age class distribution of population

Region	Age 0–14		Age 15–65		Over age 65	
	% of population	Range	% of population	Range	% of population	Range
Central Asia	36	28–42	59	54–66	5	3–7
Caucasus	26	22–31	64	63–66	9	6–12
Arabian Peninsula	33	26–48	65	49–74	2	1–3
Other West Asia	36	23–47	59	50–66	5	3–11

Source: UN, 2005.

- However, there are countries where such opportunities are limited, resulting in continued dependence on land. The fragmentation of limited arable land causes farm incomes to decline and poverty to persist. Forest products, especially woodfuel and non-wood forest products, are often collected illegally and become an important source of income.
- Providing remunerative employment will be a major problem in countries with high urbanization. Many governments, particularly in the oil-producing countries, that have been dependent on expatriate staff increasingly want to reduce such dependence to enhance employment opportunities for local people. Largely, this hinges upon investing in human resource development. The lack of attractive and productive employment often has led to social instability and the emergence of extremism, which have serious consequences including undermining development.[4]

Human resource development. Recent studies have highlighted the critical situation regarding the state of human development in the region (UNDP, 2005a, 2005b). In addition to some of the traditional components such as the literacy rate, life expectancy at birth and infant mortality, others such as women's participation in work and the enrolment in secondary and tertiary levels of education provide a general overview of human resource development. Apart from a few countries such as Afghanistan and Yemen, many countries have been successful in improving literacy and life expectancy and reducing infant mortality rates. In this they are more successful than the global average and substantially surpass the developing countries. In many Central Asian and Caucasus countries, however, the situation has somewhat deteriorated in the post-Soviet years. The level of women's participation in economic activities varies considerably, but generally in many of the countries women's participation is limited, although there are indications of change.

Improved access to information, especially facilitated through the developments in communication technologies, is bound to change the situation and many

[4] As discussed in Chapter 3, several countries in the region have substantial potential for tourism development. However, security and political stability are key factors for the growth of tourism. Recent years have particularly witnessed extremists targeting the tourism industry as a means of destabilising the economies.

governments are investing more on human resource development. The empowerment of women is receiving particular attention, and a number of countries have changed their constitutions enabling women's participation in public life. The situation in the next decade and beyond is bound to change.

Overview of the impact of demographic changes. The influence of demographic changes on forests and rangelands will largely depend on the interaction with several other factors. In many countries, the population density in relation to arable land is extremely high. Several countries – especially in the Arabian Peninsula and in Central Asia and the Caucasus – derive a major share of their income from extracting, processing and trading fossil fuels and are less dependent on land as a source of income. At the other end of the spectrum, however, are those countries with limited arable land and high population densities, high proportion of rural population, high proportion of people in the younger age group and limited investments in skills. Unless there is substantial investment in improving human skills and capabilities, the extensive use of land is likely to continue to have adverse impact on forests, woodlands and rangelands.

Economic changes

Economic changes include several interlinked elements, but those that most influence forests and forestry are the growth and distribution of income (which determines the level of poverty) and the structural changes in the economy (which determines the shifts in the source of income). Table 4.4 discusses the nature of their impacts.

Gross domestic product. With regard to national income, the West and Central Asia region is relatively better off in comparison with other developing regions. However, although the region accounts for about 6 percent of the world's population, its share in the total global domestic product is only about 3.3 percent. In 2004, the per capita GDP for the region was around US$7 200 (see Annex, Table 7). Much of the region's prosperity comes from the exploitation and processing of oil and natural gas and the related investments in industries, infrastructure, trade and other related services. In the post-1980 period, the pace of exploitation of oil and natural gas has increased enormously and so has economic growth (Figure 4.2). This trend is likely to continue as long as oil prices remain high.

An exception to the general upward trend is with the Central Asian and Caucasus countries, as their incomes declined significantly after they became independent, with some of them still yet to attain the pre-independence income level. In 2004, only Armenia, Azerbaijan, Kazakhstan and Turkmenistan had per capita incomes that exceeded 1990 levels, all other countries remained below the 1990 levels. However, there are signs of recovery, especially for those countries having large fossil-fuel reserves.

Long-term growth prospects of the economies. The prospects for economic growth in the long term will vary depending on the level of investment, productivity and

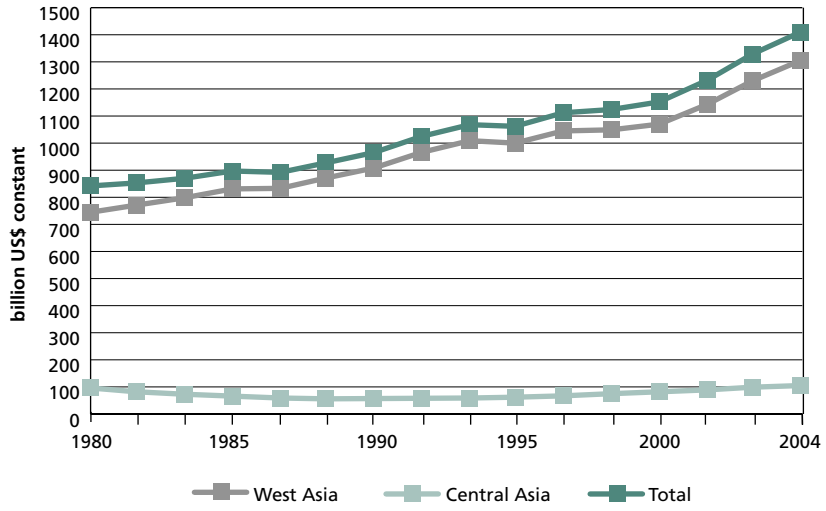
TABLE 4.4
Potential impact of important economic variables on forests and forestry

Economic variable	Situation/direction of change	Potential impact on forests and woodlands
Gross domestic product and its growth	Size of the economy and per capita income varies enormously in the region. The three largest economies are Turkey (US$300 billion), Saudi Arabia (US$250 billion) and Iran (US$160 billion). Several countries have GDP between US$10 billion and $20 billion. The growth rate of the economies also varies and in recent years some of the economies have registered rapid growth, often through exploitation of petroleum and natural gas resources.	Demand for wood and wood products and size of markets Potential to raise tax income by governments and investing in forestry Household demand for wood and wood products
Per capita income	In 2004, the per capita income for the region was US$7 231 (US$ 3 860 for Central Asia and US$10 601 for West Asia). Within each of the subregions there are significant differences in per capita income, e.g. about 6 times between Tajikistan and Kazakhstan and 25 times between Yemen and Bahrain.	Demand for environmental services (especially recreation) from forests and the willingness and ability to pay for such services. Willingness to invest in conservation and management of forest and tree resources.
Income distribution and poverty	Income distribution is highly skewed in most countries. Along with low incomes, this results in high levels of poverty in many countries. Rural poverty often results in high dependence on natural resources (especially for woodfuel, fodder, timber and non-wood forest products) for domestic consumption and for income-generation.	High potential for poverty-related illegal collection of forest products Inability of farmers and other resource managers to invest in sustainable resource management
Structural changes in the economies	While the economic significance of the primary sectors is declining in a number of countries, agriculture and animal husbandry remain important in some countries resulting in land-use pressures. Many countries have diversified their sources of income with significant decline in the contribution of agriculture and animal husbandry.	Reduced pressure on land and in some cases abandonment of agriculture as a result of shift from primary-sector activities, creating potential for regrowth in forests Declining dependence on traditional occupations, especially agriculture

competitiveness of the countries in producing goods and services for the domestic and global markets (see Box 4.2). While some of the countries are expected to grow rapidly, others might continue to lag behind because of several factors. The overall situation in the region can be categorized as follows:

- Several countries in the region (for example, Bahrain, Iran, Iraq, Kuwait, Oman, Saudi Arabia, Turkmenistan, United Arab Emirates and Uzbekistan) are highly dependent on income from extracting, processing and trading of fossil fuels. Although there is considerable volatility, oil and gas prices are unlikely to decline dramatically in the foreseeable future, especially in view of the growing demand from emerging economies such as China and India. Recent increases in oil prices could boost the investment in alternative sources of energy, including renewable sources, but the primacy of oil as a source of energy is unlikely to diminish in the next two decades. This suggests that the economic growth of oil producing and processing countries will remain at a high level, barring conflicts and political instability.

FIGURE 4.2
Real GDP change in West and Central Asia



BOX 4.2
Investment and economic growth in West Asia

Key factors that affect economic growth are gross investment, physical capital formation and efficiency. Between 1975 and 1998, the rate of gross investment (gross fixed capital formation relative to GDP) was on average 24.6 percent of the gross domestic product. On the whole, there has been a long–term decline in gross investment for the West Asian countries, declining from about 27.3 percent during 1975–1980, 25.1 percent during 1980–1990, and 21.9 percent during 1990–1998. Another factor is the efficiency of the use of capital or productivity, as reflected in the incremental capital output ratio. In general, the incremental capital output ratio is high for most countries. Studies hitherto indicate very low labour productivities. All these factors show that long–term prospects for growth largely revolve around oil prices, and for the countries with limited oil income the prospects are less optimistic.

- Many countries have diversified their economic base and have made significant investments in developing their industrial and services sectors. Specifically, a number of oil-producing countries, which include Iran and the United Arab Emirates, are reducing their direct and indirect dependence on oil revenues. In Central Asia, Kazakhstan is another country that is focusing on developing a diversified economic base (see Box 4.3). Other countries that have succeeded in diversifying their economies are Cyprus, Lebanon and Turkey. The prospects of economic growth largely depend on their global competitiveness.

- There are a number of countries that have neither the critical resources like fossil fuels nor a diversified economic base and hence they will continue to be dependent on agriculture and animal husbandry. Low income has also discouraged investment in human capital. The prospects for rapid economic growth may, therefore, be somewhat uncertain. Even if economic growth is rapid, forestry is unlikely to attract investment in view of other priorities.

Income distribution and poverty. Although relatively the region is better off economically compared with other regions, poverty is still widespread in several countries and largely results from low incomes and its skewed distribution. Household income studies reveal that the share of 20 percent of the low-income groups in the GDP is only 6 percent, while the share of 20 percent of the high-income groups amounts to 49 percent. This income disparity means continued pressure on natural resources, including forests and tree resources.

The discontinued state involvement in economic management after the Soviet Union disintegrated caused significant increases in income inequalities in the Central Asian and Caucasus countries. Market-oriented policies and institutional reforms in the post-Soviet period resulted in privatization of state enterprises. However, in the absence of an effective institutional framework to oversee the process and to safeguard public interest, privatization has often led to the enrichment of the few with consequent increases in income disparities. It has particularly affected the forest sector, especially because poor people have become more dependent on forests and trees.

Structural changes in the economy. Structural changes, especially the shifts in the relative importance of different economic sectors, in particular the share of agriculture (including animal husbandry) in income and employment, are critical

BOX 4.3

Kazakhstan: the next Asian tiger

Kazakhstan's GDP has consistently been growing in excess of 10 percent per annum over the last five years, and the country now stands at the vanguard of the next generation of Asian tiger economies. The current growth in oil and gas prices undoubtedly helps to bolster an already burgeoning economy, but the windfall in petrochemical dollars is by no means the whole story to Kazakhstan's economic miracle. Kazakhstan has attracted more per capita foreign direct investment than any other country in Asia and Eastern Europe. It has diversified its economy and reinvested oil and gas income in a number of key sectors. Further, there have been significant efforts to link up with the high-performing economies, especially China. With the revival of the Silk Route, Kazakhstan is positioning itself to become the most important land link between China and Europe.

to understanding agriculture-forest issues. Although agriculture value added in the GDP of the West and Central Asian countries varies enormously (see Box 4.4), the overall trend is towards reducing its share, especially as other sectors (extraction of fossil fuels and minerals, industries and services) expand (FAO, 2005). The agriculture-forest interaction in the region will be determined by the following:

- The preponderance of drylands would suggest that future agricultural extension will be largely determined by investments in irrigation infrastructure. The acute water deficit in the region and the complexity of water-sharing arrangements underscore the difficulties in expanding irrigation. There may be some exceptions, as for example Kazakhstan's substantial unused arable land or agricultural and livestock policies that have adverse consequences on forests and woodlands (see Box 4.5).
- Government subsidies will be another element that will impact agricultural expansion in the region. A number of countries that had earlier strongly supported agricultural development through direct and indirect subsidies are now reviewing them and in some cases have either repealed subsidies or reduced them. Increasing market-oriented policies and removal of subsidies make agriculture unviable. Agricultural subsidies in other regions (especially Europe) and market access limitations also negatively affect the competitiveness of agricultural production in many West and Central Asian countries. Future expansion of commercial agriculture in the West and Central Asia region will, to some extent, depend on issues such as input prices, productivity and competitiveness and, particularly, the agricultural policy changes in Europe and other regions.
- The mobility of people and rapid urbanization are important factors that could reduce the importance of agriculture. Limited income opportunities will encourage more young people to migrate to urban areas, and as a result agriculture could continue to decline.

BOX 4.4

Importance of agriculture in West and Central Asian economies

In the West Asian region, the share of agriculture value added in GDP varies from less than 1.0 percent in Kuwait to over 22 percent in the Syrian Arab Republic. The share of agriculture value added of Turkey and the Islamic Republic of Iran, the two most populated countries in the region, is 13.8 percent and 18.6 percent respectively. Countries in Central Asia and the Caucasus have a much higher share of agriculture value added in their GDP, ranging from 9 percent for Kazakhstan to more than 37 percent for Kyrgyzstan. For several countries, for example Armenia, Tajikistan and Turkmenistan, the agriculture value added exceeds a quarter of the GDP.

Source: FAO, 2005.

BOX 4.5

Changes in agriculture and animal husbandry in Saudi Arabia

Over the past four decades, Saudi Arabia has witnessed important changes in the agriculture and range societies. New employment opportunities have changed occupations. Some of the changes that have affected forests and range conditions include:

- Easy transport of livestock to rangeland areas and the provision of water transported over long distances led to very intense browsing, leaving little scope for the system to recover;
- New job opportunities encouraged many people to leave their traditional occupations. Expatriate workers have taken their place and do not have any knowledge on ecological conditions and other matters.
- Herders have increased the size of their herds to counter the increases in production costs. Thus, although the nomadic population declined during the 1990s, the number of livestock has increased.

Source: FOWECA country outlook paper, Saudi Arabia.

Key economic drivers: an overview. The overall economic situation influences forests and forestry, primarily through the following:

- Income growth in the region will vary and so will its distribution, affecting the different actors' ability to invest in forestry and the demand for forest products and services. In a number of countries, high dependence on land and other natural resources will persist and low incomes will discourage investment in forest management.
- Even when government and other players are able to derive substantial income, forestry may not receive priority attention. In the early stages of economic growth, most efforts tend to be directed to improving social and physical infrastructure – health, education, transport – with forestry receiving little attention. Even when income increases, the initial investments tend to focus on activities that generate higher returns, and forestry may not be a priority area. For example, some of the countries are witnessing a boom in real estate investment and even with the high liquidity, forestry is unable to attract investments. Often the increased investment in real estate has resulted in clearing forests and woodlands close to urban centres.
- The long-term prospects of forests and forestry largely depend on structural shifts in the economy and, in particular, the extent of reliance on agriculture and animal husbandry for income and employment. There are some countries, Cyprus for example, where structural shifts have reduced the pressure on land permitting forest recovery.

In many countries, therefore, investments in the forest sector are likely to remain low, even when the economic situation improves. The low incomes in some countries of the region perpetuate continued dependency on agriculture, animal husbandry and forests. At the same time, low income also limits the ability to invest in sustainable management, resulting in resource depletion.

Political developments, policies and institutions

Political and institutional changes fundamentally affect natural resource use patterns as they influence the actions and responses of people. The West and Central Asia region has witnessed profound political changes in the last two decades. The collapse of the Soviet Union and the independence of countries in Central Asia and the Caucasus is one of the most important developments. Although slow and chequered, West Asia is also undergoing political changes with democratic arrangements establishing roots in the countries. These changes affect policies and institutions altering people's interaction with natural resources. Important developments that need to be considered in assessing the long-term outlook for the forest sector include:

- political changes, especially the emergence of democratic governments;
- decentralization and community participation;
- involvement of the private sector in resource management;
- role of civil society organizations in influencing policies in the public and private sectors.

Political changes and empowerment. The political environment in a country is a fundamental element influencing almost everything and, therefore, is important in assessing the future of the forest sector. The West and Central Asia region is characterized by a wide spectrum of political systems, ranging from governments elected through democratic processes to authoritarian governments. Changes, although sometimes slow, are already under way resulting in greater involvement of people in governmental decision-making (see UNDP, 2002). The collapse of the Soviet Union has ushered a major change in Central Asia and the Caucasus, although the transition is far from complete and centralized systems of government persist in a number of countries (see Box 4.6).

Several countries in West Asia have already embraced democratic processes and increasingly this is expected to have an impact on natural resource management. Improved access to information tends to catalyse change, creating the necessary conditions to broaden participation. Changes will occur more rapidly in countries that have a high proportion of young people, whose values and aspirations will be different. All the indications point to continued political changes in the region (Box 4.7), paving the way for the public to have an increased role in decision-making, including in the management of natural resources. Policies and legislation within and outside the forest sector are already changing as a result of broader political changes and continued efforts in this direction will have a significant impact on forests and forestry (see Box 4.8).

BOX 4.6

Political transition in Central Asia and the Caucasus

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

Source: Osepashvili, 2005.

BOX 4.7

Political participation in Arab countries

Political participation in Arab countries remains weak, as manifested in the lack of genuine representative democracy and restrictions on liberties. At the same time, people's aspirations for more freedom and greater participation in decision-making have grown, fuelled by rising incomes, education and information flows. The mismatch between aspirations and their fulfilment has in some cases led to alienation and its offspring – apathy and discontent. Remedying this state of affairs must be a priority for national leaderships.

Source: UNDP, 2002.

Decentralization and community participation. Increased community participation in resource management is an outcome of broader policy and institutional changes and still is in the early stages of development. Almost all countries have had a long history of community-level arrangements for resource management, especially in the use of pasturelands. However, such traditional arrangements have not been sustained because of several factors, including the inability of community management systems to adapt to changes as well as government policies. This has been particularly true in Central Asia and the Caucasus in the context of centralized planning and collectivization of farming and animal husbandry implemented during the Soviet period.

BOX 4.8

Legal framework for public participation in forest management in Central Asia*

All the countries have their legal framework for the forest sector revised in the 1990s with varying degree of indications towards a market economy. Armenia, Azerbaijan, Georgia, Tajikistan, Uzbekistan and Kyrgyzstan define the forest resources exclusively as state property. The management responsibility may be divided between different central-level state agencies and in some cases local government and/or state enterprises. ... In Tajikistan, degraded pasturelands (with potential for tree planting) are being transferred to non-state parties. In Kyrgyzstan and Uzbekistan community forestry experimented to very limited extent through long-term leases of state forest lands.

Source: Savcor Indufor, 2005.

* Note: Kazakhstan and Turkmenistan were not covered in the study.

The Central Asian and Caucasus countries have 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 central governments. The interaction between the central, regional and local governments is predominantly hierarchical, as nearly all political and economic decisions, including those which are of local importance, are made at the national level (Osepashvili, 2005). Although many governments have expressed their intention to shift greater rights and responsibilities to local authorities, these are yet to be translated into action. Often the transfer of responsibilities has taken place, but the authority and the resources have not.

With the exception of Cyprus and Turkey, initiatives to involve local communities in the management of forest and tree resources in West Asia are limited. The Forest Village Cooperatives in Turkey, established in accordance with the Forest Villages Development Law 2924 (1983), is a notable effort (see Box 4.9). The role of village cooperatives is primarily for harvesting wood; otherwise, they have little say in how forests are to be managed or in the prices of forest products. Changes are, however, expected with Turkey's likely joining in the European Union.

Apart from policy and institutional issues, resource constraints will continue to limit community involvement in forest and tree management, especially because of low productivity and income derived from forests and the preponderance of non-marketed benefits whose provision needs to be met collectively. Poor communities may find this particularly difficult and would require financial, technical and managerial support from governments and other organizations to pursue participatory approaches.

BOX 4.9

Village cooperatives in Turkey

In Turkey, there were 4 948 Agricultural Village Cooperatives with 684 936 members, of which 3 199 villages were forest villages by the end of 2001.

Forest Village Cooperatives have been given special rights and privileges through forest laws since the 1970s. Forest Law Article 40 stipulates that Forest Village Cooperatives have priority in getting timber production jobs, which is in accordance with the management plans of the State Forest Organization. The villagers or the Village Development Cooperatives are paid according to the unit prices set forth. Article 34, amended in 2000, stipulates that in addition to labour payments, a premium of 10 percent is to be paid in wood-harvesting works and that 25 percent of the logs carried to the depot should be sold to the Cooperatives at 20 percent less than the average auction price. These legal rights have been providing additional opportunities for incomes and significant benefits to villagers through their cooperatives.

According to the records of the General Directorate of Forestry, cooperatives and villagers were paid TRL175 trillion for wood-harvesting operations in 2002. In addition to this amount, TRL19.5 trillion was paid to the cooperatives and villagers on the basis of other legal rights.

Based on the information of the General Directorate of Forestry, about 287 000 members of the 2 100 Village Development Cooperatives were involved in forest products harvesting operations in 2000. It was estimated that about 60 percent of the total wood production was carried out through the cooperatives during the period.

Source: FOWECA country outlook paper, Turkey.

Development of the private sector. Following the transition from centralized planning, a number of countries in Central Asia and the Caucasus have promoted private-sector involvement in key economic sectors. While state assets and enterprises have been privatized to some extent, the pace and the outcome of these efforts have varied. In many cases, privatization in its true sense has not been implemented, especially one that adopts a competitive process for enhancing efficiency (see Box 4.10). Private-sector involvement in forestry, especially in forest management (see Annex, Table 8) has been limited for the following reasons:

- low productivity and high costs reduce the rates of return in comparison with alternative investment options;
- most benefits from forests and trees in the region are public goods, particularly the environmental services. Markets for such services are non-existent or poorly developed, and hence there are no incentives for forest owners to manage forests.

In West Asia, countries like Cyprus and Lebanon have a long history of private ownership of forests and woodlands. In Cyprus, more than 38 percent of forests

BOX 4.10

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 amounts to around 30 percent of the GDP, mainly covering oil, textiles, food processing, transportation and construction. The services sector has been mostly privatized and currently the private sector controls 90 percent of the retail trade. In contrast, the state share in industry is more than 80 percent, while medium- and large-scale enterprises remain in state hands. These enterprises are subject to mandatory state plans. The supply of basic commodities such as water and natural gas is either free or heavily subsidized. The tight state control of the economy and the lack of transparency severely restrict private investments.

In Georgia, Structural Adjustment Programs have been implemented by the International Monetary Fund and the 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 in the early 1990s was poorly organized and non-transparent. After 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 excess bureaucracy.

Source: Osepashvili, 2005.

and over 76 percent of other wooded land are privately owned; however, the small size of the holdings and absentee ownership have led to the neglect of management. In many cases, private forests and woodlands are enclosures within government forests that have been abandoned by owners. Privately owned forests in Lebanon consist mainly of pine forests managed for the production of pine nuts.

One area where substantial change in ownership and management has taken place is in the processing and marketing of wood and wood products. Private-sector participation largely depends on the overall investment climate and issues such as markets and input prices. As economies are liberalized and private-sector involvement encouraged, foreign direct investment in processing and marketing of wood and wood products is expected to increase in some of the countries in the region largely based on their perceived competitiveness. Turkey and Iran seem to have taken advantage of this opportunity, especially in the production of panel products and furniture. Large domestic and regional markets, availability of skilled and unskilled workers, good transport networks and ability to mobilize investments internally are some of the competitive advantages of these countries.

Looking ahead, major changes are not anticipated for involving the private sector in wood production, even if favourable policies and legislation are

introduced. Low productivity stemming from the harsh growing conditions will remain a major constraint. Even where private ownership is well established, as in the case of Cyprus, there are few incentives for investment in wood production because of the small size of holdings and the higher returns from alternative investments. Some of the potential areas for continued private-sector involvement in the region will be:

- Management of recreation areas in forests, especially for the provision of various amenities. In fact, the rapid growth of tourism in the region would necessitate that appropriate public-private partnerships are developed to take full advantage of the recreational potential, ensuring that such arrangements sustain the environmental and social values.
- Production and processing of high-value non-wood forest products. This is another area where there is further scope for private-sector involvement. The West and Central Asia region has a wealth of medicinal plants with substantial potential for systematic cultivation and value addition.
- Private tree planting under agroforestry, although limited in scope. Largely multiple-use trees will be planted, mostly for providing environmental services (especially as windbreaks and shelterbelts), but also for meeting local needs (primarily small timber, fencing materials and woodfuel). Encouraging such efforts would require creation of favourable policy and legal frameworks and improvement of institutional arrangements.

Emerging role of civil society organizations. The state of development of civil society organizations and their involvement in forest-related issues varies among the countries in the region and largely reflect the overall political and social environment. In many countries, there are rigid rules regulating NGOs and often they are unable to act independently. Some of the main functions of NGOs include:

- creating public awareness on environment and forestry issues through education, publicity, etc.;
- implementing research and other studies relating to forestry issues;
- undertaking development tasks on behalf of national and international organizations;
- functioning as pressure groups to bring about changes in policies, institutions, programmes and activities.

In general, most NGOs focus on the first three tasks, often with support from governments and international agencies. The impact of NGOs largely depends on the overall political environment, the support they receive from the public and their technical, organizational and financial capabilities. While there are some examples of effective civil society organizations, the overall situation needs substantial improvement (Box 4.11).

Given the broad trend towards more open political processes and increasing public awareness about environmental issues, NGOs are expected to play an increasing role in addressing forestry and environment-related issues in the region. Improved access to information resulting from the growth of information and

BOX 4.11

State of civil society development in Arab countries

Civil society faces the same problems as the political community vis-à-vis the authorities who seek to control civil organizations, directly or indirectly, by a dual strategy of containment and repression. In addition, many CSOs [civil society organizations] become extensions of political parties, which use them as fronts through which to expand their political influence at the popular level. This, in turn, limits the CSOs' initiative and independence of action. Consequently, civil society organizations have not been significant actors in resolving the existing political crisis, as they too have been caught up in its vortex.

Source: UNDP, 2005a.

communication technologies will further enhance the role of NGOs. However, many will continue to depend on the support from governments and international organizations with their attendant constraints of sustainability and freedom. Nevertheless, increased civil society initiatives could "internationalize" some of the local and national issues.

Conflicts and insecurity. The West and Central Asia region is prone to conflicts, mostly arising from the competition for critical resources – especially energy and water – and the political and institutional environment that often fails to recognize the aspirations of people from diverse ethnic, religious and linguistic backgrounds. There are several areas where conflicts have particularly affected forests and forestry. For example, insecurity in some of the forested provinces in Afghanistan has virtually prevented any management (see Box. 4.12), and has reported to be an important factor contributing to large-scale illegal logging. Conflicting claims between Armenia and Azerbaijan on the vast tracts of forests and other land bordering the two countries have led to the absence of management of these areas. Georgia also faces similar problems with some of its forests. Similarly, extensive areas of tree growth have been destroyed in Iraq. Conflicts impact forests and forestry by:

- diverting government resources from developmental activities, including forest management;
- weakening institutions, creating favourable conditions for illegal removal of resources such as fuelwood;
- inhibiting long-term investments.

Improvements in the management of natural resources will depend on how these conflicts are resolved. There are considerable uncertainties in this regard, especially in view of the chequered development of democratic governance and a host of external factors.

BOX 4.12

Afghanistan – instability and a weak institutional framework

Situated in the North-East along the border with Pakistan, the Kunar forest is one of the last remaining forests in Afghanistan. It is believed that half of this forest's viable stocks have been stripped by timber mafias and shipped to Pakistan for export to the Gulf and Europe. Before the fall of Taliban, who somehow controlled the deforestation activities in Kunar – and profited from its products – had at least limited the exploitation.

The current interim authority is now powerless to stop the unrestrained logging as the perpetrators are protected by tribal and political warlords, who run much of rural Afghanistan. One of the efforts made by the new government in March 2005 was to form the "Green Division", an armed and trained contingent of 300 forest rangers with the goal of protecting Afghanistan's forests from timber smugglers. The rangers function under the Ministry of Interior, which expects to increase the division's manpower to 2 000 rangers by the end of 2006. Scepticism surrounds the effectiveness of these efforts as some cite that corruption of the police and high-ranking local officials will render them useless. Others have noted that the government has neither the budget nor the equipment to support the division".

Source: Nasrat and Babak, 2005; Wafa, 2002.

Technological changes

In assessing the long-term scenarios of development, it is important to consider the role of technological changes and how they may influence forests and forestry in the region. In addition to the developments in the field of information and communication technologies, some key areas to be considered are the efforts to enhance efficiency in the use of water and energy. Most countries in Central Asia benefited significantly from the large science and technology infrastructure of the Soviet Union. Research and development (R&D) efforts in the former Soviet Union were entirely in the public sector. With the collapse of the Soviet Union, the scientific capacity of these countries significantly decreased. Limited resources, persistence of a top-down approach to research and development, and loss of competent scientists through emigration continue to affect the overall science and technology capacity in the Central Asian and Caucasus countries.

Although the West Asian countries have a different historical background, science and technology development does not differ greatly among the countries, except for a few such as Iran and Turkey. Table 4.5 provides a general indication of the overall situation with regard to important technology parameters.

It has to be noted, however, that the data of the number of researchers in Central Asia and the Caucasus may be distorted, as it partly reflects the pre-independence era. The R&D expenditure for the period 1997-2002 provides a better indication of the situation. None of the countries in the region have R&D spending that matches

TABLE 4.5
Indicators of innovation and its diffusion

Country	Average no. of researchers in R&D 1990–2003 *(per million people)*	Average R&D expenditure 1997–2002 *(% of GDP)*	Internet users 2003 *(per '000 people)*
Central Asia and Caucasus			
Georgia	2 317	0.3	24
Armenia	1 606		
Azerbaijan	1 248	0.3	
Kazakhstan	744	0.3	
Kyrgyzstan	413	0.2	38
Tajikistan			1
Uzbekistan			19
West Asia			
Jordan	1 977		
Cyprus	569	0.3	337
Iran	484		
Turkey	345	0.7	85
Kuwait	73	0.2	228
Syrian Arab Republic	29	0.2	35
United Arab Emirates			275
Bahrain			216
Lebanon			143
Saudi Arabia			67
World average	**1 146**	**2.5**	**120**
Developing country average	**400**	**0.9**	**53**

Source: UNDP, 2005a, 2005b.

the world average, or for that matter even that of the developing countries. As for Internet usage, several countries in West Asia have a much higher proportion than the world average. While this example is a crude index of improved access to information, it also reflects the higher disposable income of the population.

Research and development in forestry and allied sectors. Since most of the countries allocate a small portion of GDP to R&D, their ability to address emerging problems remains constrained. Because forestry is given low priority, as the attention is focused on protection and conservation, the share of resources allocated for forestry research is insignificant. Key technical issues that forestry needs to continue addressing are:

- improving afforestation techniques, especially in extremely unfavourable environments, including highly toxic soils;
- enhancing the efficiency in water use for afforestation and reforestation and in urban planting, as well as further improvements in the use of wastewater for irrigation;
- processing technologies for non-wood forest products.

There are several other potential areas for technology improvement in the forestry sector. Remote sensing is expected to improve significantly to facilitate real-time monitoring of forest and tree resources and assessment of degradation and desertification. Improved techniques for controlling desertification, especially biotechnology applications to enable plants to withstand water scarcity and soil toxicity, will be particularly important to the West and Central Asia region as a whole. Other technological developments that may have immediate influence would be improvements in fire detection and the control and management of pests and diseases. While developments in these areas could have a significant impact on the forestry situation, this depends on the creation of necessary conditions for increased investments in R&D and overcoming a number of constraints in the wider adoption of available and emerging technologies.

EXTERNAL ENVIRONMENT

An important factor that will influence the overall social, economic and political environment in the West and Central Asia region, and thus indirectly forests and forestry, is the regional and global economic and political situation, in particular the pace of globalization and the changes in global geopolitics. The entire region, in particular the fossil fuel rich countries, is subjected to divergent pressures that arise from the intense competition to gain access to energy resources. Globalization is another dimension of the external environment that is altering the global economic geography, and has resulted in the emergence of new global players and the consequent shifts in trade and investments.

Globalization

The pace of globalization has increased rapidly during the past two decades, enhancing the mobility of capital, technology, information and products across national borders. Countries are more closely linked now than they were before, and what happens in one country significantly influences other countries, even though geographically they may not be close. The region's importance in the globalization process stems from its vast reserves of oil and natural gas. The pace of investment in the oil and affiliated infrastructure sectors is expected to continue and some of the countries in the region are emerging as regional and global centres of commerce and trade. Whether the benefits of such developments will be widespread or whether globalization will be an asymmetrical process, benefiting only a few, is a major concern.

An important element in the process of globalization is the global and regional economic cooperation and trade agreements. Eleven of the countries are members of the World Trade Organization, and of the ten observers some such as Saudi Arabia are about to become full members. Currently, the Syrian Arab Republic and Turkmenistan are the only countries that are not members or associated with the World Trade Organization as observer member government. Negotiations on trade, especially relating to agricultural subsidies, could have a significant impact on land use in the region. While removal of agricultural subsidies in Europe may open up markets, only a few countries and possibly a limited number of products may be able to benefit from this.

Two ongoing developments, one external and the other internal, will be of particular concern in the increased integration of the West and Central Asian countries with the rest of the world:

- Successful globalization of emerging economies such as China and India will increase the competition in global markets. The global marketplace embodies increasing competitive pressures, and success in such an environment depends on substantial investments in human capital and the creation of a favourable investment climate.
- The internal pressure comes from demographics. Most West Asian countries have begun a period in which the bulge generation created by the demographic transition is entering the labour force and the imperative is to create jobs. It is almost impossible to imagine the sustained generation of employment opportunities without a successful process of globalization and cross-border economic integration.

Global and regional environmental issues

Another important factor affecting forests and forestry is the growing concern of environmental degradation and the global and regional responses to address the problems. The post-United Nations Conference on Environment and Development (UNCED) period has witnessed a series of international initiatives relating to conservation of biological diversity, control of desertification and mitigation of climate change. Nearly all the countries in West and Central Asia (except Iraq) have ratified the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), the United Nations Framework Convention on Climate Change (UNFCCC) and the World Heritage Convention. Several countries have also ratified the Kyoto Protocol, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Ramsar Convention. All these conventions and protocols commit the countries to pursue action in specific areas which directly and indirectly affect the forest sector (see Box 4.13).

BOX 4.13

The Pan-European Biological and Landscape Strategy

The Pan-European Biological and Landscape Strategy was endorsed at the third Ministerial Conference "Environment for Europe" in 1995 with the objective of providing an innovative and proactive approach to stop and reverse the degradation of landscape diversity values in Europe. All the eight countries in the FOWECA study covering Central Asia and the Caucasus are signatories to this strategy. Initiatives under this include support for the preparation of national biodiversity strategies, establishment of a Pan-European Ecological Network, integration of biological and landscape diversity considerations in all sectors, and raising awareness and action to protect threatened species.

Source: EFI, 2005.

Following the ratification of CBD, most countries have prepared National Environmental Action Plans (NEAPs) or National Biodiversity Strategy and Action Plans (NBSAPs). Although priorities may differ between countries, most of these programmes and plans adopt a common framework with considerable emphasis on awareness generation, assessment of the status of biodiversity and efforts to improve institutional capacity. Often these initiatives are based on external financial and technical support and this raises questions about their sustainability, especially in the context of domestic resource constraints.

Approaches to the implementation of UNCCD have been similar to those for CBD. A Strategic Regional Action Plan to combat desertification in West Asia has been developed within the framework of UNCCD. There are also a number of subregional initiatives focused on general cooperation or addressing common problems of concern to more than one country. The Central Asian countries have drawn up a subregional programme on combating desertification (UNCCD, 2003). Two important subregional initiatives in desertification are the Aral Sea Programme and the Caspian Environment Programme, both emphasizing collaborative action to address desertification issues.

Global trends in production of wood and wood products

As globalization intensifies and tariff and non-tariff barriers are reduced drastically, the forestry sector in the region will be influenced by the global trends in production and trade. Competitive advantage rather than natural advantages will become more important. Over the past four decades, global industrial roundwood production has increased by about 60 percent, to the current level of around 1.6 billion m^3 (Whiteman, 2005), although currently it is less than the peak production in the 1990s. In addition, the most important change regards the shift in the regional distribution of production, with a number of countries in the South increasing their production substantially. In recent years, Eastern Europe has become an important supplier of wood and wood products. China has become one of the largest producers and exporters of plywood and furniture. Similarly, the Russian Federation is on the path of recovering from the decline of its forest and forest industry and this could significantly influence global wood supplies and prices.

In view of low productivity, very few of the countries in the West and Central Asia region will have competitive advantage in wood production. With reduced trade barriers, barring a substantial increase in the costs of transportation, wood supply is unlikely to be a major problem. With higher investments in research and development, the cost for producing wood from plantations will decline further. Also improved technologies, including the use of recovered paper, will reduce the raw material input requirements. All these global developments will have an impact on the countries in the region, showing that it may not be cost effective for them to manage forests for meeting the domestic demand of wood and wood products.

Changing geopolitics

As the region holds nearly two-thirds of the proven oil and half of the natural gas reserves, it remains in the centre stage of global geopolitics. The rapidly increasing demand for energy is bound to have enormous influence on the geopolitics in West and Central Asia and, consequently, on the social and economic situation in the countries. Countries that have the necessary internal cohesion and strength (which largely depends on more open and transparent governance and the wider distribution of the benefits of economic growth) could take advantage of the competitive environment, and thus significantly improve their social and economic environment. Although the geopolitical situation is fundamental in understanding the long-term prospects of social and economic development, there is considerable unpredictability.

SUMMARY OF KEY DRIVERS OF CHANGE

Forests and forestry in the West and Central Asia region will be influenced by a number of internal and external factors. Demographic changes, the growth of income and its distribution, and the policy and institutional environment will be the key driving forces. Other aspects, such as environmental changes and the development and adoption of technologies, will also have some impact. Together, these will directly and indirectly influence land use in general, the extent of land under forests and woodlands and the demand for forest products and environmental services. Most economies are likely to witness some diversification, increasing the share of industries and service sectors in GDP while agriculture and related activities decline in importance.

The demand for wood and wood products and environmental services is likely to increase considerably. The construction sector is bound to grow rapidly in many countries, as income from oil and gas are invested to develop infrastructure and to meet the housing needs of a growing adult population. At the same time, there will also be a demand for provision of environmental services, especially recreation. This is particularly in view of the anticipated growth in international tourism, as some of the economies invest in diversifying the economic base.

The internal social, political and institutional environment will to a great extent be influenced by the external global and regional environment. West and Central Asia has been in the centre stage of global geopolitics, primarily because it is the most important source of energy supply to the rest of the world. Competition to access oil and gas supply has been an important determinant of development in the region.

Considering the economic, social, political, institutional and technological differences among countries and the complex interaction of the various driving forces, a wide range of forestry situations can be visualized in the region. While it is difficult to indicate all the possible situations (which should be addressed at a more disaggregated level), some broad trends of the possible paths of development have been identified. Primarily this involves identification of possible scenarios and assessment of their implications on forests and forestry.