

Country Study on Biodiversity of Azerbaijan Republic

Fourth National Report to
Convention of Biological Diversity

Baku - 2010

This document has been prepared under requirements of the Convention of Biological Diversity and involves current status of biological diversity in the territory of Azerbaijan Republic and factors impacted upon it.

The report has been drafted in the presence of all concerned parties and it based upon the opinions and proposals of the related specialists.

Therefore, a deep gratitude is expressed to authors staff of the First National Report on the Convention of Biological Diversity which plays as a framework document, for preparation of the Second National Report on the Convention of Biological Diversity.

Views and standpoints suggested in this collection express opinions of the authors and could not coincide with opinions of the United Nations or the United Nations Development Programme.

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Abbreviations

AIOC	Azerbaijan International Operating Company
ANAS	Azerbaijan National Academy of Sciences
BP	British Petroleum
BTC	Baku-Tbilisi-Ceyhan Pipeline Route
CBD	The Convention on Biological Diversity
CIS	Commonwealth of Independent States
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
GDP	Gross Domestic Product
GEF	Global Environment Facility
IUCN	International Union for Conservation of Nature - The World Conservation Union
NGO	Non-Government Organization
SOCAR	State Oil Company of the Azerbaijan Republic
TRACECA	Transport Corridor Europe-Caucasus-Asia
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization

INTRODUCTION

Worldwide development of economy and agriculture in the current period and daily increasing direct and circumstantial pressures to the environment against demographic problems lead to violation of the natural evolution and generally, to degradation of ecosystem by destructive effects to biological masses of the planet as well as the region which had been formed over million years. In this situation protection of the environment and especially of biological diversity essential for wildlife and, study and elimination of its exhaustion hazards are very important.

Geographic location, climate types of our country and other natural factors caused to generation of rich and various biological diversity elements in the territory of Azerbaijan Republic. However increased demand for nature and biological diversity, sometimes adverse effects of human activity and rate of economic growth observed at the present can cause to depletion of species diversity and to complete destruction of separate species by serious impacts upon countrywide biological diversity as it appeared in many nations throughout the world.

In this situation adherence and joining to internationally nature conservation actions and assumption of countrywide effective measures alongside with global cooperation are very significant.

It is evident that world community made considerable efforts towards preservation and sustainable use of natural resources since the second half of XX century. In particular, adoption of the Convention of Biological Diversity in the Environment and Development Conference of the United Nations held in Rio de Janeiro city of Brasilia in 1992 and ratification of the aforesaid Convention by Azerbaijan Republic on March 2000 played an unexampled role in preservation and maintenance of valuable and exotic biological diversity resources of our country. In this respect, regular actions taken by the Government of Azerbaijan, especially "National Strategy on protection and sustainable use of biological diversity in Azerbaijan Republic and Action Plan" which approved by Decree №1368 dated March 24, 2006 of the President of Azerbaijan Republic can be mentioned regarding performance of obligations and commitments stipulated by the Convention. The above mentioned document paved wide-range prospects on several spheres such as sustainable protection of biological diversity, restoration of resources under exhaustion and determination and conservation of priority ecosystems the territory of the country. At the same time, declaration of 2010 by the President as an "Ecology year" and the Presidential Decree on large-scale actions to be realized hereof, obviously prove serious efforts made in focusing of this sector by the state and government officials and implementation of sustainable nature protection measures.

The submitted document reflects status of execution of requirements of the Convention of Biological Diversity including analysis of issues such as countrywide present situation of biological diversity within the last 7 years, achievements obtained in this line and challenges, direct and indirect impacts effected upon biodiversity and elimination of them.

"The Fourth National Report on the Convention of Biological Diversity" has been accomplished as a result of information and analysis submitted by specialists of the Ministry of Ecology and Natural Resources which is functioning as a proper executive power in the management of environment and natural resources of Azerbaijan Republic, and related

authorities and Committees and specialized scientific institutions. There used latest data, statistics and scientific study outcomes in the preparation of IV National Report.

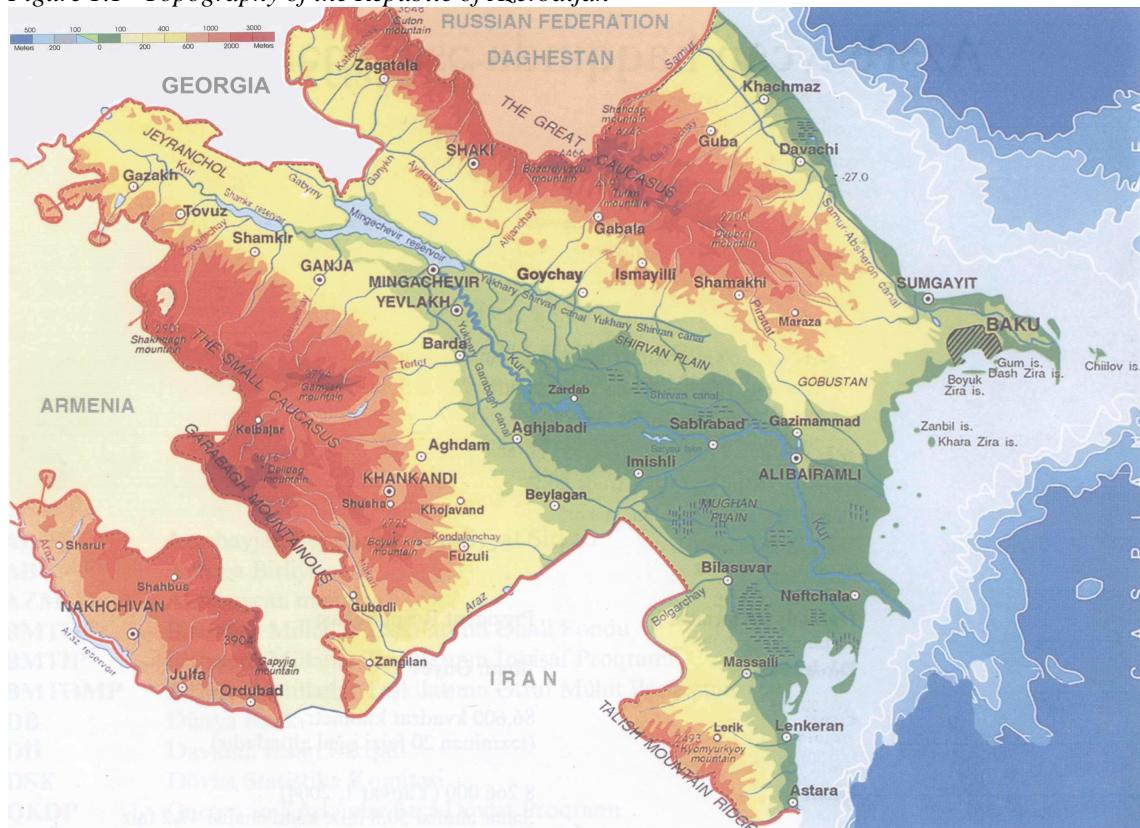
Country Context

Geographic location, borders and land area

The Republic of Azerbaijan is an ancient country, situated between the continents of Europe and Asia in the southeast of the Caucasus region. It is located on the western shores of the Caspian, to the northwest of the Persian Plateau. It has an area of 86,600 km², located between 38°24' and 41°54' latitude North, and between 50°51' 44°46' longitude East. It is in a favourable geo-political location, bordering five countries; the Dagestan Republic of the Russian Federation in the north (289 km of border length), Georgia in the north-west (340 km), the Republic of Armenia (766 km) and Turkey (11 km) in the west, and the Islamic Republic of Iran (432 km) in the south. There is approximately 800 km of coastline along the Caspian shore in the east. The capital city of Azerbaijan is Baku, a port city, located on the Absheron peninsula on the shores of the Caspian Sea.

A separate, physically isolated, area of land – the Autonomous Republic of Nakhichevan - is situated in the southwest of the Lesser Caucasus, in a typically mountainous area. It has borders with Iran (163 km, some of which lies along the Araz River), Turkey (11 km) and Armenia (224 km). Nakhichevan covers some 5,362 km² and at its widest the territory stretches 158 km (from north-east to south-west).

Figure 1.1 –Topography of the Republic of Azerbaijan



Physical geography and topography

The Republic of Azerbaijan is situated in the Alp-Himalayan mountain belt. The three mountain ranges are the Greater and Lesser Caucasus, and the Talysh Mountains, together covering approximately 40% of the country. The highest point in the country is on Mount Bazarduzu (4,485 m above sea level) situated in the Greater Caucasus. Lowlands and plains make up the other 60% of the country. The average height of the country is 657 m above sea level, however 18% of the country is below sea level (see Map 1). Azerbaijan is located in an active seismic zone, with particularly high activity in the southern part of the Greater Caucasus, the Ganja region in the Lesser Caucasus, and in the Autonomous Republic of Nakhichevan.

Azerbaijan does not extend over a large geographical area, and much of the differentiation of landscapes is due to the variation of altitude. Landscapes are influenced by climate, soil, and habitats that change with increasing altitude. Landscapes replace each other with height, graduating from lowland plains, semi desert, steppe, forest, alpine meadow to subnival communities at the greatest heights of the mountains, creating landscape zones at different altitudes. This altitudinal zonation is naturally disordered in the Lankoran region as a result of the Talysh mountains where semi arid landscapes replace the forest landscapes normal in the mountains. In Nakhichevan, forests develop in islands due to local climatic conditions.

The highest point in Nakhichevan Autonomous Republic is Gapijig mountain (3,906 m). Other important mountain ranges include the Zangazur and Daralayaz ranges in the north-east of the region, where there are a number of peaks over 3,000 m. A third of the territory of Nakhichevan is covered by grassland/steppe, totalling some 172 km², of which some 10,000 ha is salinated.

Water resources

The main sources of water in Azerbaijan are the surface waters. However, only 24 of the 8350 rivers are greater than 100 km in length. All the rivers drain into the Caspian in the east of the country, through three main river basins - the Caspian Basin, (rivers draining directly into the Caspian), the Kura basin (in western and central Azerbaijan) and the Araz basin. The average density of river networks is 0.39 km per km², with most of the rivers occurring in the Kura basin.

Of the 300 natural lakes in Azerbaijan, only six cover more than 10km² of land area. The total area of these six lakes makes up 83 % (250 km²) of the total lake area. The lakes of the Kura and Araz basins (in the lowlands) are affected by upstream water management, causing an increase in salinity (5000-13000 mg/L), and a reduction in fish populations. Lakes on the Absheron Peninsula (on the shores of the Caspian) have become salinated as a result of upstream management and polluted by industrial and domestic waste (especially from oil fields). In addition, the number and size of lakes in this area are being artificially increased. Lakes in the mountainous area tend to be small (the total area of the 90 mountain lakes is 2 km²), but face few anthropogenic threats, because of their distance from settlements and industry.

In the last 40-50 years many water reservoirs have increased five-fold, so that they now cover 1070 km². Total volume of these artificial lakes is 22.66 km³, but only 11.24 km³ is usable water. The biggest of these by far is Mingachevir Reservoir, located along the River Kura which has a total volume of 16 km³ and covers some 625km². The water in reservoirs is used primarily for electricity production and irrigation purposes. A dense network of channels

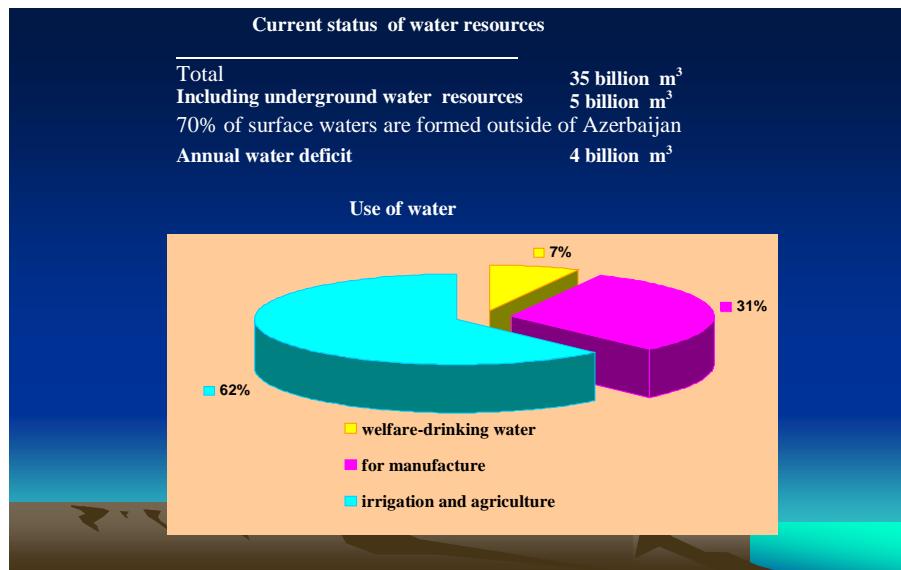
irrigates more than 1300 ha of drought prone land. The channels also carry clean water to a number of settlements, although approximately 40% of fresh water in Azerbaijan is taken from subsoil reserves.

As more than of territory of Azerbaijan Republic situated in arid climate condition, a lack of water appeared here permanently. Demand for water is not same in separate parts of Kura river due to varied nature and diversified agriculture along its basin.

Key water facilities related to hydrographic network - rivers, lakes and water reservoirs were allotted irregularly in different natural provinces of Azerbaijan Republic.

Azerbaijan remains behind South Caucasus states subject to index of ground water resources per km² of area and per capita of population. So that 62% of total water reserve (310 bln. m³) of South Caucasus is shared by Georgia, 28% by Armenia and only 10% by Azerbaijan.

Countrywide water reserves total to average 35 bln. m³ that out of 5 bln. m³ are underground water. No sufficient water reserve exists in Azerbaijan in order to meet demand of the population for potable water and needs of agriculture.



Within the Nakhichevan Autonomous Republic there are around 400 water bodies, all associated with the Araz basin. The larger rivers in the territory are the Araz, Shargi Arpachay, Nakhichevanchay and Gilanchay. The area supports a number of natural lakes (including Batabat, Ganligol, Goy gol, and Salvarti gol) as well as reservoirs (including the Araz reservoir). The area also supported a number of kahrizes (systems of subterranean irrigation canals), although the number has declined significantly from 400 to around 182, and there is a danger that further springs will be lost.

(See: Annex 1.1)

Climate

Azerbaijan is a country of varied climates, although it is predominately subtropical. On average, there are 1900-2900 hours of sunshine annually (approximately 5-8 hours daily sunshine). In the lowlands, summers are hot, and winters are moderate, however in the

mountains, the summers are cooler, and temperatures in the mountains can reach negative figures. Recorded temperatures have reached a maximum of +43 °C, and minimum of -17°C.

Humidity tends to be low, although it varies across the country. Annual rainfall on the Absheron peninsula in the west varies between 150-200 mm, whilst in the foothills of the Talysh Mountains, it averages 1600-1700mm per year. There is less than 400 mm of rainfall each year over 65% of the country. In these semi-desert and dry steppe areas, agriculture is only possible through artificial irrigation.

The Autonomous Republic of Nakhichevan has a particularly continental climate, with over 2800 hours of sunshine annually recorded in the Araz steppes. Rainfall in Nakhichevan varies between 200 and 600 mm, with low humidity throughout. Minimum and maximum recorded temperatures in the region are -17°C and +43°C respectively. The area is characterised by hot dry winds, which blow 50-70 days of the year (above 1,000 m).

Socio-economic context

History of human settlement and archaeology

Azerbaijan has a proud and long history. As an ancient centre of civilization, it has a great cultural heritage created over thousands of years. Prehistoric people inhabited the region, and evidence of their rock paintings and settlements still survives today. Archaeological evidence in caves and at other monuments (notably the Azikh cave) has shown evidence that some of the oldest modern humans inhabited Azerbaijan during the Stone Age.

Evidence of early cities, forts, religious buildings, early farming and a legacy of legends and stories demonstrate the long history of human settlement in the Autonomous Republic of Nakhichevan. Early towns such as Kultapa and Gilan were located in this area, and Kultapa has proved of particular archaeological interest.

Picture	Tribes in the region formed in the third millennium BC, and political organisations were created in the first millennium BC. The state of Manna was established during the ninth century BC with a well-developed cultural and economic basis. At this time the people believed in natural phenomena, the sun and the moon. In the first part of the sixth century BC, Manna was conquered by the Midiya state. During this period, the main religion was Zoroastrianism, based around the natural gas and oil sources that ignited as they escaped from the ground. The states of Albania and Atropeana played important roles in restoring the territory as an independent state. Indeed, the word Azerbaijan is a derivation of Atropat, an Atropean ruler from this period. From the third to the fifth centuries, the state of Azerbaijan strengthened, and Christianity began to spread widely among Azeris. Islam became the main religion in the country when Arabs conquered Azerbaijan in the eighth century.
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During the middle ages, states such as Shirvanshah, Eldagizler, Garagoyunlu, Aggoyunlu, Safaviler were formed within the territory of Azerbaijan. There was a struggle by the neighbouring countries to occupy these territories resulting in the disruption of the stability of

Azerbaijan, and in the 18th century, independent and semi-independent states formed, with the state of Hanliglar also becoming part of Azerbaijan. At the end of the 18th and the beginning of the 19th centuries the antagonism and struggle amongst Iran, Turkey and Russia for occupation of Azerbaijan increased. As a result, Russia and Iran signed the Treaty of Turkmenchay in 1828, marking the end of fighting between the countries. Azerbaijan and its population were divided into two parts: the northern part was occupied by Russia and southern part by Iran.

In 1917, the fall of the monarchy in Russia meant that conditions became favourable for the establishment of the national liberation movement in Azerbaijan. On the 28th May 1918, Azerbaijan gained its independence and the independent Republic of Azerbaijan was declared. It existed for only 23 months, as on the 28th April 1920, Azerbaijan lost its independence when the 11th Red Army occupied its territories. Azerbaijan only regained its independent status after the collapse of the Soviet empire in 1991.

Demographic statistics of the country territory

Azerbaijan Republic consists of 1 Autonomous Republic, 66 regions, 77 cities, 13 districts, 258 settlements, 1700 rural districts and 4253 rural settlements.

Number of countrywide population totalled to 8896.9 thousand people at the beginning of 2009 against 8349.0 thousand people at the beginning of 2004 by increasing 6.6% within the last 6 years. At the same time, number of urban population reached to 4818.3 thousand people from 4403.6 thousand by increasing 9.4%, but number of rural population reached to 4078.6 thousand people from 3945.4 thousand by increasing 3.4%. At the present, 54.2% of countrywide population inhabited in urban area and 45.8 % in rural area. 49% of the population is comprised by men, 51% by women. 1041 women are shared by per 1000 men in Azerbaijan.

Number of countrywide population reached to 8974.0 thousand people up to October 1, 2009 thus it increased as 77 thousand people or 0.9 percent within nine months. Generally, rise in number of the country population occurs subject to both natural and migration increase in the last years.

2014.1 thousand people or 22.6% of the population was comprised by persons under age of labor ability, 6049.9 thousand people (68.0%) by age of labor ability and 832.9 thousand people (9.4%) over age of labor ability for the beginning of 2009. These indices were 26.4, 64.2 and 9.4 accordingly for the beginning of 2004.

Average 140 thousand infants are born in a year or approximately 384 new small citizens in a day in the country within the past 6 years. Birth rate for 2008 subject to per 1000 persons of the population totalled to 17.8 persons against 14.0 in 2003, but death rate totalled to 6.2 persons against 6.0. Natural increase rate reached to 11.6 from 8.0 subject to per 1000 persons of the population in comparison with 2003. At the present, approximate two born children are shared within the life span of per woman average.

1.7 thousand infants died in 2008 and child mortality rate declined to 11.4 from 15.5 subject to per 1000 live-born babies as compared with 2003. Maternal death per 100000 live-born babies totalled to 26.3 in 2008. Death rate is reflected in life expectancy analysis. This rate totalled to 72.6 age in past year, including 69.9 age for men and 75.4 age for women.

80.0 thousand marriages were registered and 7.9 thousand marriages were dissolved in the country within 2008. Number of marriages reached to 9.3 from 6.9 and number of divorcements increased to 0.9 from 0.8 subject to per 1000 persons of the population as compared with 2003.

According to official information of Chief Employment Department, 44481 persons became officially unemployed in 2008, but 42183 persons up to November 1, 2009.

According to these data, official unemployment rate totalled to 1.0% in both two periods.

Social and economic condition

The economy of Azerbaijan Republic and generally social-economic condition were characterized in high inflation rate at the beginning of 1990th years. Internal unstable political condition did not enable to carry out economic reforms. Breakdown of countrywide economy caused to declining of living standards of the population. So that real volume of Gross Domestic Product totalled to 41.9 percent in 1995 as compared with 1990 (at the beginning of 1990).

The dissolution was prevented as from 1995 thanks to large-scale economic reforms implemented successfully under the governance of Heydar Aliyev, nationwide leader of Azerbaijan Republic. There achieved a number of positive changes resulted from execution of actions for pursuance of policy on fixed budget, finance-credit, tax and customs and, liberalization of prices, foreign economic activity and currency market and transformation of property. So that real volume of Gross Domestic Product increased as 2.6 times in the years of 2003-2008. The volume of Gross Domestic Product totalled to 38005.7 million Manat, volume per capita was equivalent to 4439.9 Manat in 2008.

Nevertheless economic growth occurred within these years resulted in a rise of living standards of the population generally, certain shortages and deficiencies still exist in this sphere and execution of proper actions is planned for elimination of them. In this standpoint, adequate social policy is being pursued towards supporting of key strategic goals for promotion of social welfare, provision of vulnerable groups with more targeted social assistance, improvement of provision of major health and education services and aid to refugees and internally displaced peoples.

According to data of the Ministry of Economic Development, volume of Gross Domestic Product totalled to 96.6% in 2005 as compared with 1990 and to 115.9% in 2006 prevailing the rate of 1990.

Share of private sector in countrywide economy enhanced considerably as a result of measures taken by the state and government towards privatization of state property and development of entrepreneurship.

Share of nongovernmental sector in the GDP increased to 73.3% in 2003 and to 84.5% in 2008 resulted from implementation of privatization programmes as well as development of private ownership. Key target of social-economic policy of the Government of Azerbaijan for near 3-4 years aims to ensure dynamic growth of countrywide economy and necessary living standards of the population through pursuance of state policy provided for poverty reduction.

Gross Domestic Product was output to the amount of 7146.5 million Manat in 2003, 8530.2 million Manat in 2004, 12522.5 million Manat in 2005 and 18746.2 million Manat in 2006 in the republic. Real growth rate of the GDP totalled to 111.2%, 126.4%, 134.5% and 110.9% accordingly within these years.

It should be noted that there took place a number of changes in structure of the GDP in mid-term plan. So that share of industry in the GDP increased to 57.4% in 2008 as compared with 37.3% in 2003 and totalled to 49.9% within ten months of 2009. This growth emerged from operation of I phase and putting onstream of II phase of Azeri-Chirag-Gunashli fields, construction of oil export pipeline of Baku-Tbilisi-Ceyhan and commissioning of gas export pipeline of Baku-Tbilisi-Arzurum in the present period. Alongside with the above, share of construction sector in the GDP reached to 7.6-8.1% within ten months of 2008-2009 on account of these projects. Shares of agriculture, trade, transport, communication sectors in the GDP totalled to accordingly 5.8%, 5.3%, 5.1% and 1.9% in 2008 and 6.1%, 6.9%, 6.2% and 2% within ten months of 2009.

More than 43.7 billion USD was invested upon countrywide economy on account of all sources over the past 4 years. 20.2 billion USD (46.2%) of the investments are shared by internal sources and 23.5 billion USD (53.8%) by external sources. The investments focused on oil sector constitutes 62.1% (14.6 billion USD) of overall foreign investments.

Foreign trade turnover totalled to 99.2 billion USD in the years of 2003-2008, including export to 70.7 billion USD and import to 28.5 billion USD. Total value of positive trade balance (external surplus) generated within these years equalled to 42.2 billion USD.

Social security system. Improvement of social welfare of the population is one of the key lines of social policy pursued in the country. A priority is given to targeted principle and improvement of pensions, benefits and allowances for low-income families, persons who lost householders (heads of families) and martyr's families towards measures taken in this direction.

The Laws of Azerbaijan Republic “On occupational pensions” and “On social allowances” adopted on February 7, 2006, provide for bases of creation of employment pension and social allowance rights of countrywide citizens, rules for exercise of these rights and ensuring system of them.

Occupational pension for age and invalidity consists of base, insurance and accumulation parts, occupational benefit for loss of householder is comprised by base and insurance parts.

There registered 1298.9 thousand pensioners (14.4% of the population) at social security agencies up to October 1, 2009 that 65% of them draw pension for age, 24% for invalidity and 11% for loss of householder. Average amount of assigned monthly pensions totalled to 99.93 Manat and constituted 34% of average monthly salary. There approved “State Programme on development of insurance-pension system in Azerbaijan Republic in the years of 2009-2015” in order to ensure sustainable and dynamic development insurance-pension system and a Decree “On indexation of insurance part of occupational pensions” was signed for promotion of the pensioners' social welfare and insurance parts of monthly pension amounts were increased regarding all kinds of occupational pensions as from January 1, 2009.

Various social allowances and benefits are provided for disadvantaged families by the state in order to improve welfare and enhance social security of them. 291.3 thousand persons drew social allowances and benefits up to October 1, 2009. Number of allowance beneficiaries

totalled to 17.8 thousand persons for age, 92.2 thousand persons for invalidity, 31.7 thousand persons for loss of householders and number of disabled children under 18 age equalled to 58.4 thousand persons for disabled children benefit.

Also, social allowances are granted to children of low-income families. There assigned allowances and benefits to 22.4 thousand children in 11.5 thousand families up to October 1, 2009. Such allowances and benefits were received by children of martyr's families, disabled war veterans, I and II category Chernobyl invalids and active military servicemen. There assigned allowances and benefits to 991 caretakers and guardians of orphans and uncared-for children.

Disadvantaged families are given targeted state social assistance as from July 1, 2006 according to Law "On targeted state social assistance" dated October 21, 2005 of Azerbaijan Republic.

691.1 thousand members of 151.6 thousand families in the country received targeted state social assistance and hereof, 351.3 thousand persons were comprised by women, 339.3 thousand persons by children for October 1, 2009.

Education system. There exist high literacy rate (98.8%), high school attendance and good teacher-pupil ratio (1:10) in the education system of Azerbaijan Republic. Official secondary education is 11-year, free and compulsory. Primary education contains first 4 years of this period. As evident from the studies that declining in school attendance ratio of the children is more distinctive in 8-11th classes. Number of vocational education schools and pupils studying at them reduced within the past ten years. While 82188 pupils studied at 176 vocational education schools in 1990, 25184 pupils studied at 109 vocational education schools up to the beginning of 2009. Number of students studying in high education institutions within 2008-2009 academic year increased to 119137 persons as compared with 107945 persons in 1991-1992 school year.

In general, key parameters in the education sector are satisfactory, ecological education and training has not been established in necessary level. The existing curriculum and teaching aids do not reflect this sector in compliance with up-to-date requirements.

Public health system. The actions planned by the state and government are carried out successfully for development of the medicine and safeguard of public health. New hospitals, diagnostic centres and ambulatory-polyclinics outfit with modern equipment and facilities have been constructed and handed over, there carried out capital repair works in medical institutions and, old equipment and facilities are replaced with new ones. At the same time, the population have been rendered free medical services in treatment-medical care institutions which are contained in structure of the Ministry of Health and financed by state budget since February 1, 2008.

Execution of 9 State Programmes adopted on priority spheres of public health is being continued within the last years. According to these Programmes patients suffered from diabetes, chronic kidney deficiency, hereditary blood and infectious diseases are treated free of charge and supplied with medicaments on account of state resources. Number of several infectious diseases has been reduced and diseases such as diphtheria, German measles have been liquidated as a result of the actions taken.

Nevertheless a number of serious difficulties in Nakhichevan AR, all major actions which had been still implemented since 1969, focused on improvement of social-economic condition. Overall output totalled to 196.8 million Manat in Autonomous Republic in 2003,

including for agriculture 71.8 million Manat (36.5%), for construction 60.1 million Manat (30.5%), for other sectors 64.9 million Manat (33.0%).

Overall output totalled to 935 million Manat in 2008, including for 158.1 million Manat (16.9%), for construction 280.8 million Manat (30.0%), for other sectors 496.1 million Manat (53.1%).

Overall output totalled to 798.5 million Manat within 9 months of 2009, including for 145.8 million Manat (18.3%), for construction 268.7 million Manat (33.7%), for other sectors 384.0 million Manat (48%).

Credit outlay, currency in circulation and privatization of state property played an essential role in improvement of countrywide social-economic condition.

Political situation

Azerbaijan is democratic, legitimate, secular and unitary republic and gained independency in 1991. Fundamental Law - Constitution of Azerbaijan Republic became effective on November 27, 1995. Subject to the Constitution, power structure consists of three authority lines:

1. Legislative power, is executed by Milli Majlis comprising 125 deputies which are elected through voting.
2. Executive power belongs to the President elected by general secret ballot once in 5 years. Top Executive Body of the President - Cabinet of Ministers is governed by the Prime Minister.
3. Judicial power is executed by elective judiciaries (Constitution Court, Supreme Court, Economic Court and etc.) working for independently.

Election of Aliyev Heydar Alirza as the President of Azerbaijan Republic in 1993 put an end to anarchy and separatism dominated in the republic at that time. There achieved a ceasefire in the undeclared war with Armenia and thus, countrywide political situation was stabilized. Presently, his policy which oriented to economic development of the country and welfare of the population, is being pursued and followed successfully by Mr.Ilham Aliyev elected as the President of Azerbaijan Republic on October 15, 2003 and October 15, 2008.

At the present, main factor which could prejudice stability of the political situation is characterized in occupation of approximate 20% of the territory of Azerbaijan Republic by armenian military forces and resettlement of about one million Azerbaijanians as refugees and internally displaced peoples in other regions of the country resulted from the undeclared war. A number of political parties and public organizations are active by ruling social-political life of Azerbaijan Republic. At the present, major political force - New Azerbaijan Party. Other political parties such as Mother Land Party, Democratic Owners Party, National Independence Party, Musavat Party, Social-Democrat Party, Popular Front Party, Compatriot Party and etc. can be exemplified.

The following elections were held for Milli Majlis of Azerbaijan Republic on November 06, 2005 and there formed Parliament which comprised by representatives of major political forces working for the country dominated by New Azerbaijan Party as a result of democratic elections held in the presence of international observers.

There held elections to municipalities being local public authorities for the first time in history of the country in 1999 and about 2700 were established. Out of them 200 commenced as urban municipality, but 2500 as rural municipality. Municipal elections were held again on December 17, 2004. Granting of some authorities to municipalities towards decision-making

on use of land and solution of social problems was very important. Next municipal elections are expected to be held on December 23, 2009.

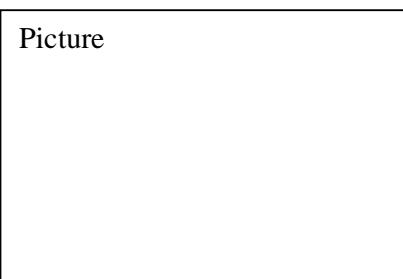
After gaining independency of Azerbaijan Republic the first international organization which the country joined was Organization for Security and Cooperation in Europe (30th January 1992). Then Azerbaijan Republic became a member of the United Nations (2nd March 1992), Commonwealth of Independent States (19th September 1995) and other international institutions. At last, Azerbaijan was admitted to the Council of Europe on January 17, 2001.

Azerbaijan Republic has established close cooperation relations with several institutions of the United Nations (including United Nations High Commissioner for Refugees, UNDP, UNICEF, World Food Programme, United Nations Environmental Programme). Azerbaijan Republic also joined Framework Programme “Partnership for Peace” of NATO and takes an active part in a number actions of the aforesaid body.

Azerbaijan Republic fulfills and performs its obligations and commitments by accedence to overall 21 international conventions and protocols on environment. In view of maintenance of environment very significant documents such as “On climate changes”, “On protection of ozone layer”, “On biological diversity”, “Use and protection of interboundary water flows and international lakes” and other conventions can be emphasized.

Nakhichevan is a democratic, legitimate, secular Autonomous Republic in the composition of Azerbaijan Republic subject to its legal status. The republic shall establish its Constitution and all issues related to interests of the Autonomous Republic are solved hereof. State authority is executed based upon principle of power division. Top executive of the republic is Chairman of Supreme Majlis with 5-year term of powers. Legislative power, is executed by Milli Majlis comprising 45 deputies which are elected through voting.

Infrastructure and Development



The formation of new market relations, and the increase in demand for oil at the world market, stimulated the development of the oil industry on the Absheron peninsula in the late nineteenth century, subsequently attracting foreign investment. New technologies were developed and tested for accessing, processing, refining and storing oil. The developments in the oil industry had a positive impact on the development of other industries at this time, such as engineering, mining

(copper production in Gadabay and salt production in Nakhichevan), navigation, construction, and light industries (silk treatment, cotton and food).

Baku, the capital of Azerbaijan is the main port of the Caspian Sea, and is connected with the ports of Kazakhstan and Turkmenistan by ship and ferry routes. The communication network of Azerbaijan is well connected to international systems.

Actions towards attraction of foreign investments to other industry sectors, including development of infrastructure alongside with oil industry of Azerbaijan Republic beared fruit. So that presently a part of highway adjoining to international transportation corridor TRASECA (Europe-Caucasus-Asia) has been reconstructed in compliance with international standards and, Baku-Tbilisi-Ceyhan oil export pipeline and Baku-Tbilisi-Arzurum gas export

pipeline have been laid in order to facilitate delivery of the Caspian oil and gas to worldwide markets.

Under an economic blockade by Armenia, the Autonomous Republic of Nakhichevan has suffered limited access to ground transport, communication connections and energy. In line with improving economic conditions since the late 1990s, the Republic has provided finances for the development and restoration of infrastructure. Investment in industry, transport, construction, energy, education, health, agriculture and social needs has resulted in improvement of conditions for the wider population.

Property rights on land

Land area of 8.64 million ha composing soil reserves of Azerbaijan Republic was allocated into 3 forms of property ownership pursuant to the Law of Azerbaijan Republic “On land reform”. As a result, 4.92 million ha was in state ownership (public domain), 2.05 million ha in municipality ownership and 1.67 million ha was conveyed to private ownership. Land reforms were carried out land reforms in 2032 farm economies of our republic and there conducted partial reforms in 41 hereof and subsequently various designated state-owned agriculture enterprises were established on the basis of them and assigned to subordination of the Ministry of Agriculture.

As a result of land reform there released land plot to 870.8 thousand families or 3.2 million persons in the country that it totals to 40% of the population. Only arable and noncropped lands, perennial seeds and hayfields suitable in agriculture were conveyed to ownership of the population in the course of reforms. The remaining lands were in the ownership of state and municipality.

1020.0 ha agricultural lands diminished in 2008 in comparison with 2003. However irrigated areas increased as 4701.0 ha. 28.9 ha lands increased in 2008 as compared to 2003. It proves increased interest of the population to cropping. 11.25 thousand ha of noncropped lands were involved to sowing. In this period countrywide interest increased towards horticulture and vine-growing and area of them increased to 161.55 thousand ha from 158.52 thousand ha that it means an increase of 3.03 thousand ha.

There diminished 22.3 thousand ha pasture-grazing area within the past period. Its main reason is characterized in use of pasture-grazing areas as sowing and hayfield, construction of temporary residential settlements (Bilasuvar, Aghdam, Tartar, Goranboy, Fuzuli, Aghjabedi and other regions) for refugees and allocation of land plots under temporary usage for their occupation with cropping and sowing. As evident from the table, nevertheless household plots (home grounds) totalled to 254.40 thousand ha in 2003, their area reached to 258.50 thousand ha by increasing 4.10 thousand ha in 2008. If every household plot is calculated as 0.08 ha average, it means provision of 51.2 thousand families with household plot. Naturally, if certain part of them is shared by IDPs, other part will be shared by the cities and villages.

Usage status of lands in different regions

Total area of farming lands equalled to 1.66 million ha or to 36.7% of agricultural lands in our republic in 2008. Farming lands increased as 0.7% in 2008 as compared to 2003. 18.47% of these areas (on 2008) is under state ownership, 5.35% under municipality ownership and 76.18% under private ownership.

Notwithstanding there were agricultural lands of 4.08 million ha in the republic in 1992, this figure reached to 4.52 million ha in 2008 as a result of adequate pursuance of countrywide

agrarian policy. Namely, additional land plot of 0.44 million ha was involved to agriculture of the republic. There exist some improvements in irrigation of the lands, too. Increase of irrigated lands appeared mainly in low-lying regions. However, share of countrywide dry-farming is comprised by 30% of all arable lands that these lands are mainly situated in mountainous and low-lying regions.

Quantity of soil reserve per family is various in regions of the republic because of the population settlement. Despite this figure totalled to 0.85 ha in Lankaran-Astara region, but it equals to 5.9 ha in Absheron region and to 2-3 ha plains (lowland region). Nevertheless 14.5% of rural population inhabited here, 19.7% of the soil is located in this area. Most unsuitable lands are situated in Nakhichevan and Lankaran-Astara regions. Accordingly 7.4 and 12.5% population inhabited here, arable lands total to 3-5%.

36.0% (595.6 thousand ha) of countrywide farmings were brought together in Lowland economic region. Also, Lowland economic region is comprised by 12.6% of farmings remained under state ownership, 38.4% of farmings remained under municipality ownership and 41.4% of farmings remained under private ownership. 6.5% of economic regions' farmings are under state ownership, 5.7% under municipality ownership and 87.8% under private ownership.

The following places are taken by Mountainous Garabagh, Ganja-Gazakh and Shaki-Zagatala economic regions subject to quantity of total area of the arable lands. 34.3% of countrywide farmings are located in these regions and remaining parts are in other economic regions.

First three places are taken by Nakhichevan (93.3%), Mountainous Shirvan (89.1%) and Lowland (87.8%) economic regions subject to quantity of the arable lands used under private ownership. This figure totals to 41.8% in Absheron.

In view of specific geographical situation of Absheron economic region, location of Baku and Sumgayit cities in this region and development of industry, forms of arable lands are distinctive as compared to other regions.

Perennial croppings take particular place among agricultural lands. The perennial croppings cover gardens, vineyards, tea plantations, berries and other fields. There existed 158.5 thousand perennial plants and renascents in 2003 in the republic and area of them reached to 161.5 thousand ha by increasing 3.0 thousand ha within the past period (2008). 38.8% of these lands are still under state ownership (including Mountainous Garabagh and occupied regions), 2.83% under municipal ownership and 58.4% under private ownership. Subject to total area of perennial croppings, Shaki-Zagatala (25.8%) and Guba-Khachmaz (17.4%) economic regions are ahead actually.

72% of countrywide perennial croppings are comprised by Mountainous Garabagh together with economic regions. However it is a pity that 70% of Mountainous Garabagh are under occupation. 28.0% of perennial arable fields involves the remaining 7 economic regions. 93.1% of perennial farmings in Guba-Khachmaz economic regions are under private ownership presently. 40.0% of countrywide perennial croppings are comprised by gardens. 48% of gardens on overall property forms are located in Shaki-Zagatala and 39.0% in Guba-Khachmaz economic regions.

Nevertheless total area of noncropped lands equalled to 53.0 thousand ha in 2003, this figure totalled to 41.76 thousand ha by decreasing as 11.24 thousand ha in 2008. 34.6% of these

lands was under state ownership, 9.85% of farmings remained under municipality ownership and 55.6% of farmings remained under private ownership. 23.2% of noncropped lands is shared by Lowland economic region. It means that year by year cultivation of the same lands gives its adverse effect to land capability.

Despite area of countrywide hayfields totalled to 109.03 thousand ha in 2003, their area reached to 109.7 thousand ha by increasing 0.63 thousand ha in 2008. It is mainly related to preservation of pasture-grazing fields for hay-mowing and maintenance of uncropped lands for haymaking. 27.0% of hayfields is under state ownership, 2.5% under municipality ownership and 70.5% under private ownership. Nevertheless hayfields were located in all economic regions of the republic, majority of them is located Ganja-Gazakh (30.7%), Guba-Khachmaz (26.5%) and Lankaran-Astara (13.8%) economic regions. In general, 71.0% of countrywide hayfields are focused in the territories of the above 3 economic regions. Capability of hayfields is not so high. Its main reason is characterized in effects of natural factors, absence of agrotechnology, nonuse of fertilizers and unexecution of cultural-technical actions in this sphere. Average 10-15 centner hay is output of per ha (in view of fodder).

Pasture-grazing fields of the republic totalled to 2.57 million ha in 2003. This figure totalled to 2.55 million ha by declining as 26.4 thousand ha in 2008. 58.5% of pasture-grazing fields is under state ownership, 41.1% under municipality ownership and 0.06% under private ownership.

About 1.5 million ha area being under state ownership contain mainly winter and summer pastures. Lands under municipality and private ownership are rural surrounding pasture-grazing fields and major part of pasture-grazing fields under usage of municipality is commonly used pasture-grazing lands. Lowland (22.0%), Guba-Khachmaz (9.7%), Ganja-Gazakh (19.3%), Mountainous Shirvan (10.0%) and Mountainous Garabagh (10.2%) economic regions differ from other economic regions subject to extent of grazing-pasture fields. These lands are used in development of cattle-breeding and refer to soiling foods/forage lands. Capacity of grazing-pasture fields decrease yearly almost. Its main reason is overloading of pasture-grazing fields and nonexecution of improvement measures. Notwithstanding it is deemed expedient to keep 2-4 heads of sheeps and goats in winter pastures and 4-8 heads of sheeps and goats in summer pastures, many pasture-grazing fields are loaded more than 2 times and subsequently capability of them declines as a result of rapid development of cattle/stock raising and overbreeding of livestock in the republic. As evident from the calculations, capability of winter pastures based on fodder totals to 4-8 centner and capability of summer pastures totals to 6-10 centner.

562.0 thousand ha land resources in our republic underwent to salting in any extent. 5.8% hereof are saline soil. The remaining 33.4% are weakly salted, 31.1% medium salted and 29.7% strongly salted soil. 370.7 thousand ha of soil which underwent to salting, are located in the territory of Lowland economic region. 545.6 thousand ha soil in our republic became salinized in any extent.

60.8% hereof refers to Lowland, 10.4% Guba-Khachmaz, 6.8% Shaki-Zagatala, 6.4% Mountainous Shirvan, 5.5% Absheron, 4.0% Ganja-Gazakh and the remaining part to other economic regions.

As major part of countrywide territories consisted of mountainy terrains and uplands and precipitation of heavy spring-summer rains cause to favorable condition for development of wind and water erosion. For this reason, 515.3 thousand ha of agricultural lands underwent to

erosion process that 40.5% are weakly, 41.85% medium salted and 17.8% strongly eroded soil.

87.6 thousand ha of eroded lands are located in Mountainous Shirvan, 78.8 thousand ha in Kalbajar-Lachin and 72.9 thousand ha in Ganja-Gazakh regions.

The above can be referred to land reserves of Nakhichevan AR, too.

However it should be noted that arable lands reached to 50.5 thousand ha from 36.3 thousand ha or increased as 14.2 thousand ha in 2008 as compared to 2003. It was possible mainly resulted from involvement of uncropped and pasture fields to farming turnover being more efficient from economical standpoint.

(See: Annexes 2.1, 2.2, 2.3 and 2.4)

Extent of human impact upon environment

Picture

One of factors considerably effecting to aggravation of countrywide ecological situation is characterized in previously accumulated and presently generated wastes that a part of them is considered to be hazardous. According to official statistic data, there remained approximate 2.5 million tons of hazardous wastes currently which generated in landfills, enterprises and refuse dumps.

Key industrial output - production of crude oil totalled to 44.5 million tons in 2008. So, the decline in oil production was prevented which continued yearly due to objective causes since 1990 years. Of course, this growth considerably enhanced the extent of environmental impact.

Volume of pollutants (pollutant dispersion) diverted to water reservoirs decreased as 1.6 times, volume of pollutant emissions as 1.9 times in 2008 in comparison with 2002. Untreated discharged effluents diverted to water facilities totalled to 181 million m³ in 2008 and 94% of incoming sewage are household-sanitary waste waters. Volume of pollutant emissions totalled to 923 thousand tons and 281 thousand tons out of them are shared by stationary pollution sources/ fixed sources of environmental pollution.

Volume of waters incoming from countrywide water-storage basins totalled to 11.7 billion m³ in 2008, nevertheless this figure equalled to 10 billion m³ in 2001. Actual consumption of water was 7.9 billion m³, 68% hereof was used in irrigation, 26% in production and 5% for household-farming purposes. Despite strong water demand appeared in the country, 33% of intake water is lost while its delivery.

Basic indices characterizing effect of human activity upon the environment are mentioned in the following table:

	2001	2002	2003	2004	2005	2006	2007	2008
Water taken from water sources, million m ³	10012	10075	10772	11440	12050	12360	12270	11735
Water consumption, million m ³	6414	6754	7370	8019	8607	8865	8371	7886

Discharge of water to surface watercourses, million m ³	170	163	167	160	161	163	177	181
Pollutant emissions, thousand tons	978.9	620	838	975	1054	875	970	923
including:								
stationary sources	577.1	217	426	540	558	344	386	281
motor transport	401.8	403	412	435	496	531	584	642

Share of pollutant emissions from fixed sources of environmental pollution per m² area unit of the republic totals to 3.2 tons, share of pollutant emissions per capita totals to 33 kg.

Alongside with that declining in scale of construction and reconstruction of nature conservancy facilities due to insufficient investment to basic capital adversely impacted upon protection of environment. So, basic capital outlay towards protection of environment and effective use of natural resources totalled to 97.8 million Manat in 2008.

Chapter 1.

Overview of Biodiversity Status, Trends and Threats

1.1. Status of Biodiversity and Ecosystems

1.1.1. Status and quality of research on ecosystems and species

Research into biodiversity has been conducted in Azerbaijan over a number of years. Research into ecosystem classification, structure and function is relatively new and poorly developed, however much has been learnt about the country's species and ecosystems. A range of research institutes of the Azerbaijan National Academy of Sciences are involved in this, including: the Institute of Microbiology (focusing on the distribution and applied use of microorganisms); the Institute of Botany (focusing on the distribution and ecology of lower and higher plants, including description of new species of algae from the Caspian Sea); the Institute of Zoology (focusing on the distribution, ecology, evolution and protection of animal species and species composition of zoogeographical complexes, including the description of 200 new species); and, the Institute of Genetic Resources (focusing on assessments of the genetic bank, agrobiodiversity and wild relatives, assessments for sustainable use of biodiversity). The Genetic Resources Institute co-ordinates the activities of other institutions towards a national inventory and database for genetic resources (and biodiversity) of the country.

Research on the ecology and introduction of useful, rare and disappearing plants is conducted by the Botanical Garden, which also hosts collections of a number of important taxa. Furthermore, at the Mardakan Arboretum on the Absheron Peninsula, research is conducted into protection of trees under natural conditions.

The Ministry of Agriculture operates a number of scientific institutes which conduct research relevant to agrobiodiversity (both in terms of selection and plant preservation). These scientific research centres include: the Institute of Vegetable-Growing (focusing on vegetables and melons) the Institute of Horticulture and Subtropical Plants (focusing on fruits, nuts and tea plants); the Scientific Institute of Viticulture and Wine-Making (focusing on grapes and vines); the Institute of Fodder, Meadows and Pastures (focusing on fodder production and methods for sustainable use of pastures); and the Institute of Cotton-Growing (cotton production).

In addition, applied research on fish biodiversity has been conducted by the Institute of Fish Culture, of the Ministry of Ecology and Natural Resources.

Since the early 1970s research on species and ecosystems has been carried out in Nakhichevan Autonomous Republic. The Nakhichevan Regional Scientific Institute (since 2003 known as the Bio-resources Institute) and the Nakhichevan State University have both conducted research into species distribution and diversity. Although studies into a number of taxa are incomplete (including microorganisms, fungi, lower plants, protozoa and invertebrates), a wide range of species have already been documented and further studies to complete the inventory commenced in 2003. Higher plants and animals are much better studied in Nakhichevan. The "Herbarium Fund" was created in 1977 and now stores almost 600,000 herbarium specimens.

1.1.2. Biogeography

Azerbaijan can be divided into a number of biogeographical regions, although the number and location of these regions is dependant on the method of classification. Classification using

floral and topographical distinctions defines 20 distinct regions. The country is dominated by Mediterranean plant communities (50%), boreal plant communities (30%), and Caucasus plant communities (5%).

In general, the fauna of the country represent a number of different biogeographical zones – reflecting the position of the country at the junction of a number of distinct biogeographical areas (the Middle East, Asia Minor, the Mediterranean, Europe, and the Palaearctic). The Fish of six distinct geographical regions are represented in the country, with the majority belonging to the Ponto-Caspian region¹ (69 species). Amphibians from all five adjoining areas are represented, while reptile from eight distinct biogeographical regions is represented (including species with origins in Iran, the Middle East, Asia Minor, the Mediterranean, Europe, Caucasus, the Eastern Palaearctic, and Turan). The birds of Azerbaijan (242 species) (those that over-winter and breed) include trans-Paleoartic species (94 species), European species (57 species), and Mediterranean species (43 species) and others (48 species (19,8 %).

Mammals of Azerbaijan are specified in six biogeographical complexes. Majority of these species refer to Caucasus mesophile complex, but less part to species of Front Asia, European forest, South Asia and Turanian desert. Besides, 3 imported species exist here.

Of the 20 biogeographical regions represented within Azerbaijan, three are found in the Autonomous Republic of Nakhichevan (Nakhichevan plain, Nakhichevan mountain and Nakhichevan high mountain zones). Nakhichevan AR is considered to be unique botanical-geographical district in Small Caucasus, differing from surrounding areas by its floristic composition, which is dominated by xerophytes (65% of the flora), and is most similar to Middle Asia, north Iranian and Mediterranean floras. Xerophytes geographical type organizes 65.36% (1889 species) of the total species. Nakhichevan supports a range of plant communities, and most of the zoological groups present in Azerbaijan.

1.1.3. Status review of ecosystems

Forest ecosystems

Area of Azerbaijan Republic covered with forests constitutes 989.4 thousand ha, that it is equivalent to 11.4% of total area. 49% of forests are shared by Great Caucasus region, 34% by Little Caucasus region, 15% by Talish zone and 2% by Lowland zone (together with Nakhichevan AR).

Picture	Forest line ranges in the height of 1800 m in Great and Little Caucasus mountains, sometimes uprises to 2000 m. But lower bounds of forests are variable. Even height comes out of forest/green belt as a result of anthropogenous effect in the south-east slope of great Caucasus.
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35% of current Azerbaijan territory was covered with forests in XVIII-XIX centuries. At that time the forests covered mountain slopes and lowland areas situated outside of arid areas. At the present, only tree remnants preserved in these areas. Riparian forests and tugai along Kura and Araz rivers, woodlands and shrubwoods of Garabagh plain became extinctive and coastal

¹ The Ponto-Caspian region is a vast territory, encompassing the basins of the Black, the Azov, and the Caspian Seas.

forest areas of Samur-Davachi lowlands. Presently, 261 thousand ha forest lands are situated on the territories occupied by the Armenia.

A diversity of tree species is found in the forests of Azerbaijan, however beech (*Fagus spp.*) represents the dominant species in 32% of the forests. It is found in all the mountainous regions, except for most of the south escarpment area of the Lesser Caucasus and Nakhichevan Autonomous Republic. Overall 14% of the total forest area is covered by oak (*Quercus spp.*) forest, with the majority (40%) of these being in the Greater Caucasus, with 35% in the Lesser Caucasus, and 25% in the Talysh Mountains. The third most abundant type of forest is that dominated by hornbeam (*Carpinus spp.*). Of the 15 species of hornbeam described globally, five are found in Azerbaijan². Other tree species are summarised in the Table 3.1 below.

Table 3.1 Tree species present in the forests of Azerbaijan

Tree species	Latin name	Notes
Walnut	<i>Juglans spp.</i>	Grows along river gorges and escarpments, in the southern aspect of the Greater Caucasus and in the Ganikh-Haftaran valley
Lime	<i>Tilia spp.</i>	There are three species of endemic lime in Azerbaijan, found in the mid-altitudinal zones of the mountain ranges.
Date	<i>Diospyros lotus</i>	Found in the Talysh Mountains southern Caucasus, at altitudes between 300-1000m
Birch	<i>Betula spp.</i>	Grows in upland regions, where found in the foothills up to sub-alpine altitudes, and on the Absheron Peninsular; covers less than 3,000 km
Iron tree	<i>Parrotia persica</i>	This relict species grows at altitudes of 200-300 m., mainly in Talish. These species have been reduced by human encroachment into forests
Pine species	<i>Pinus spp.</i>	Only covers 0.5 % of the area of Azerbaijan. Found in Kapaz, Goy-gol, Zayamchay, and Asrikchay.
Oriental plane tree	<i>Platanus orientalis</i>	This species is protected in Basitchay Strict Nature Reserve
Juniper	<i>Juniperis spp.</i>	Found from 100-2500m, and is found in parts of Nakhichevan, and in the Caucasus
Eldar pine	<i>Pinus eldarica</i>	An endemic tree only found on Ellar Oyugu mountain.
Plants of Tugai ³ forests	-	Forests are found on the banks of the Kura river and its branches, and cover only 0.8% of the area of Azerbaijan

The forest cover in Nakhichevan Autonomous Republic has declined dramatically over the last century, from some 30,000 ha of forest recorded in 1917, to around 2,500 ha today. Most of the remaining forests are within the high mountain zone (1800 – 2600m), in contrast to the situation within the rest of Azerbaijan. The dominant tree species in these forests is the Oriental oak (*Quercus macranthera*; 84%). Other trees in these forests include ash (*Fraxinus spp.*; 20%), maple (*Acer spp.*), juniper (*Juniperus foetidissima*, *J. excelsa polycarpos*), pear (*Pyrus salicifolia*) and mountain ash (*Sorbus greaca*). The forests in Nakhichevan Autonomous Republic regulate natural processes, and provide an important source of timber, fuel, medicinal plants, nuts and fruits. Forests have been damaged not only by over-exploitation, but also by natural events such as fires and floods (in 2003 over 25 ha were

² *Carpinus x. grosseserrata* H. Winkl. (*C. oxyacarpa* H. Winkl.), *C. arpinus schuschaënsis* H. Winkl. (*C. geoktschaica* Radde-Fomin), *C. orientalis* Mill., *C. orientalis* subsp. *macrocarpa* (Willk.) H. Winkl., and *C. betulus* L. (*C. caucasica* Grossh.).

³ Tugai forests – flood-lands forests in Caucasus and Middle Asia.

destroyed by flooding). As well as the main forests at Batabat and Bichanak, a range of other smaller forest areas remain, although many are now fragmented and isolated. Measures top protect and restore natural regeneration in clearings and meadows may help contiguous forest to be re-established in Nakhichevan.

Grassland and Desert Ecosystems

Picture

Semi-desert ecosystems cover 32% of Azerbaijan's territory, and are found from 27 m above sea level (the height of the Caspian Sea) to 1300m (in the Orta Araz gorge). Grassland ecosystems are found in this semi-desert zone, where annual precipitation is 200-400mm. They are found around the Kura and Caspian Basin, and in the Nakhichevan Autonomous Republic. Semi-deserts also occur over the arid foothills of the Greater Caucasus and at the lower altitudes of other mountains such as Ajinohur, and Jeyranchol.

Some damage of grassland and semi-desert habitats has occurred, for example as a result of long-term irrigation the soil structure has changed in the Kura-Araz lowlands, and soils have become salinised due to the rising level of the Kura river.

Grassland ecosystems cover 33% of the territory of the Autonomous Republic of Nakhichevan, mainly occurring along the Araz River. In addition, fragments of different desert ecosystems occur, including saline semi-desert systems. These areas appear to be expanding through desertification and associated salinisation is occurring due to over-use of lands, the arid climate, intensive irrigation and inappropriate drainage or irrigation systems. Saline deserts support a diverse and unique flora (around 256 species), including some halophyte species characteristic of such environments⁴. The animals associated with these ecosystems are mainly nocturnal or crepuscular (including lagomorphs and rodents), although birds such as desert partridge (*Ammoperdix griseogularis*) and vultures may be seen during the day. Semi-desert ecosystems are also present in Nakhichevan plains, in less saline areas at altitudes of 1100-1300m (and sometimes up to 1500m). Many of these semi-desert systems are dominated by wormwoods (*Artemesia spp.*, such as *A. fragrans*.), although a range of other plants occur. Some of these semi-desert areas provide important winter pastures.

Mountain Ecosystems

Picture

Mountain meadow ecosystems cover 10% of the territory of Azerbaijan. Alpine meadow is found between 2000-4500 m above sea level, and has similar communities throughout the altitudinal zone. Many of the escarpments do not have soil, and few plant communities exist on them. The subalpine meadows of the north-east Greater Caucasus, the Garabag volcanic plateau and ranges, Shahdag, and Murovdag are covered with grain crops, along with meadow-steppe plants. Forest ecosystems also occur in mountainous regions, but are addressed in more detail above.

Mountain ecosystems are characteristic of Nakhichevan Autonomous Republic, and include a range of communities including xerophytic scrub (including scrubby, rocky areas (gariga)), steppe-meadows (friganoid), as well as scrubby xerophyte forests, bushes, oak forests, high

⁴ For example *Halocnemum strobilaceum*, *Halostachys caspica*, *Salicornia europaea*, *Zejdlitsia florida*, *Salsola crassa*, *Frangenia hirsute*, and *Anabasis aphylla*

mountain meadows and cliff communities. One of the dominant plant communities is friganoid steppe-meadow vegetation, a complex system that supports a diversity of plants, including aromatic herbs, such as clary sage (*Salvia sclarea*), lamb's ears (*Stachys spp.*) and thyme (*Thymus collinus*), which are important economically and medically. Vetches (such as *Astragalus spp.*) are often characteristic in these areas, and a number of rare and endemic plants are also present, including alliums (*Allium leonidi* and *A. mariae*) and tulips (*Tulipa florenski*).

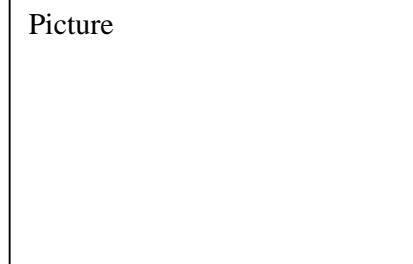
Alpine and sub-alpine meadows in Nakhichevan are highly diverse, supporting over 890 plant species. There is a greater area of alpine meadows, which are dominated by grasses such as *Agrostis alba*, *Phleum alpinum*, *Carex canescens*, and *Nardus stricta*, and the low productivity of these areas restricts grazing potential (although cattle are still grazed on such pastures in some numbers). High mountain meadows and pastures (at 2000-3000m altitude) have been affected by over-grazing, leading to invasion by non-palatable plants. At higher altitudes (3200-3700m) the vegetation becomes shorter and more patchy, dominated by lady's mantle (*Alchemilla sericea* and *A. caucasica*), with grass (*Poa alpina*), clover (*Trifolium ambiguum*), speedwell (*Veronica gentianoides*), and plantain (*Plantago atrata*).

Wetland Ecosystems

The wetland ecosystems of Azerbaijan are of particular biological importance. The wetlands and lakes provide an important stopover for migrants, and over-wintering birds, and are estimated to support more than 1000 000 birds during the annual migrations. The lakes also support a diversity of plant species. Some of the key lakes and wetlands important for biodiversity are described below:

- Lake Agzibir on the Caspian coast has no protection status, but has a high diversity of zooplankton (38 species) and macrobenthic organisms (130 species, as well as 181 bird species, including 77 species of waders. Studies have shown that migrating and over-wintering wader numbers can reach up to 200,000 birds on this lake alone.
- Lake Gush in the Salyan region, fed by the Shirvan River, also has no protection status, although 79 species of wader and nine raptor species have been found. Migrating and over-wintering bird numbers can reach over 31,000 birds.
- The Kura Delta on the Caspian shore consists of a number of channels and marsh areas, stretching out into the Caspian Sea, 20 km to the south-east. Reed beds dominate the wetland ecosystem. This site is of great importance for migrating birds, supporting numbers in the region of 75,000 waders. Although the Delta has no protection status, it is State owned.
- Mahmudchala and Agchala Lakes to the south of Baku cover 23,000 ha, much of which is covered with reed beds. Although important for wintering birds, the area is not protected but hunting revenue helps protect the area.
- Sarisu Lake is situated on the bank of the Kura River, in the Imishli region, and belongs to the State. This lake supports a notably high diversity of zooplankton and phytoplankton. It has a rich reed bed community that provides ideal nesting sites for birds. Studies in 1998 showed 29 bird species breeding here, including some globally threatened species.
- Aggol Lake, also on the right bank of the Kura (in Agjabadi) also has a high diversity, including 87 species of breeding birds.

Picture



- State-owned Varvara reservoir is situated on the Kura River, to the south-east of Mingachevir and covers 2,140 ha. The reservoir supports a high diversity of zooplankton, algae, phytoplankton, and higher plants. Of the 34 species of fish found in the lake, 16 are considered economically important.
- Jhandargol Lake is situated on the border with Georgia and covers 1,250 ha. Its water is used for irrigation, and the lake supports an important fishing industry. The lake is rich in biodiversity, including four globally threatened bird species⁵, and an important reed bed community.

There are many wetlands and water bodies in Nakhichevan Autonomous Republic, which support varied hydrophytic vegetation (nearly 210 species or water, wetland or marshland plants have been recorded). Although water plants have not been well described in the Republic, they include duckweeds (*Lemna spp.*) and pondweeds (*Potamogeton spp.*). Other species are more associated with water margins and marshes⁶. In general cover and productivity in these wetland and marshland systems is low.

Coastal and Marine Ecosystems

Picture	The Caspian Sea is the largest enclosed body of water in the world, covering 436,000 km ² , with borders on five countries ⁷ . The surface of the Caspian is at 27 m below the level of the world's oceans, although historically the level fluctuates. The deepest point is 1,023 m (the Lenkoran hollow), but the average depth is just 184 m.
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In general the water of the sea is not fresh, but brackish, (three times less concentrated than the oceans). The Caspian Sea is not a homogenous water body due to the influx of water with different compositions in different areas. In general the north Caspian is less salty (due to the influx of water from the Volga and Ural rivers), and more species diverse than the middle or southern areas. However, nearly all of the indigenous species are found in the middle of the Caspian where the water composition is stable.

The Caspian provides a characteristic ecosystem that differs from the major oceans of the world. The sea is of global importance due to the high biodiversity, large number of endemic species (see Table 3.2), and the presence of globally threatened bird and fish species, including the economically important sturgeon. The region is also a migration route for millions of birds moving from Africa and the Mediterranean to Central Asia and India. To date 446 bird species have been recorded in the Caspian, of which 120 species breed, 62 species over-winter, and 278 species migrate through.

Table 3.2 Number of endemic species found in the Caspian

Phylum	Subphylum	Class	Subclass	Order	Number of endemics
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⁵ Lesser white-fronted goose (*Anser erythropus*), pygmy cormorant (*Phalacrocorax pygmaeus*), Dalmatian pelican (*Pelecanus crispus*) and imperial eagle (*Aquila heliaca*).

⁶ For example, *Convolvulus persicus*, *Heliotropium ellipticum*, *Halacnemum strabilaceum*, *Salicornia europaea*, *Puccinellia qizilteae*, and *Chenopodium rubrum*

⁷ Russian Federation, Republic of Kazakhstan, Republic of Azerbaijan, Republic of Turkmenistan and Islamic Republic of Iran.

<i>Porifera</i>	-	-	-	-	4
<i>Coelenterata</i>	-	-	-	-	2
<i>Nematoda</i>	-	-	-	-	3
<i>Platyhelminthes</i>	-	<i>Turbellaria</i>	-	-	29
<i>Rotifera</i>	-	-	-	-	2
<i>Annelida</i>	-	<i>Olugochaeta</i>	-	-	4
		<i>Polychaeta</i>	-	-	4
<i>Arthropoda</i>	<i>Crustacea</i>	<i>Branchipoda</i>	<i>Diplostraca</i>	<i>Cladocera</i>	19
		<i>Maxullopoada</i>	<i>Ostracoda</i>	-	3
			<i>Copepoda</i>	-	23
				<i>Mysuda</i>	20
				<i>Bisopoda</i>	1
		<i>Malacostraca</i>	<i>Eumalacostraca</i>	<i>Amphupoda</i>	68
				<i>Cumacea</i>	19
				<i>Decapoda</i>	1
	<i>Chelicerata</i>	<i>Arachnida</i>	<i>Acari</i>	<i>Acariformes</i>	2
<i>Mollusca</i>	-	-	-	-	53
<i>Vertebrata</i>	-	-	-	-	55 ⁸

In total some 450 species of plankton have been recorded from the Caspian, 140 of which are found in the territories of Azerbaijan. There are 87 species of algae, some of which entered the Caspian from the Black Sea after the construction of the Volga-Don channel in 1954. In addition, 380 species of zoobenthos have been recorded from 13 different animal groups, with the majority of species occurring in the middle and south of the Caspian Sea.

1.1.4. Status review of plant communities and habitats

1.1.4.1. Description of key plant communities

Distinctive plant communities are associated with particular habitat types:

- **Xerophytes** can tolerate dry and arid habitats and are found in areas of:
 - **Steppes:** (e.g. *Festuca silcata*, *Stipa lessingiana*, *Onobrychis cornuta* and *Medicago coerulea*);
 - **Deserts and semi-desert:** (e.g. *Astragalus tribuloides*, *Glycirrhiza glabra*);
- **Halophytes** (e.g. *Halocnemum strobilaceum*, *Halostachys caspica*, and *Salsola crassa*) develop in salty places;
- **Psammophytes** (e.g. *Ceratocarpus arenarius*, *Convolvulus persica* and *Elymus gigantea*) develop in sandy areas;
- **Hydrophytes** (e.g. *Polygonum hydropiper*, *P. amphibium* and *Eleocharis meridionalis*) grow around water bodies and in wetland areas;
- **Hydrophiles** (e.g. *Batrachium divaricatum*, *Potamogeton perfoliatum* and *Zannichellia palustris*) develop in water bodies;
- **Mesophytes** are the dominant form of vegetation, and can be further characterised in relation to specific habitats:
 - **Forests:** The most widespread forest communities are dominated by hornbeam (*Carpinus caucasica*), Eastern oak (*Quercus macranthera*) and ash (*Fraxinus excelsior*);
 - **Humid lowland meadows:** (e.g. *Heraeclum trachyloma*, *Aconitum nasutum* and *Doronicum macrophyllum*);
 - **Alpine meadows:** (e.g. *Festuca pratensis*, *F. violacea* and *Carum caucasicum*).

⁸ 54 fish and 1 mammalian species

1.1.4.2. Rare, endemic or threatened plant communities and habitats

In Azerbaijan, a number of specific habitats or plant communities are rare or threatened, for example:

1. Psammophytic coastal plant community (*Astragalus bakuensis*, *Melilotus caspicus*, *Calligonum bakuensis*, *Nitraria schoberi*);
2. Xerophytic plant communities in Nakchivan Autonomous Republic near the village of Badanli and in Shabuz region (*Dorema glabrum*, *Iris lycotis*, *Astragalus badamensis*, *Thymus collinus*);
3. Wetland communities around Akushchay and Sarisu Lakes (*Trapa hyrcana*, *Nelumbo caspica*, *Nymphaea alba*, *N. peltata*);
4. Dry forest communities in Azerbaijan and Nakchivan (*Pistacia mutica*, *Celtis caucasica*, *Punica granatum*, *Rhus coriaria*, *Juniperus oblonga*, *J. polycarpus*, *J. sabina*, *J. depressa*, *J. foetidissima*);
5. Eldar pine (*Pinus eldarica*) forest is only found on the Eldar plain in the Samukh region, and the oak forests (*Quercus longipes*) around the Nabran region are threatened;
6. Humid, sub-tropical forest, supporting the rare and threatened iron tree (*Parrotia persica*), is unique to the Hyrcan forest of Lenkoran region in Talysh province;
7. Rare and threatened alpine meadows around the lakes of Gey-gol and Maral-gol are typified by the lily *Lilium ledebourii*.

Steppe communities dominated by *Ferula oopoda* and by *Colutea comarovii* are globally unique for the Nakhichevan Autonomous Republic. In the mountain pastures of the Shahbuz region a rare and unique plant community is dominated by the endemic species *Rheum ribes*.

1.1.5. Status review of species

1.1.5.1. Microorganisms

Although there is little information on the diversity of micro-organisms in Azerbaijan, there are estimated to be between 1,200 and 1,250 species, but to date no endemic micro-organisms have been described. No specific measures are in place for the protection of micro-organisms.

As in the rest of Azerbaijan, there is a lack of knowledge about the diversity of microorganisms present in the Autonomous Republic of Nakhichevan. The presence of bacteria (*Monera*) is clear, particularly from their impacts through diseases in humans, animals and plants, and in their use in food production and processing (such as *Lactobacillus* etc.), and in healthcare (e. g. *Penicillium*). Microorganism cultures are kept in a number of institutes and epidemiological stations in the region.

1.1.5.2. Protozoa

Protozoa are cellular organisms that live either independently, or as part of a larger organism. Protozoa provide many varied and essential roles in an ecosystem, for example providing food for fish larvae and fry, and increasing soil fertility. They are also the pathogens of human and animal diseases. The protozoa described in Azerbaijan are distributed from the following groups:

- Over 300 species of *Sarcomastigofora* (flagella and amoebae). Specifically 12 plant and 17 animal flagella and free-living amoebae have been found in the soils of the Lenkoran area, the Shirvan steppe, and Karabakh Mountain. Over 100 species of amoebae have been found in the soils of the Sheki-Zakatala area, and in the reservoirs of the Absheron region.
- *Foraminiferida* principally inhabit the marine benthos, attached to stones, algae and hydroids and in planktonic forms. Most forms live in salty water, but some can cope with significantly fresher water. To date 18 species have been found in the Caspian, 15 of which are believed to be endemic.
- One species of *Pheodarea* has been found in the harbour of Baku⁹. Two marine species of *Heliozoa* and eight fresh water forms have been recorded either as plankton, or living on substrates.
- A total of 268 species of *Apicomplexa* have been found in Azerbaijan, and all are internal parasites of vertebrates. In addition, 29 species of *Microspora* have been found in Azerbaijan (27 of which parasitise invertebrates) and 42 species of *Myxozoa* (fish parasites) have been recorded.
- There are over 1,000 free-living and parasitic species of *Infusoria* and *Ciliophora* in Azerbaijan. Of these 464 species are found in the Caspian, 300 species in lakes and reservoirs, and 126 species in soil. Parasitic *Infusoria* are widespread, 26 species are external parasites on fresh water and marine fish, and species within this group can be useful indicators of organic water pollution¹⁰.

1.1.5.3. Fungi

The fungi of Azerbaijan have been widely studied by a number of mycologists (see Table 3.3). The structure, ecology, biology or habitat of approximately 5,020 species has been studied. The majority of fungi studied to date are parasitic on plants, causing a variety of diseases, which cause particular problems in agriculture. Approximately 400 myxomycetes (slime moulds) have been described. This widespread group is found in both aquatic and terrestrial ecosystems, and is also airborne. In addition, approximately 400 basidiomycetes (club fungi) have been recorded in the country. Of particular note is the species *Terfesia transcaucasica*, which is endemic to Azerbaijan and is considered to be at risk of extinction. It is found in the regions of Araz, Absheron, the Lesser Caucasus, and Karabakh.

Table 3.3 The number of genera and species of fungi described in Azerbaijan and Nakhichevan AR.

Class	Azerbaijan		Nakhichevan
	Number of genera	Number of species	Number of species
<i>Myxomycota</i> (slime moulds)	18	40	-
<i>Phycomycota</i>	45	240	47
<i>Ascomycota</i> (yeasts, moulds, morels and truffles)	210	1,020	67
<i>Basidiomycota</i> (smuts, rusts, jellies, mushrooms and bracket fungi)	260	2,600	35
<i>Deuteromycota</i> (fungi imperfecti)	130	1,120	22
Total	763	5,020	171

⁹*Cannospaera haekelli*, found in the late 19th century

¹⁰ Species of the genera *Apiosoma*, *Epistylus*, and *Trichodina*

A total of 171 species of fungi have been described from Nakhichevan Autonomous Republic, some of which (notably *Phylostica* and *Septoria spp.*) cause agricultural diseases (affecting tobacco, tea, apple and pear plants, as well as natural vegetation). Further details are shown in Table 3.3.

1.1.5.4. Flora

Lower plants

Among the lower plants recorded from Azerbaijan, some 249 species of algae have been described from the Caspian Sea, and of these 197 are microscopic (phytoplankton; see Table 3.4). In addition, a high diversity in mosses is recorded from Azerbaijan, with 774 species described from 44 different orders.

Table 3.4 The number of species within the main algal classifications found from the Azeri area of the Caspian Sea

Group of algae	Number of species
Red algae (<i>Rhodophyta</i>)	20
Brown algae (<i>Phaeophyta</i>)	5
Green algae (<i>Chlorophyta</i>)	25
<i>Microscopic species:</i>	
Diatoms (<i>Bacillariophyta</i>)	197
Blue-green algae (<i>Cyanophyta</i>)	80
Dinophyte (<i>Dinophyta</i>)	16
Golden algae (<i>Chrysophyta</i>)	1

In Nakhichevan Autonomous Republic a range of blue-green algae (approximately 25 species) were recently discovered associated with mineral springs, and many of these are newly described in Azerbaijan, being previously only found in other countries. Diatoms have also been found in these same mineral springs, from which 46 species have now been identified. Nakhichevan also supports 24 species of mosses.

Higher plants

Approximately 4,500 species of higher plants are recorded in Azerbaijan (Table 3.5), which represents around 65% of the floral diversity of the Caucasus region, and 11% of the world's flora. The main areas of plant diversity in Azerbaijan are the highlands of Nakhichevan (60% of the species occur here), the Kura-Araz plain (40%), the Devechi-Kuba region east of the Greater Caucasus (38%), the centre of the Lesser Caucasus (29%), Gobustan (26.6%), the Lenkoran region in the Talysh Mountains (27%), and the Absheron region (22%).

Table 3.5 Number of plant species in different groups

Group	Azerbaijan	Nakhichevan
	Number of species	
<i>Briophyta (mosses)</i>	346	39
<i>Sporophyta (ferns and horse tails)</i>	63	14
<i>Gymnosperms (non flowering plants)</i>	24	18
<i>Angiosperms (flowering plants)</i>	4,413 ¹¹	2887 ¹²
Total	4,846	2958

Over 2958 species of higher plants have been recorded from the Autonomous Republic of Nakhichevan (see Table 3.5). Over half of the plants in the country are xerophytes, but

¹¹ Including 910 monocotyledons, and 3,503 dicotyledons

¹² Including 627 monocotyledons and 2260 dicotyledons

hydrophytes and halophytes are also represented. The majority of the plants described are perennials (65%) and biannuals (27%), along with bushes (6%) and trees (2%).

Endemism

There are over 400 species of plants endemic to Azerbaijan. These include around 210 endemic lower plant species (including ten endemic species of lichen). Around 16 species of algae are endemic to the Caspian Sea¹³. In addition, 210 higher plant species are considered endemic to Azerbaijan, including species from 98 genera and 32 families. The centres of both higher and lower plant endemism are in the regions of Nakhichevan, the Talysh Mountains, and east of the Greater Caucasus.

The Autonomous Republic of Nakhichevan is an important centre of plant endemism and supports over 50% of the endemic plants found in Azerbaijan. Endemism is particularly high within a number of botanical families, including legumes and peas, roses and wild cherries, asters and wormwoods and grasses (*Gramineae*)¹⁴. Recent re-evaluations suggest the territory has 112 country endemics, and 219 regional (Caucasian) endemics, and an additional 73 plants are locally distributed within Iran and Turkey. Approximately 65 endemic species and sub-species are found only in Nakhichevan, including *Scrophularia nachiczeviana*, *Stipa isajevi*, *S. karjaginii* and *Pyrethrum ordubadica*.

Conservation status

More than 10% of plants in Azerbaijan are considered to be under danger of extinction, 450 species of them were presented as exotic and extinct species in order to be included in second edition of the Red Book of Azerbaijan Republic. (although only 140 of them are mentioned in the current Red Book of Azerbaijan¹⁵) and three species are listed as globally threatened in 1989 - *Iris acutiloba*, *Calligonum bakuense* and *Astragalus bakuenses*. In 1982 the government recognised that 2,124 plant species in Azerbaijan are rare, endemic, threatened, or of economic importance (Government Order number 167).

Just under 2% of the flora of Nakhichevan Autonomous Republic is listed in the Azerbaijan Red Data Book (54 species or subspecies are listed¹⁶). In addition, some species have not been found in the territory for a number of years and may have become locally extinct¹⁷.

1.1.5.5. Fauna

Invertebrates

Approximately 25 000 species of invertebrates have been recorded in Azerbaijan, of which 90% are within the phylum Arthropoda (invertebrates with jointed legs), of which a further 90% are insects (sub-phylum Insecta; see Table 3.6). The arachnids (spiders and mites) represent the second largest group of arthropods in Azerbaijan, with 1,870 species recorded within the three main orders (*Araneae*, *Acariformes* and *Parasitiformes*, each represented by 700 – 800 species). Fewer crustaceans (order *Crustacea*) have been recorded, with a total of

¹³ Four species of red algae, one species of brown algae (an endemic genus), one species of blue-green algae and ten diatom species.

¹⁴ Endemism is high in *Fabaceae*, *Rosaceae*, *Asteraceae* and *Poaceae*.

¹⁵ Red Book of Azerbaijan SSR, Published: Ishig, (1989). This classifies species by threat (0-4): extinct, endangered, rare, vulnerable or data deficient.

¹⁶ Of particular note are *Nectaroscordum tripedale*, *Ferula oopoda*, *Stenotaenia daralaghezica*, *Campanula radula* and *Salsola tamamschiana*

¹⁷ For example, *Aristolochia bottae*, *Paeonia tenuifolia*, *Camranula minesterana* and *Triticum monococcum*

324 described from Azerbaijan. In addition, it is notable that the phylum *Nematoda* (nematode worms) is very numerous in Azerbaijan (with 1,084 recorded species).

Table 3.6 The six most diverse orders of insects in terms of the number of species recorded in Azerbaijan

Order	Number of species
<i>Lepidoptera</i> (Butterflies)	4500
<i>Coleoptera</i> (Beetles)	4000
<i>Hymenoptera</i> (Ants, bees, wasps and sawflies)	2500
<i>Diptera</i> (Flies, mosquitoes and gnats)	2000
<i>Hemiptera</i> (True bugs)	874
<i>Homoptera</i> (Plant bugs)	739

Vertebrates

Azerbaijan supports 667 species of vertebrates (Table 3.7), across the main taxonomic groups.

Table 3.7 Number of vertebrate species in Azerbaijan, including Nakhchivan:

Class	Number of the species	
	Azerbaijan	Including, Nakhchivan
Roundnoses	1	-
Fishes	101	29
Amphibians	10	6
Reptiles	54	35
Birds	394	241
Mammals	107	60

- **Roundnoses.** 1 species of roundnoses of Azerbaijan fauna - Caspian lamprey (*Caspimyzon wagneri*) is covered. It was included as a exotic species in I edition of the Red Book of Azerbaijan Republic.
- **Fish.** In total there are 101 species of fish in Azerbaijan, of which eight introduced and seven of these have become widespread¹⁸. Representatives of ten orders of bony fish (Class *Osteichthyes*) have been recorded from within the Azeri territory of the Caspian Sea, and of 13 orders are found in the inland waters of Azerbaijan.
- **Amphibians.** Ten species of amphibians from five families are recorded in Azerbaijan¹⁹. These amphibian species live in a variety of landscapes, depending on their ability to adapt to harsh environments, and their different nutrient needs. They are commonly found in plains, semi desert habitats and the mountain foothills, where six species occur. Few species are found in deserts, high mountains or alpine meadows.

¹⁸ Salmon (*Salmo gairdneri*), trout (*S. iridus*), goycha salmon (*Salmo iscanus*), chum salmon (*Oncorhynchus keta*), leaping grey mullet (*Liza saliens*), grey mullet (*L. risso*), gambusia (*Gambusia affinis*)

¹⁹ Common newt (*Triturus vulgaris*), warty newt (*T. cristatus*), eastern spadefoot (*Pelobates syriacus*), Caucasian spadefoot (*P. cerasinus*), green toad (*Bufo viridis*), common toad (*Bufo bufo*) common tree frog (*Hyla arborea*), *H. arborea savignii*, marsh frog (*Rana ridibunda*), *R. macrocnemis*.

- **Reptiles.** There are 54 species of reptiles found in Azerbaijan²⁰. Most of these species are found in semi-desert areas. Few are found in other lowlands or mountainous areas.
- **Birds.** Azerbaijan is very rich in avifauna. There are 394 species of birds recorded from 60 families. Around 40% of these species are native to Azerbaijan, however 27% of these species over-winter here, and 10% pass through on migration. Azerbaijan is a major route for birds migrating from Asia to Europe, and millions of birds pass through the country from Eastern Europe and western Siberia to South and West Africa each year. Approximately 1.5 million birds use the wetlands of Azerbaijan to rest and feed.
- **Mammals.** Some 107 species of mammals have been recorded in Azerbaijan, three of which are introduced species²¹. Mammals from seven orders are represented: Insectivores (13 species in three families), *Chiroptera* (bats; 28 species), *Lagomorpha* (rabbits and hares; 2 species), *Rodentia* (rodents; 36 species), *Carnivora* (carnivores; 19 species, including one species from the suborder *Pinnipeda*). The most widespread species of mammal in Azerbaijan include the water rat (*Arvicola terrestris*), gray rat (*Rattus norvegicus*), wolf (*Canis lupus*), jackal (*C. aureus*), fox (*Vulpes vulpes*), stone martin (*Martes foina*), badger (*Meles meles*) and wild boar (*Sus scrofa*).

The aquatic fauna is particularly notable in the Nakhichevan Autonomous Republic, with the rivers Nakhichevanchay and Arpachay showing the highest faunal diversities – mainly constituted by invertebrates, of which a number are newly recorded in the region²². Around 225 vertebrate species are described from Nakhichevan, and 45 of these are considered rare or have a restricted range. Fish species richness is high, and many of these fish are important economically, aesthetically or scientifically. The fish (including sturgeon species) are dependent on the rich invertebrate and zooplankton fauna of these rivers as a key food source. One fish species is endemic to the Saggarsu River.

(See: Appendices 3.1, 3.2 and 3.3)

Endemism

It is difficult to accurately estimate endemism among invertebrate groups, as the geographical distribution of many species has not been investigated fully. Known endemics are listed in Table 3.8. Furthermore, it is difficult to determine where the centres of endemism are amongst terrestrial invertebrates in the region due to the lack of studies, and difficulties undertaking this research. However, the endemism of spiders (*Aranae*) is known to be higher in the Greater Caucasus than in Talysh region, and other endemic spiders are known from the Lesser Caucasus. Invertebrate endemism from the Hyrcan region are frequently recorded in the literature.

²⁰ Mediterranean spur-thighed tortoise (*Testudo graeca*), Caspian gecko (*Tenuidactylus caspius*), horn-scaled agama (*Trapelus nuderatus*), Caucasian laudakia (*Laudakia caucasia*), toadhead agama (*Phrynocephalus helioscopus*), *Ermias* species (*Eremias struchi*, *E. velox*, *E. arguta* and *E. pleskei*), European glass lizard (*Pseudopus apodus*), greenbelly lizard (*Lacerta chlorogaster*), Caucasus emerald lizard (*Lacerta strigata*), Eurasian blind snake (*Typhlops vermicularis*), *Eryx jaculus*, Dahl's whip snake (*Coluber najadum*), spotted whip snake (*C. rauvgorieri*), Transcaucasian rat snake (*Elaphe hohenackeri*), *Eirenis collaris*, *E. punctatolineatus*, *E. modestus*.

²¹ Wild island hare (*Oryctolagus cuniculus*), marsh beaver (*Myocastor coypus*), and American racoon (*Procyon lotor*)

²² For example, *Eucalamis lyra*, *Macrotrix rosea*, *Bosmina crassicornis*, *Strularia lacustris*, *Herpobdella testacea* and *Hudroporus palustris*

Table 3.8 Number of known endemic species from different invertebrate groups in Azerbaijan

Group	Number of endemic species
<i>Porifera</i> (sponges)	3
<i>Coelenterata</i> (jellyfish, corals etc)	1
<i>Platyhelminthes</i> (flat worms)	3
<i>Acanthocephales</i>	8
<i>Annelida</i>	17
<i>Mollusca</i>	126
<i>Anthropoda</i>	738

The greatest number of aquatic invertebrates is found in the Caspian Sea, which is not surprising given how the isolation of this water body may have contributed to speciation.

A number of bee species are found in restricted ranges in Nakhichevan and may be unique to the Caucasus.

Among vertebrates, the knowledge of endemism is much higher.

- **Fish.** A number of fish species endemic to the Caspian Sea, mainly species from the orders *Clupeiformes* (herrings) and *Perciformes* (perch). Fifteen species, and six subspecies of *Gobiidae* (order *Perciformes*) in Azerbaijan are endemic, while most of the endemic freshwater fish are from the order *Cypriniformes*.
- **Amphibians.** One species is found in Azerbaijan as Caucasian endemics (*Pelodytes caucasicus*).
- **Reptiles.** Some species, related to Caucasian zoogeographical complex may be considered as Caucasian endemics.
- **Birds.** Three regional (Caucasian) endemics are found in Azerbaijan.
 - The Caucasian black grouse (*Tetrao mlokosiewiczi*) is found in high mountain forests at altitudes of 1,700–3000m, in both winter and summer. It is considered Data Deficient by the IUCN Red List of Threatened Species, 2000).
 - The Caucasian snowcock (*Tetraogallus caucasicus*) occurs in high mountains and meadows (at altitudes of 2,200-4,000m) and is listed in the Azerbaijan Red List.
 - The green warbler (*Phylloscopus nitidus*) is found in pine and mixed forests and in sub-alpine scrub at altitudes of 1,200-2,600m.
- **Mammals.** Although there are no strictly endemic mammals in Azerbaijan, there are around 15 regional endemics present in the country. The Caspian white-toothed shrew (*Crocidura caspica*), Hyrcan forest mouse (*Sylvaemus hyrcanicus*) and Schelkovnikov's vole (*Microtis schelkovnikovi*) have been found in the Lenkoran district, but are also likely to be found in the adjacent territory of Iran. The long-tailed hamster (*Calomyscus urartensis*) is found in a small area in the mid-Araz valley of the southern Caucasus, and also in Iran. Vinogradov's jird (*Meriones vinogradovi*) is found in the arid territory of Nakhichevan, and also in adjacent countries. However, Nazarov's vole (*Terricola nazarovi*) has only been found in the Murovdag Range of the Lesser Caucasus. The status of the Caucasian leopard (*Panthera pardus ciscaucasica*) is unclear.

Species endemic to the Caucasus region and Asia Minor include the Levant mole (*Talpa levantis*), Rade's shrew (*Sorex raddei*), Shelkovnikov's water shrew (*Neomys*

schelkovnikovi), and the Caucasian snow vole (*Chionomys gud*). In addition, the Dagestan vole (*Terricola dagestanicus*) and Robert's snow vole (*Chionomys roberti*) are endemic to the Caucasian Range and the Lesser Caucasus, although the former has also been found in Asia Minor. The Dagestan tur (*Capra cylindricornis*) lives only in the Greater Caucasus. It is also thought that the Caucasian forest mouse (*Sylvaemus ponticus*) is the endemic of the Caucasus. The Caspian seal (*Phoca caspica*) is endemic to the Caspian Sea.

(See: Appendix 3)

Conservation status

Forty species of invertebrates are listed in the Red Book of Azerbaijan as being threatened with extinction. These are all insects (from the orders *Coleoptera*, *Lepidoptera*, and *Hymenoptera*). In many cases, the insects under threat are large and attractive, and have been over collected. There are however, more species that are considered threatened by specialists, but are not included on this list. For example, there are 15 species of invertebrates that are found in Azerbaijan, that were included on the Red List of the former USSR²³, but are not on the Azeri Red List.

Among vertebrates, five species of fish are considered endangered in Azerbaijan due to anthropogenic activities. The species of sturgeon (*Acipenser nudiventris*) was included in the Red book of Azerbaijan in 1995, however six species of sturgeon found in Azerbaijan are on the IUCN red list of endangered species, and the status of sturgeons remains an issue of ongoing concern. These species are fished in Azerbaijan according to the rules of CITES²⁴. A species of herring (*Clupeonella cultriventris*) is also on the IUCN red list. There are a further seven species of fish that are recommended for inclusion in the Azeri red book²⁵.

Five of the ten species of amphibians found in Azerbaijan are listed in the Red Data Book of Azerbaijan (see Appendix 3). A number of these species (*Triturus vulgaris vulgaris*, *T. cristatus*, *Bufo bufo*, *Pelobates syriacus*, and *Pelodytes caucasicus*) have all been successfully bred in ex-situ conditions. Nine species of reptiles are listed in the Red Data Book of Azerbaijan (see Appendix 3). Of the bird species found in Azerbaijan, 21 are either considered globally or nationally threatened. These include the Critically Endangered long-billed curlew (*Numenius tenuirostris*), and the Endangered white-headed duck (*Oxyura leucocephala*). Six other species are classified as Vulnerable²⁶, the other 13 are listed as Lower Risk or Data Deficient. A number of bird species are also considered to be of European importance.

Around 33% of the mammals in Azerbaijan are included on either the Azerbaijan Red Data Book or as globally threatened in the IUCN Red List. In the Azeri Red Data Book, five species are listed as extinct, nine have limited distribution. Another ten species are

²³ Insects: *Coenagrion mercuriale*, *Cordulegaster insignis*, *Epallage fatime*, *Bolivaria brachyptera*, *Haploembia solieri*, *Bradyporus multituberculatus*, *Saga pedo*, *Porphyrophora hamelii*, Homoptera, *Olivierina extensa*, *Xylocopa valga*, *Scolia maculata*, *Satanas gigas*. Molluscs *Pantastacus pylzovi*, *Eisenia muganiensis*.

²⁴ CITES – The Convention on International Trade in Endangered Species of Wild Fauna and Flora..

²⁵ European Chub (*Leuciscus cephalus orientalis*), Transcaucasian barb (*Varicorhinus capoeta*), Caspian barbel (*Barbus brachycephalus caspius*), Bulatmai barbel (*Barbus capito capito*), Mursa *Barbus mursa*), Danube bleak (*Chalcalburnus calcoides longissimus*), Blackbrow bleak (*Acanthalburnus microlepis*).

²⁶ Lesser white fronted goose (*Anser erythropus*), imperial eagle (*Aquila heliaca*), red-breasted goose (*Branta ruficollis*), corn crake (*Crex crex*), lesser kestrel (*Falco naumanni*), marbled duck (*Marmaronetta angustirostris*)

recommended for inclusion in the second edition of the Azerbaijan Red Data Book. Of particular note are the carnivores, as a number of carnivore species are thought to be locally extinct due to hunting and habitat change (for example striped hyena, Caucasian leopard and wild cat) all rare from Nakhichevan during the last century. Nearly a quarter of mammal species occurring in Azerbaijan have naturally restricted ranges, as a result of the relic nature of the populations, specific habitat requirements, or the species being at the edge of their range.

I volume (on vertebrate) of the Red Book of Nakhichevan Autonomous Republic was published in 2006. 71 species of vertebrate were included in this Book. 1 specy of them refers to fish class, 1 specy to amphibia, 10 species of reptiles, 39 species of birds and 20 species of mammals. Lists of rare plant and animal species being under danger in Nakhichevan Autonomous Republic are specified in Appendix 3, Annex 3.1).

1.1.6. Key threats to biodiversity

1.1.6.1. Habitat loss and modification

Land Conversion

The major cause of biodiversity loss in Azerbaijan is the decrease in natural environments. This decrease has been due to human (anthropogenic) activities changing or destroying natural habitats. Industry and construction has had an extensive impact on natural habitats. For example, construction on the Absheron Peninsula has reduced the area of natural and unspoilt habitats, and as a result has caused a decrease in the biological diversity on the peninsula.

As a result of political events, about 250,000 people fled from Armenia to Azerbaijan, and more than 700,000 people were displaced from the land occupied by Armenia. These people were settled in towns, temporary camps, hostels and incomplete buildings. New settlements have been constructed in order to improve the way of life for these people, but not all people could be resettled. Lack of public amenities is causing both health and environmental problems in these areas.

Land degradation

A major ecological problem in Azerbaijan is the gradual degradation of agricultural land. At present 3.6 million ha of land are subject to erosion. The soil of large areas of land is also becoming salinized. At present 1.5 million ha of land has been salinized to the extent that it is no longer suitable for agriculture. Salination and erosion of soils tend to be a result of poor irrigation and drainage systems, ground water extraction and wood cutting. In addition, the location of refugee and displaced persons settlements near river-banks and canals can degrade the integrity of the channels.

Grazing by cattle has affected large areas of natural grassland habitats, and has contributed to soil erosion. Overgrazing by cattle reduces the amounts of plant matter available to other natural herbivores in the environment, thus decreasing their numbers and changing the dynamics of the community. Overgrazing can also cause the local extinction of plants in some areas.

Loss of forests is also contributing to soil erosion and land degradation. Forest cover provides a protective function to surrounding lands, without it the soils become exposed and erode, and flooding onto neighbouring lands contributes to further soil erosion.

Land is also affected by the uncontrolled use of fertilizers, herbicides, and pesticides on a large scale , and such habitat modification may reduce biodiversity. In recent years there has been an increase in uncontrolled import of these chemicals into the Republic. There is also little awareness among farmers on the correct use of these chemicals. Overuse can cause a number of negative effects in natural communities and can threaten key species, especially those at the top of food chains. Over recent years, due to the decentralisation and privatisation of companies, and an increase in prices, the level of fertilizer use has decreased. At present 90-95 % of fertilizers used are nitrogenous, as other types are too expensive.

Habitat Fragmentation

The fragmentation of ecosystems in Azerbaijan is prevalent in several ecosystems:

Forests. The unavailability of natural gas, and other fuels has meant that some communities are using wood as their major source of fuel. Wood is taken from surrounding forests, and as well as destabilising soil complexes this unsustainable cutting fragments the forest ecosystems. In other parts of the country forests are being fragmented as economically valuable timber species (such as nut and oak) are illegally harvested at an unsustainable level. However improvement of some remote habitats with gas provision, prohibition of any use of forest resources by the Ministry of Ecology and Natural Resources and propaganda on usage of alternative energy sources among the population led to a positive change in this sphere.

- **Grasslands.** Converting lowland grassy ecosystems into agricultural land, through ploughing and scrub removal is fragmenting the remaining area of natural steppes. This is also having a significant impact on the population of birds that rely on these unique ecosystems. Many of the steppe ecosystems are also fragmented by irrigation channels and associated constructions (particularly the Kura-Araz plain).
- **Rivers.** The construction of hydrological dams on the major rivers flowing into the Caspian Sea, has created obstacles that effectively fragment the riverine habitat for some species (for example, as a result of the construction of the Mingachevir and Bahramtapa reservoirs on the Kura and Araz rivers). This has reduced the breeding areas for sturgeons because they are unable to pass the dams to reach breeding areas upstream and has resulted in a decrease in their population.

The arid climate of the Nakhichevan Autonomous Republic, characterized by extreme temperatures and low rainfall, makes the land increasingly fragile with respect to anthropogenic impacts (from agricultural and industrial uses), and water management (including irrigation) has had particular impacts on the territory. Misuse of pastures, forests and agricultural lands has reduced their productivity.

Some areas of land have been significantly degraded, including wide areas of grassland habitat along the Araz River, water bodies, forests, scrub and pasturelands. Salination has affected large areas of grassland in Nakhichevan (up to 10,000 ha), particularly in the districts of Sadarak and Julfa. Little efforts have been made to restore these lands over recent years, and as a result these lands are no longer suitable for agriculture and are reverting to marshes. Modern irrigation techniques would need needed in order to recover these lands.

1.1.6.2. Over-use of biological and natural resources

Overgrazing of grasslands and pastures

During Soviet times, land was owned by the State, and as such, the people did not view the land as theirs to protect. This resulted in the overgrazing of grasslands and plains in many

regions. Furthermore, due to the recent economic decline in the country, many people have attempted to increase their income from natural resources. This has been reflected by an increase in the area and intensity of land now grazed by cattle. The intensive use of pastures, such as in the Absheron and Gobustan area has accelerated the erosion of the soil, and the desertification of the land. Some refugee families and displaced persons have settled and now breed stock in several regions of the country. Unfortunately, because there is no summer pasture for their stock, they remain on the winter pasture all year, which leads to overgrazing to the extent that the pasture can no longer be used. Earth works and geobotanical survey were carried out in the years of 1949-1951 for the last time in natural fodder fields which located in the territory of Azerbaijan Republic and being main forage reserve of livestock (especially sheep breeding). There existed 8203.4 thousand heads of sheeps and goats on all natures of household in the republic up to January 1, 2008. 3049.1 ha winter quarters and 1507.9 thousand ha summer pasture are required for provision of the sheeps and goats with winter quarters and summer pastures. As mentioned above, there exist 1395.1 thousand ha winter quarters for 2876.0 thousand heads and 563.9 thousand ha summer pastures (including areas under occupation) for 1939.4 thousand heads. Provision of the sheeps and goats with winter quarters totals to 35.1% and with summer pastures to 25.4% including pastures-grazing fields under occupation.

Over use of forest resources

In 1999-2000 there were many areas in the country where the local population did not have access to energy sources such as electricity, gas and coal, and imports of wood. The wood in the surrounding environment has therefore been cut for use as fuel. In many places wood has been cut at an unsustainable rate, and some of the forests that are being destroyed include those that are internationally important habitats. Forests in the occupied territories are also used unsustainably, and the volume of timber extracted from such forests by Armenians continues to increase.

More grievous problem faced by countrywide silviculture is existence of 261 thousand ha (or 25% of forest covered area) forest area and getting out of 10.2 thousand ha forest area from farming turnover as a result of Armenian aggression. The forests remained under the occupation are savagely cut and sacked. Cutting of valuable trees grown in these territories leads to critical limit of biodiversity protection. Intensified development of timber industry in Armenia is observed after occupation of territories of Azerbaijan Republic. So, although total volume of wood transportation equalled to 58 thousand m³ in Armenia in 1989 it reached to 206.6 thousand m³ by increasing as 3.5 times in 1993 and volume of manufacturing and transportation of used wood reached to 14.2 thousand m³ in 1993 from 7.2 thousand m³ in 1988 by increasing as 1.97 times. Nevertheless total area of Armenian forests is 3 times less than forest lands of Azerbaijan Republic.

Despite forest area of Azerbaijan Republic is 3 times larger than Armenian forest area, Armenia Republic takes first place in fabrication of furniture among countries joined the Commonwealth of Independent States on account of forests under occupation.

So that unanalogous endemic East plane forest covering small area (240 ha) at Basitchay basin in the territory of Zangilan region are savagely cut and sold to foreign countries for furniture making. Moreover, Araz oak having great umbrella and red oak disseminated on high mountain slopes in the territory of Lachin region can be exemplified. This specy being one of various species of high mountain oak is widely used in manufacturing of wine and brandy barrels and tuns because of wood redness. Ordinary nut in Lachin region and bear hazelnut, also beech, hornbeam trees and etc. are fallen incidentally without following forestry rules and handed over for furniture making. There cut off 163 walnut trees being

under state forest fund and 507 walnut trees at areas not included in state forest fund in the years of 2002-2003. "Max Wood" society obtained 587 tons of wood stumps, 478 m³ used trees and 37 m³ manufacturing trees within 2001-2003.

Prevailing over hunting regulations

There occurred positive changes in this sphere within the past 6 years, it initially proceeds from adoption of necessary statutory acts (one Law and more than ten Decisions) in regulation of hunting and fishing activities in countrywide territory. At the same time, assigning of authorities on control over hunting activity and management of hunting areas to the Ministry of Ecology and Natural Resources as only state body led to effective control over the above sector. However noncompliance with quotas which assigned to regulate use of relevant biological resources - hunting fields and illegal hunting (fishing) adversely impact to number growth of several biodiversity species.

Furthermore, low-level ecological education and environmental consciousness result in killing of some dangerous animals, for example snakes (*in many cases the people kill amphibia and reptiles without distinction in venomous and unvenomous snakes*) and, in failure to adhere hunting rules and regulations.

Pet trade

Efforts of smuggling in rare and exotic species of rich flora and especially fauna of Azerbaijan Republic is regularly observed and recorded. For example, due to a need of species such as valuable falcons including falco cherrug and ordinary falcon (falco peregrinus) for hunting purposes in arabian countries and sold on sufficiently expensive price, there exist facts on immigration of citizens of foreign countries (Iran Islamic Republic, Syria, Lebanon and etc.) and illegal poaching in order to capture and smuggle them. At the same time, selling of spawn of sturgeons on most expensive price in foreign market causes to efforts towards poaching in countrywide territory and smuggling.

Water extraction

Azerbaijan is rich in natural resources, and industrial development provides many opportunities for the country. Nevertheless, ecological problems have occurred because of the unsystematic use of these natural resources, and because modern technologies are not always applied to prevent these problems. The extraction of water resources is a particular issue. Of the 35 milliard m³ of water resources in the country, 5 milliard m³ of is ground water, and 21,4 milliard m³ is in the 38 reservoirs, and 900 million m³ in 450 lakes. According to State sources, approximately 10 milliard m³ of water is used each year, and just under 3 milliard m³ of this water is lost due to poor transportation systems. Of the water used, 70% is from neighbouring countries, and there is an annual water deficiency of 4 milliard m³.

In Nakhichevan Autonomous Republic over-grazing has affected the productivity of pasturelands, and many areas are suffering from erosion and other indications of degradation. For example, grass is scarce and unproductive in the Araz plains, which act as the winter pastures. These lands would now sustainably support up to ten cows/ha, but densities of up to 300 cows/ha are still recorded. The most productive lands remain within Sharur district, and in some parts of Sadarak district. Nakhichevan's forests have also been over-used as a source of fuel, charcoal and construction materials.

Hunting is prevalent in Nakhichevan, and hunting quotas appear to be generally exceeded. Range of animal rare species is hunted. Fishing is popular for sport, recreation, subsistence

and commerce. However, the fish catch exceeds official quotas, and in addition a range of illegal fishing methods are used and fish are illegally hunted during the spawning season. Fish populations are also affected by other factors such as: lack of regulation of water levels; lack of fish protection equipment in reservoirs; and pollution. Trade in a number of wild species is reported from Nakhichevan. These include wild boar, mouflon, mountain goat (bezoar), quail, venomous snakes, and wild plants such as tulips and orchids.

Water extraction is an important issue in Nakhichevan, given its abundance of water bodies and underground water sources. The breakdown, inefficiency and leakage from irrigation systems and reservoirs result in losses of up to 40% of water due to be used for irrigation.

Hunting is widely spread in Nakhichevan and violation of the assigned hunting and fishing quotas is allowed, plus a number of illegal hunting methods are broadly being used.

Taking off water from water basins and underground water layers is very important for Nakhichevan. The accidents and unregulated fetching of water from irrigation system and water reservoirs lead to loss of water to the extent of 40% for irrigation purposes.

1.1.6.3. Pollution

Water pollution

Challenges related to water resources serve as a background for problems on protection of environment in the region. Demand for countrywide water reserves and protection from pollution is put forward as a main strategic security action.

As 3/4 part of territories of the country located in lower relief of Kura river basin being the largest water through-passage, pollution of river in the territories of neighbouring states causes ecological burden. So that average 350 million m³ polluted waters are diverted to Kura river basin from Armenian territory, average 330 million m³ polluted waters from Georgia territory. Diversion of untreated sewages by neighbouring states to Kura river basin adversely impacts to its hydrochemical process and water quality. As a result of transboundary pollution, water basins underwent to pollution in any extent, self-regeneration process disrupted hereof and they became dangerous source while using. During recent studies there observed sufficiently high density of copper, molibdenum, zinc, phenol and petroleum derivatives (10 times more than allowable norm/tolerance pollution standard) in river waters resulted from transboundary pollution .

Usage of river waters which undergone to serious pollution, by 80% of the countrywide population in potable water supply and agriculture causes a danger for human health. Probability of infection of people with different diseases is built up due to use of poor potable waters.

It was determined as a result of recent observations carried out on transit river flows by proper authorities of the country that majority of incoming transit flows are polluted with ingredients could cause a number of complications. Phenols and copper compounds take particular place among such ingredients. So as a result of analyses it was determined that in boundary zones with Armenia quantity of phenols in Araz river is 8-10 times more than tolerance pollution standard, copper compounds are 6-8 times more and accordingly the above in Aghstafa river are 4-9 and 7-11 times more than tolerance pollution standard.

Aghstafa river as a right distributary of Kura river comes in countrywide territory in Gazakh region passing through territory of Armenia Republic. Main reason for pollution of this river is characterized in direct diversion of mill waters and household-sanitary sewages in big cities of Armenia without treatment and disinfection. Aghstafa storage pond was founded in 1971 and has water capacity of 120 million m³. Considering usage of waters of this storage pond in irrigation of areas in Gazakh and neighbouring regions, as well as in potable water supply of a part of Gazakh population, extent of ecological aggression can be imagined clearly.

Waste waters of copper-molibdenum enterprises and big cities of Armenia are directly discharged into Okhchu river without treatment. Density of copper, molibdenum and other heavy metals in river waters in Azerbaijan-Armenia border are observed to be 10 times more than tolerance because of overpollution of these waters. As a result, microflora and fauna in river waters devastated, self-purification process stopped and subsequently, river basin became “dead zone”.

Also, Sarsang water storage basin located in the territory of Nagorno-Karabakh which occupied by Armenia, is used as a pressure medium. Waters of the storage basin at 560 million m³ capacity are diverted to villages and habitats comprised by Azerbaijani population without considering seasonal needs of the area in winter and as a consequence, sharp water lack appears in this area during summer season. Habitats, agricultural fields and communication lines are undergone water flooding in winter. But in summer the people suffer from water deficiency and as a result of desertification, soil degradation is observed. Thereby, it complicates poor living condition of the local population, especially of internally displaced people and refugees.

As 20% of the territories of Azerbaijan Republic was occupied by Armenian forces, severely exploitation of our natural resources and overpollution of water resources are observed resulted from isolation of these areas from ecological control and hereof, obtaining of exact information on pollution of Kura river basin became difficult to the last extent.

Forest cover plays a specific role in solution of problems related to water resources. So, being sparsely forested country, totally 11% of Azerbaijan territory is covered with forest. Besides, 25% of overall forest cover is under occupation as a consequence of Armenian aggression. Thus, insufficiency of forest resources can lead to exhaustion of natural water reserves gradually.

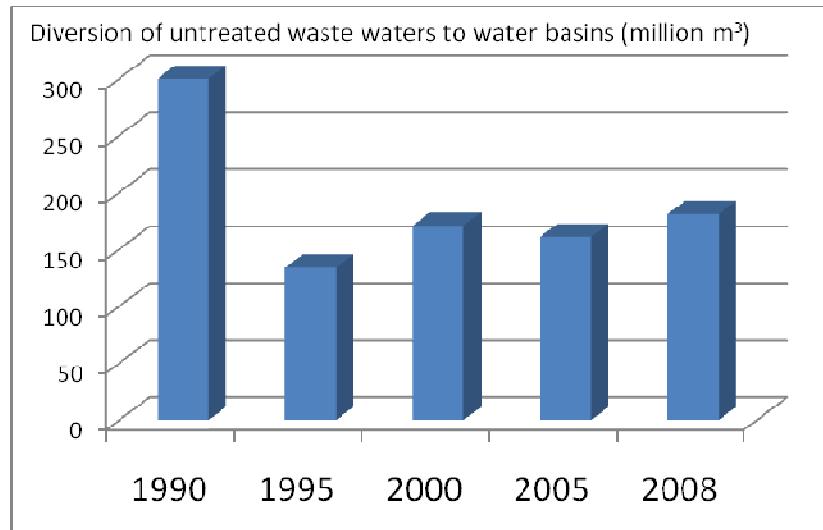
At the present, all transit rivers of Azerbaijan undergo strong pollutant effect in upstreams and upcurrents. It can be characterized in very dangerous ecological tendency.

At the same time, use of water factor by Armenian Republic as a scare gives rise to anxiety. In this standpoint, necessity of strictly addressing ecological safety factors must be taken into account as one of most significant challenges while establishing international safety systems. Practical actions should be carried out by regional states for prevention of transboundary pollution of water reserves in South Caucasus and specific steps should be taken for solution of current problems.

Azerbaijan Republic has ratified Helsinki convention “On protection and use of boundary water flows and international lakes” in order to solve problems of interfrontier water basins within the framework of international norms in regional level, but neighbouring states have not joined this convention.

Main reason for unefficient use of countrywide water resources and occurrence of water basins pollution is characterized in insufficient provision of republic city and region centres and other dwelling places with sewerage system as well as enterprises with water treatment facilities and unsuitability of operated units and facilities. Untreated industrial and household waste waters of large cities in the country play a major role in pollution of water basins.

22 mechanical and biological treatment facilities are functioning for purification of sanitary-waste waters in territory of the republic. It should be noted that nonoperation of the existing facilities in compliance with the regulations causes to pollution of water basins.



Diversion of industrial and household sewages without complete purification to water sources, including to the Caspian sea causes to generation of other ecological problems. Encountering of biological resources in the sea is related to enhancement of adverse effects of anthropogenous factors.

There exist more than 200 lakes with total area of 3325 ha in Absheron peninsula. Long-term use of old and obsolete technologies in oil mines caused to pollution of soil with oil and produced waters. These areas play a major role in pollution of the Caspian sea. The lakes lead to degradation and salinization of soil by impacting upon the environment and to underflooding of additional lands resulted from ground water rise and to emission of hydrocarbons and other repugnant substances resulted from evaporation and to underflooding of habitats, roads and communication lines.

Fluctuation of level, pollution of sea waters and aggravation of ecological situation hereof, are main ecological problems of the Caspian sea.

Key pollution sources of the Caspian sea consist of sewage waters of cities and industrial facilities located on its coasts and various pollutants coming from sea transport and oil mines. Sewage waters diverted to the Caspian sea which coming from coastal cities are considered to be major pollutants. Moreover operation of offshore oil fields and delivery of petroleum derivatives as well as sea transport pollute the Caspian waters more and more.

At the present, the Government of Azerbaijan carries out relevant actions in protection of the Caspian sea from pollution. Azerbaijan is an only country among the Caspian states that takes part in maintenance of environmental balance in the Caspian sea thorough large-scale projects. “Integrated Actions Plan on improvement of ecological situation in Azerbaijan Republic for the years 2006-2010” stimulated greatly to works carried out in protection of countrywide environment.

Allocation of funds for implementation of measures provided by the Integrated Actions Plan realizes timely solution of these problems.

Different projects are executed on account of countrywide budget funds and under support of international financial institutions. Projects on water supply and treatment of waste sewages are implemented in small cities. There established “Azersu” Joint Stock Company in order to promote management in this sphere and to provide management of problems solution related to water supply and waste waters by an integrated body. This step which taken in solution of current problems in the country serves to reconstruction and enhancement of water supply and sewerage systems.

Construction and reconstruction of water reservoirs, water pipelines, water supply and treatment facilities are performed by proper authorities under credit of the World Bank, Asia Development Bank and other financial institutions, including on account of the budget funds in order to improve quality of potable water.

Thereby purification of water in compliance with requirements of relevant statutory documents in water treatment stations and supply of water consumers with uninterrupted and safe potable water are provided in phases.

Presently, actions are ongoing in supply of villages of countrywide different regions with module water treatment facilities and installations which functioning in off-line/autonomous mode. There set and commissioned module type water treatment facilities in 122 habitats of 12 regions with 224 thousand people overall by the Government according to Decrees of the President of Azerbaijan Republic concerning improvement of ecologically pure water supply of the population who used waters of Kura and Araz rivers. In general, as a result of execution of the Presidential Decrees water delivered for 800 thousand rural peoples will be purified in conformity with norms and regulations of the World Health Organization through installation of module type water treatment facilities in more than 500 thousand villages which limited in qualitative water opportunities.

Soil pollution

One of the existing key ecological challenges is undergoing of soil to erosion and degradation. Main reasons of the problem are natural climate condition, absence of farming continued for a long time, exceeding of livestock number as compared to ecological capacity of the lands and unregular grazing of the livestock, unexecution of cropping/cultivation rules, declining of forests, woodlands and greenery, deteriorated state of collector-drainage systems and other human-caused factors. Approximate 3 million ha area has undergone to salting, erosion and corrosion inthe republic. Zones surrounding Plain Garabagh, Upstream Shirvan, Central Mughan, Mughan-Salyan collectors was undergone to salting and soil erosion mostly.

As a consequence of long-term incidental exploitation of natural resources, nonapplicability of new technologies, expansion of unlawful interventions in nature and other intensive anthropogenous impacts, major part of soil in Absheron peninsula was polluted with petroleum

derivatives and processing, sanitary and etc. wastes and subsequently, there appeared a number of serious ecological problems in the region.

Total area of lands degraded as a result of anthropogenous impacts in Absheron peninsula is 33.3 thousand ha, including oil pollution areas 10.6 thousand ha. Lands mostly polluted with oil and petroleum derivatives are situated in the territories of Garadagh, Binagadi, Sabunchu, Surakhany, Azizbayov and Sabayil districts.

Management of solid domestic wastes (urban ore)

There exist serious problems related to management of solid domestic wastes in the country, especially in large cities of the republic. Absence of compliance with rules on sorting, transportation and disposal of wastes and refuse according to standards and nonutilization of them became danger source for public health alongside with pollution of the environment.

125 illegal dump sites exist in Absheron peninsula together with 5 solid waste landfills. Current landfills do not meet ecological norms and standards. On the other hand, no any technologies are applied in utilization and treatment of plastic and polyethylene packing materials. 63587 thousand plastic packing materials were manufactured and removed after usage in the country in 2008.

Management of hazardous wastes

Overall quantity of hazardous process wastes totalled to 1650 thousand tons remained at areas of countrywide manufacturing enterprises for the end of 2008. Storage condition of the wastes do not satisfy ecological norms and standards in many cases and causes to source of danger for the environment and human health.

No any technologies are applied in utilization and treatment of many hazardous wastes (scavenge fuel-lubricative materials, mercury lamps, accumulators and rubber tires). There accrued 47585 tons of fuel-lubricative materials, 0.8 tons of used mercury lamps, 313.3 thousand accumulators and 693.6 thousand rubber tires in the country in 2008.

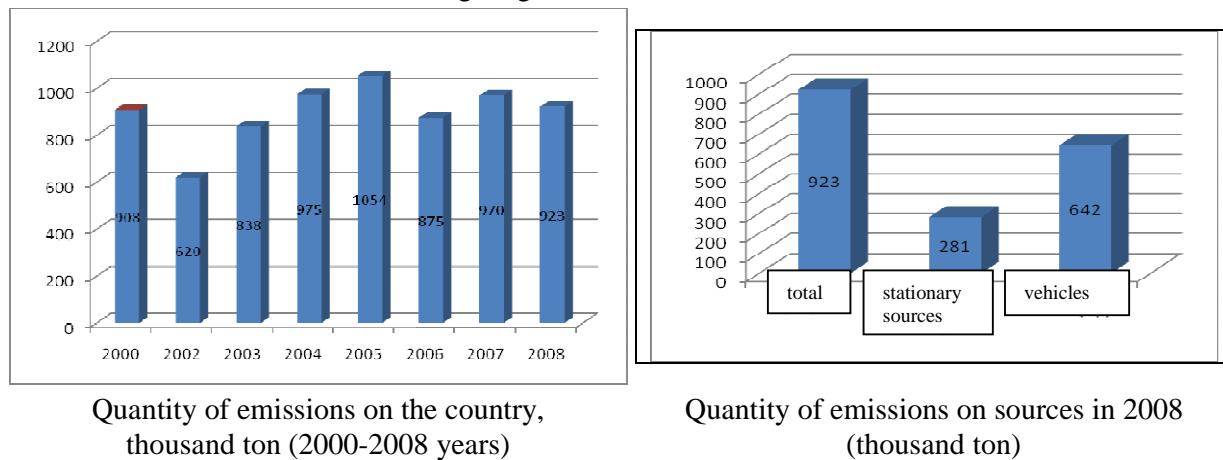
Pollution of atmosphere

Quantity of overall emissions from stationary and mobile pollution sources decreased due to declining of industrial activity in the country territory since 1990 year. Level of air pollution was in most serious state at processing units of oil-gas production and oil refinery and chemistry industry in large-scale cities such as Baku and Sumgayit. Emissions from mobile pollution sources increased considerably as a result of growth of vehicles number within the past period.

Large cities in Azerbaijan suffered from pollution level of atmosphere precedently that it was deemed to be hazardous for public health. Declining of industrial production improved air quality considerably, but the situation can be varied towards deterioration due to gradually accruing vehicles. At the present, key sectors mostly polluting the atmosphere are comprised by transport, industry and energetics. Wastes from stationary pollution sources were less as 80%, emissions from mobile sources were higher as 34% in 2008 as compared to 1991.

Nevertheless total quantity of emissions from stationary sources equalled to 515 million tons 2000, this figure totalled to 281 thousand tons in 2008. But intensive growth of vehicles number in the republic, especially in Baku city enhanced volume of deleterious gas emissions from mobile pollution sources within the last years. Harmful emissions from mobile sources equalled to 69.5% of overall wastes in 2008.

Data about quantity of overall emissions on the country since 2000 and emissions on sources in 2008 are shown in the following diagrams:



As evident from outcomes of the monitoring, the atmosphere in large cities of the republic is undergone to pollution in various extent depending on lines of business working for countrywide large industrial cities. Volume of specific air pollutants such as dust, carbon monoxide, nitrided 4-oxide, fume and furfurole exceeds tolerance in several days in Baku city. Specific air pollutants such as chlorine, nitrided 4-oxide, hydrogen fluoride and others are referred to Sumgayit city. Out of repugnant substances only volume of hydrogen fluoride exceeds tolerance in Ganja city. Pollution of the atmosphere with nitrided 4-oxide is more peculiar in Shirvan city. It was observed that the atmosphere in Nakhichevan, Shaki, Mingachevir and Lankaran cities did not undergo to pollution.

The Autonomous Republic of Nakhichevan faces a particular threat from water and soil pollution. At present the area lacks any modern facilities to clean water, and each day 2.4 million m³ of polluted water from Nakhichevan city is released into the Nakhichevan River, which in turn flows into the Araz River. This contributed to the increasing pollution levels in this river, which also receives 4-5 million m³ of untreated water from Armenia every day, from both residential and industrial sources (including chemical factories). Sediment loads in the river have increased dramatically, heavy metals may be as much a five times greater than recommended safe levels, and nitrates are particularly high. Salination of land and associated pollution, as a result of poor irrigation practices, is also a major problem in Nakhichevan.

Air pollution is less of a problem in Nakhichevan than in some of the larger cities of Azerbaijan, however concerns are increasing over the impact of vehicle emissions in the territory, particularly from trucks transporting goods over the mountain passes to Iran and Turkey. Lime and cement works in Nakhichevan may also contribute to air pollution. There is an increasing problem in relation to waste disposal from residential, industrial, market and office sources.

1.1.6.4. Introduced and invasive species

There are several notable species that are considered to be invasive in Azerbaijan. One of the most notable is the comb jelly *Mnemiopsis leidyi* - an introduced species that invaded the Caspian through the Volga Don channel. Its population has now multiplied to the extent that

the biomass of the population has exceeded the general productive biomass of the sea. There are no predators for this jelly in the Caspian, and climatic conditions favour its growth and reproduction. It feeds on animal plankton, including the planktonic larvae of fish, and as such, it is capable of seriously undermining economically and biologically important fish populations. This could also impact the rest of the food chain, as top predators, such as the Caspian seal and sturgeon species, are reliant on healthy fish populations.

Of the 21 introduced samples of the invasive species American racoon (*Procyon lotor*), ten males and eleven females were released in the Ismayilli region in 1941 from where they have spread to other regions of the Republic. They are now widely spread throughout the forest ecosystems of Azerbaijan, and hunting of this species is encouraged throughout the year.

Regarding plants adventitious weedery such as ambrosia artemisiifolia L, cuscuts L., acroptilion repens DC., solanium rostratum Dun spreaded out in countrywide flora and squeeze out thelocal species seriously. Plant ambrosia artemisiifolia L is widely spread in North Caucasus. Local people who had been awared of this plant as a quarantine weed since ancient times clean it throughout all areas massively in spring months of every year. Pollens of this plant lead to death of children under 10 age by splashing into their throats and cause illness of adults by infection.

One of adventitious species which causes huge damage to greenery of nature and agrobiocenoses in Azerbaijan, is American white butterfly. Dissemination of this specy becomes more hazardous year by year in enduring all preventive control actions.

1.1.6.5. Natural pathogens

In Azerbaijan there are many natural pathogenic viruses and bacteria that affect livestock and other animals. Their impact on the animal can be varied, however a high load of parasites weakens an animal and can reduce its immune response. Some of these pathogens are naturally occurring (such as rabies, a highly infectious virus that damages the central nervous system of animals). Viruses and parasitic fungi can affect plants, and many have a damaging effect on crop plants. Pathogenic parasitic protozoa are not great in number. However some are present that infect animal species.

A great number of parasitic worms have been recorded in Azerbaijan, including over 4,000 species of Platyhelminthes (flatwoms) and 789 Nemathelminthes (nematodes) (of the 24 species to animals and 318 species to plants cause diseases). Diseases caused by parasitic nematodes include a disease in foxes (particularly worrying because of the close links between the habitations of humans and foxes), a fatal disease found in populations of wild and domestic pigs, and other diseases that are found in domestic and wild animal populations. The impact of such disease on populations of wild animals is not fully understood.

There observed and recorded H1N1 and H1N5 pathology virus diseases appeared in wildlife and occurred with human infection within the last years, namely since 2005. For the purpose of prevention and prophylactics of the diseases, State Commission was established attached to the Cabinet of Ministers in presence of high officials of proper authorities.

Introduced pests (such as the Colorado beetle) have affected a number of agricultural systems in the Nakhichevan Autonomous Republic, as a result of lack of quarantine controls on imports. An agreement of trade and plant quarantine restrictions was reached between Azerbaijan and Iran in 2002, allowing for new regulations on transfer of seeds and other agricultural products, and avoids accidental transfer of key species likely to pose a threat to agriculture (including bacteria, fungi, nematodes, insect pests and weeds).

1.1.6.6. Climate changes and natural disasters

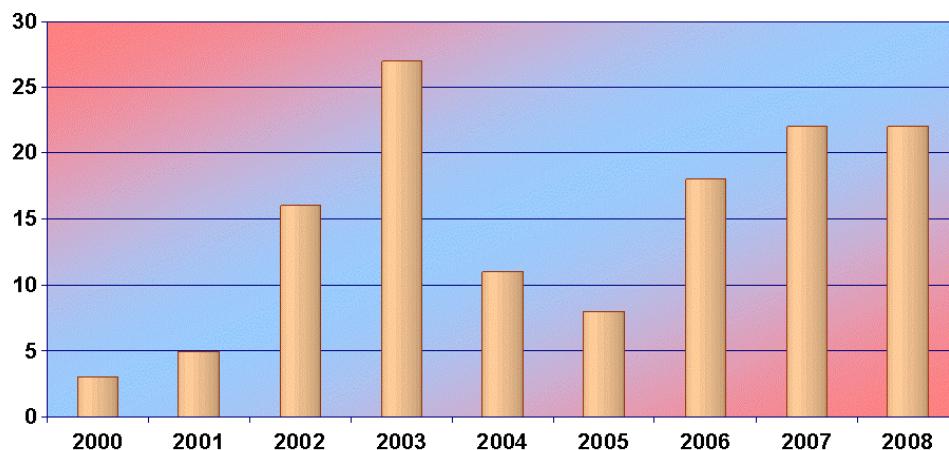
Climate change is an ecological problem on a global scale that poses a recognized threat to all ecosystems and associated biodiversity. Predictions suggest that climate change is likely to have a negative impact on ecosystems in Azerbaijan and may result in increased flooding and desertification, fragmentation of habitats, and species extinction. Over the last century the air temperature in Azerbaijan has increased on average by around half a degree Celsius, with the highest changes in temperature recorded from the Greater Caucasus and the Kura-Araz lowland ($0.5 - 0.6^{\circ}\text{C}$) and lowest changes recorded in Minor Caucasus and along Caspian shoreline.

Based on global models of climate change, experts estimate that average temperatures in Azerbaijan could increase by as much as 2°C . Associated with this it is expected the incidence of temperature extremes will increase, as will extreme weather events. Particularly important, is a predicted decrease in humidity for much of Azerbaijan.

Such increases could affect the availability of water (particularly in arid regions), which could in turn impact on irrigation, drinking water, and power production. Biological systems would also be affected under this scenario, with predictions of changed ecosystem dynamics and degradation of forest zones. The predictions suggest that the area of deciduous forest will decrease by 20%, while coniferous woodland will increase by 12%, and scrub coverage could increase by as much as 70%. The area of oak forest could reduce by 2-3%, although areas of beech would increase by 15% and hornbeam by 19%.

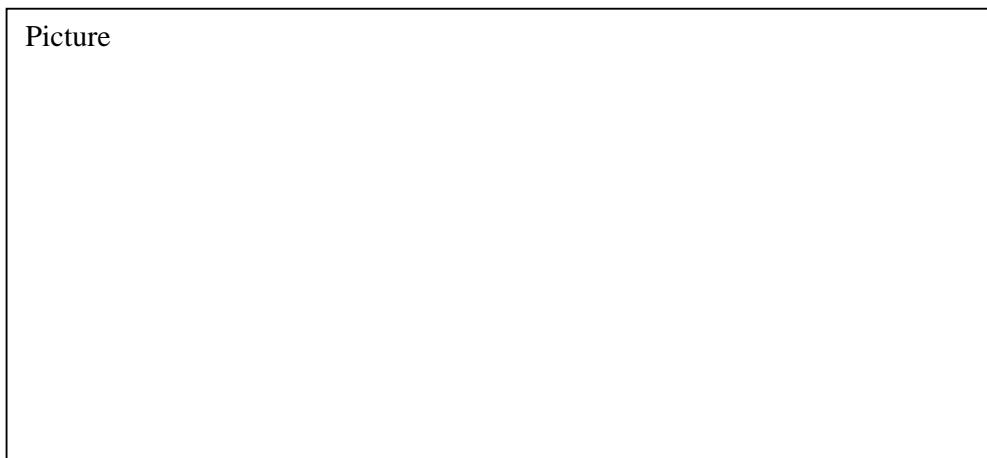
The warmer climate could increase productivity for a number of plants, and this would favour increased agriculture (including vineyards, cotton and fodder production). However, the increase in evapo-transpiration from the soil could result in increased salination and erosion, ultimately leading to desertification.

Insufficiency of water resources and their irregular distribution on areas and seasons lead to problems in use of water in many cases. Only 5-20% of annual water flows of rivers fall on vegetation period depending on the region. On the other hand, nevertheless water deficiency is observed in low-water periods, but flooding and overflowing appear in abundant water seasons. Enhancement of such occurrences was observed within the last years (Picture 1.1).



Picture 1.1. Tendency of floods observed in the years of 1999-2008

Depending on surface fluctuation of the Caspian sea, rising of ground water level caused to overflow of surrounding areas at length of 200 km from outfall of Kura river during inundation period since 1993. Riverside villages of Salyan, Neftchala, Sabirabad regions and bank areas of Shirvan city which located on riverside of Kura undergo underflows as a consequence of floods and inundations. As a result, large-scale facilities, farms, household plots, home grounds and dwelling houses in these areas seriously suffer hereof. (Picture 1.2).



Picture 1.2. Flooding observed in Kura river in the territory of Salyan region in 2003

There observed heavy floods and overflows in the rivers refulted from snowmelt on mountainous areas and showery rains because of a sharp rise in temperatures over mountainy areas of Great and Little Caucasus within 2003-2008.

2 persons died in Amirvar village of Dashkasan region caused by flood passing through Shamkir river in the evening on Aprel 6, **2003** due to snowmelt in uplands of Little Caucasus because of a sharp rise in temperature and 3 persons underwent to drowning death caused by flood passing through Gilgil river in Davachi-Siyazan region on May 18, **2003**. Arable lands, houses and bridges were damaged as a result of short-term floodings in the rivers of Tala, Kurmuk, Kish, Shin, Dashaghil, Khalkhal, Alinja, Gala and Damiraparan in Balakan-Shaki and Oghuz-Gabala regions on May 22-23, at local time 22⁰⁰-05⁰⁰.

There occurred floods in the rivers of Balakan-Shaki-Gabala region on July 10, **2004** at local time 03⁵⁰-08³⁰. Thus floods and inundations were observed in the rivers of Kish, Shin, Kurmuk, Tala, Gara, Katekh, Balakan and Mazim. Pedestrian overpass/footbridge in Mahamalar village of Balakan region was undergone overflows. Therefore potable water supply of Balakan and Shaki regions was disrupted. As a consequence of shower rains (hails, wind) in the evening on July 22, short-term overflows passed through Goshgar river across Dashkasan region and finally, 4 persons drowned in the river, electric piles were broken down, some houses were destracted and arable lands were damaged.

As a result of shower rains on July 29, **2006** floods and overflows passed through the rivers of Mazim, Balakan, Gara, Katekh, Tala, Kurmuk, Kish, Shin, Ayri, Dashaghilcha in Balakan-Shaki region. As a consequence of overflow passing through Kish, Shin and Dashaghilcha rivers surrounding villages were damaged considerably and arable lands, underground telephone lines, roads and intervillage footbridges underwent to flooding. Therefore potable water supply of Shaki region was disrupted and some houses remained under flows. A flood was observed in Saraturk river as a result of shower rain on September 27 at local time 19⁴⁵.

Level of water rised as 95 cm, water consumption exceeded $15 \text{ m}^3/\text{cm}$. Subsequently, 2 persons died in overflow while rescuing cows.

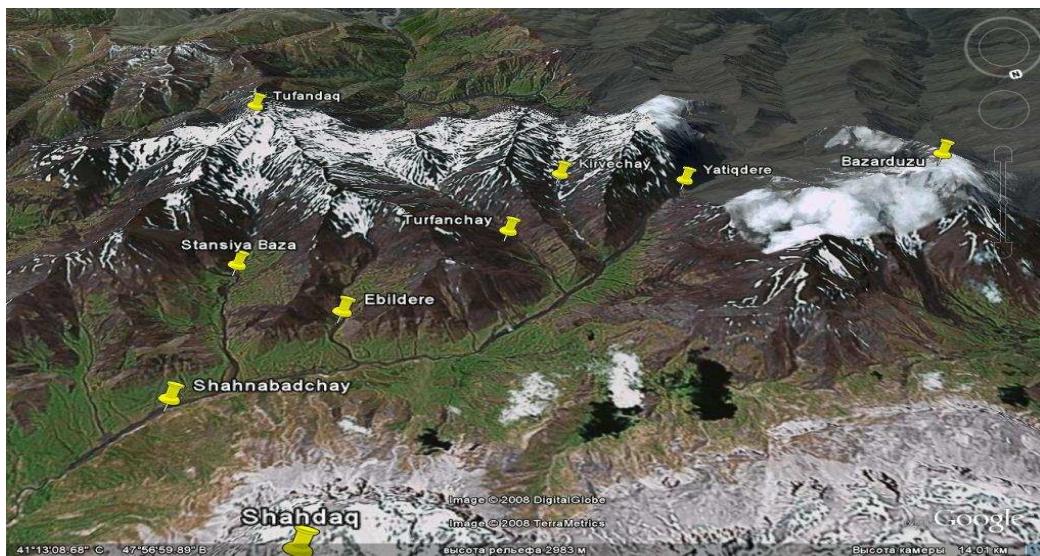
Araz water reservoir was completely filled up due to sharp rise in surface level of Araz river in first ten days of May **2007**. There emerged overflows in lower parts of Givrag and Araz water reservoir. As a result of shower rains (35 mm in five minutes) in mountainous area of Shahbuz region on May 27 at local time 21^{00} - 23^{00} a flood was observed in Bichanak and Garababa points of Nakhichevan river and subsequently, Yukhary Gishlag village was damaged considerably and 2 persons died in overflow. There emerged flooding and inundations in Asrik and Zayam rivers flowing through territory of Tovuz region as a result of shower rains on June 20 at local time 19^{00} , they resulted in damages to roads and bridges in up and middle reaches of the rivers and there appeared a flood in Chair river resulted from heavy rains in area of Slavyanka village of Gadabay region and as a consequence, 2 vehicles and newly constructed bridge remained under flooding and territory of the region were damaged considerably.

Due to shower rains (Guba 33mm, Khachmaz 23mm, Rustov 59mm, Gusar 38mm, Tangaalty 20mm, Kupchal 16mm) on July 8 **2008** at local time 20^{10} , floods and overflows passed through the rivers of Gusar, Gudiyal, Valvala, Guru, Jaghajug, Gilgil. Level of water surface rised to 2 m. As a result, level meter units underwent to flooding, hydraulic works were damaged and some habitats, electric piles, roads and bridges suffered considerably, finally 1 person died in overflow. Due to shower rains (Dashkasan 24mm and Goygol 22mm) on July 8-9, floods and overflows passed through the rivers of Goshgar, Kurak, Dastafyurd and Ganja. As a result, level meter units underwent to flooding, hydraulic works were damaged, arable lands were out of use, telephone and electric piles were broken down, private cars turned over, roadways suffered and 1 military serviceman died in overflow while passing across the river. Level of water surface rised as 157 cm in Lankaran river, 105 cm in Sefidor river and 117 cm in Vasharu river due to shower rains (Dashdatuk 49.8 mm and Lankaran 25.6 mm) on October 2-3 (in the evening and at night). There emerged short-term floods in Pensar river flowing across territory of Astara region and subsequently 2 persons, i.e. mother and her child remained under floods while passing through footbridge. Horned livestock and bridges underwent to flooding in some villages.

Territory of Azerbaijan Republic is included in the list of areas, where floods and inundations are observed mostly along the world. Appearance of floods in Great and Little Caucasus mountain ranges which cover almost half of countrywide territory, occurs more intensively. Most floods and inundations happen in uplands of South slope of Great Caucasus and Nakhichevan AR. Countrywide economy suffers to the extent of 18-25 million USD because of floods occurred every year. The expected climate changes can cause serious difficulties in the future by increasing recurrence of floods and overflows.

Glaciers

Main glacier fields of Azerbaijan are situated in basin of Gusar river throughout Great Caucasus (Picture 1.3). It was determined as a result of studies carried out within the past 110 years that area of glaciers diminished to 2.4 km^2 from 4.9 km^2 in this period and at the present, their freezing level passes through average 3500m altitude elevation.



(Picture 1.3)

Underground waters

Underground waters constitute 24 million m³ in a day (8.8 km³ in a year) being formed in foothills of Great and Little Caucasus and plain areas, Nakhichevan and Talish ranges of the country. Presently, 5 million m³ or only 20% of overall resources are used in a day. It shows possibility of widely usability of underground water potential of the country in water deficiency period.

Hail

Most recurrence of hail precipitations is observed in uplands and foothills of Great and Little Caucasus. Agriculture plants mostly suffer from frequent hail-hits.

Strong wind

Orographic features of the area enable west winds to become stronger along Kura river basin and west coasts of the Caspian sea as well as east winds in the territory of Nakhichevan AR. An increase tendency of number of very strong windy days (more than 25 m/second) is observed in the republic within the last years according to statistic analyses carried out. So that within 2002-2008 maximum speed of wind in territory of the republic reached to 38-40 m/second in Baku and Absheron cities, Ganja-Shamakhy-Zardab-Zagatala regions (Alibay) in August 2005, in March 2006 and February, March, August, September 2007.

Temperature extremums

Temperature stresses adversely effects wildlife and vegetation. Exceedence of absolute maximums and minimums of air temperature were observed within past 15 years in the last century. Declining of minimum temperature in a considerable extent in winter led to damages for subtropic plants. Within 2002-2008 maximum air temperature in territory of the republic totalled to 40-43° hot (July 2005, August 2007) in some Central Lowland regions, minimal temperature equalled to 14-17° frost (February 2005, March 2006) in uplands. Minimum air temperature in Baku and Absheron peninsula was observed as 8.7° frost in January 2008 that it is a record.

Fires

Deciduous/leaf bearing forests dominate mainly in Azerbaijan, therefore forest fires are not specific for the republic. But fires happened as a result of anthropogenous impacts can cause to extinction of various species of flora and fauna. Majority of fires occur due to burning of fields after corn reaping mainly in arid cycle. So that 7 forest fires happened in 2002 covered 46 ha area. But fire-fanging of hay, then trees appears in spring-summer seasons in Talish ranges. Six forest fires happened in 2007 covered 88.3 ha area, four forest fires in 2008 covered 25.3 ha area.

Surface fluctuation of the Caspian sea

Beginning from 1978 up to 1995 485 km² coast line of Azerbaijan remained under water at the result of the growth of sea level 2.5 m in the Caspian Sea. At the result of the growth of the level in the Caspian Sea the sea is re-polluted with the oil products. Biogenic elements, organic substance, and heavy metals amounts increase at the result of washing the areas under water or water pressure. Also there were changes in the estuary of the Kura; so in comparison with 1979 the thickness of the sludge grew 1.2-1.4 m. According to the modern research results high humidity will be kept in the Caspian Sea basin as the result of climate heating. If the level grows 150 centimeter, in the Caspian Sea 87,7 thousand ha will remain under water and it will occupy 1,6% of Azerbaijan area. At the result of expected growth at the Caspian Sea level is one of the important factors to influence the multiply of mine fish. The multiply of mine fish in the river will decrease; the quality of the water on the coastline will deteriorate and the places for spawning will get to worth in shallow coastal areas because of the growth in the sea level.

Surface level of the sea equalled to -27,12 m Bsn in 2008. Surface level of the Caspian sea was remembered with large fluctuations within the history. Surface level fluctuations cause great damages to the economy of Azerbaijan Republic. According to opinions of some specialists, surface level of the Caspian can rise up as 1.2 m until 2020.

1.2. Problem Analysis

1.2.1. Current status of biodiversity

Declining of countrywide biological diversity observed in the last years occurs due to human caused environmental impacts. In this standpoint, human impacts upon natural complexes can emerge in direct or indirect, open or closed, serious and nonsensitive way. Unsufficient use of soil and water resources impacts upon atmosphere and climate features and is related to overuse of them in many cases. Change in climate and atmosphere features effects upon function of ecosystem and subsequently, causes to decreasing of biodiversity.

At the present, very endangered and more sensitive ecosystems in Azerbaijan Republic are in Kura-Araz plains. Incorrect use of lands of these ecosystems resulted in erosion.

Semidesert areas of Absheron peninsula underwent upon more anthropogenous impact. Other ecosystems undergone strong human-caused impact are shared by mountainous ecosystems. Declining process of mountain forest lines accelerated considerably in the last decades. Cutting off forests, illegal and unefficient use of summer pastures led to intensification of

erosion processes and multiple floods and slides. Azerbaijan is one of sparsely forested countries. Illegal use and loss of foresteries cause to anxiety and trouble (for example, loss of tugai forests).

At the same time, construction of highways and pipelines in the areas enriched with biodiversity which resulted from countrywide economic development within the last years seriously impacts upon ecosystem by causing fragmentation, intensification of desertification and even local climate changes.

Intensive grazing of the pastures results in decreasing of vegetation and, stagnation and variation of plant species in ranges and subsequently, generation of poisonous and harmful grasses and enhancement of erosion processes and finally, degradation of proper ecosystem.

In addition, Azerbaijan's wetlands are significantly affected by anthropogenic impacts. Some natural lakes in Azerbaijan (such as Mehman, Garasu and Marso) have almost completed dried out as a result of over-extraction, and others have been severely impacted as a result of the construction of irrigation and drainage systems (such as Bozgobu and Sarisu lakes). Many of these lakes were once important breeding grounds for fish. Lowland lakes are generally fed from drainage channels (as the main rivers are regulated) and this increases their salinity, and dramatically impacts aquatic life, including fish. A number of these lakes are also polluted with outflows from industrial and domestic sources, and may be contaminated with oil from unsealed wells, the ecological situation of these wetlands is becoming acute.

The situation in the Caspian Sea is a matter of both national and international concern. As a closed system, this sea is particularly vulnerable to human impacts, and its biodiversity is at risk from a number of factors, including the recent accidental introduction of *Mnemiopsis leidyi*, pollution loads and over-fishing (particularly of valuable fish, such as sturgeon).

Disruption of balance in ecosystems leads to complete demolition of vegetation and animals being an integral part hereof. Areals of several valuable and economically important tree and plant species diminished considerably within the last 50 years caused by human activity. Besides, it is recommended to include 450 plant species and 220 animal species (total 670 species) to the Red Book of Azerbaijan which undergone to extinction. Disruption of natural habitats of animals lead to rapid extinction of a majority of them, especially invertebrates. Animals (such as striped hyena, namely *Hyaena hyaena*) from invertebrate ones accustomed to restricted areas undergo special danger. As a result of overmuch and inefficient use, wild vegetables and herbs, fruits and berries suffer, too. Particularly, en masse collection of herbs for sale encounter exhaustion of resources and some species for endangering.

Plant and animal species have also been affected by hunting and over-collection, and by the impacts of parasites and diseases.

1.2.2. Direct causes of biodiversity loss

Human activity underlies most of the causes of biodiversity losses in Azerbaijan, and humankind has significantly affected much of the land, through activities such as:

- **Land conversion**, predominantly for agriculture, but also for construction and industry, has reduced the area of natural habitat in Azerbaijan and results in fragmentation of the remaining landscape.

- **Land degradation**, resulting from overuse, erosion and fertilizer burdens reduces productivity and affects the likelihood of natural habitats reestablishing. It is estimated that 70% of pastures have undergone erosion, particularly the more fragile summer pastures.
- **Pesticide use**, particularly the legacy of high levels of application of toxic chemicals during the Soviet era, has resulted in long term pollution of some soils, and leaching into waterways. Pesticide use is currently under improved State control, however some illegal application of imported and unregistered pesticides is thought to occur.
- **Irrigation** has impacted much of the lowlands, and canals have fragmented much of the wider natural habitat, preventing free migration of animal species (especially as they lack appropriate bridges or escape paths for wildlife). Over recent years the collapse of these systems due to lack of repair has resulted in changes in the chemical composition of soil, increase in the ground-water level and gradual increases in salinity in some areas.
- **Water regulation**, including the construction of dams and management of water flows and extraction levels, has affected aquatic habitats significantly, particularly in the absence of adequate measures for protection of fisheries and other aquatic species
- **Pollution**, including the legacy from Soviet industry and agriculture, and ongoing pollution of waterways from domestic and industrial sources. In some cases older infrastructure relating to the oil industry is a source of pollution. The outflow of rivers into the Caspian Sea contributed to the pollution loads detected in the marine habitat.
- **Transport infrastructure** (including over 2,000 km of railway, 25,000 km of roads and 4,000 km of oil and gas pipelines) has caused habitat fragmentation, and represent barriers to the movement of wildlife, resulting in genetic isolation of sub-populations.
- **Over-use of biological resources** has been ongoing, with difficult economic conditions resulting in overexploitation of forests, medicinal plants and animals (including fish). Of particular note has been the decline in fisheries from both the Caspian Sea and inland waterways as a result of over-catch along with other factors such as water extraction and pollution. The sturgeon issue is one that requires international collaboration in order to prevent further over-fishing.
- **Invasive species**. Delivery of *Mnemiopsis leidyi* into the Caspian sea caused to extinction of tens of alewife and generally, feed provision of fishes.
Regarding plants adventitious weedery such as *ambrosia artemisiifolia* L, *cuscuta* L., *acropeltis repens* DC., *solanum rostratum* Dun spreaded out in countrywide flora and squeeze out the local species seriously.
- **Climate changes**. Global climate changes effect to countrywide biodiversity in any extent. As a result of overall climate warming, biodiversity more undergoes effect of stress factors by rising up of humidity index in some arid areas and by declining of cloudage and moisture in other areas, at the same time climate changes result in serious change of hydrological regime of many rivers and lakes that it adversely impact upon water bioresources.

1.2.3. Underlying causes of biodiversity loss

A range of issues drive the ongoing decline of biodiversity in Azerbaijan, as in the rest of the world:

- **Economic development**. Over the last decade the Republic of Azerbaijan has seen major social and economic change, resulting from independence, economic downturn, and subsequent market reforms and recovery. The legacy of Soviet overuse of natural resources persists with regard to high pollution and pesticide burdens. In addition, the

economic downturn affected the maintenance of infrastructure, including irrigation systems, leading to its deterioration and subsequent environmental impacts. The problems associated with market reforms, coupled with the costs of the Nagorno Karabakh conflict, resulted in reduced living standards for much of the population, and greater reliance on natural resource use.

- **Land use.** In order to feed the population and to support economic growth, significant areas of land have been converted from natural ecosystems to agricultural use. In addition, to this loss of natural habitat, other ecosystems are also affected by ongoing use – particularly with regard to grazing in lowland plains and mountain meadows. The lack of regulation of some grazing activities, and inappropriate use of meadow habitats, is contributing to soil erosion and changes in plant community compositions, which ultimately affect biodiversity.
- **Conflict.** The ongoing conflict with Armenia over Karabakh has contributed significantly to biodiversity declines. All terrestrial ecosystems have been affected – either directly or indirectly – by the conflict over Karabakh, which has resulted in destruction of extensive areas of woodland (mainly through fire) and ecological impacts to fauna and flora within the occupied territories. The occupation of territories by Armenian forces has resulted in a significant increase in refugees and internally displaced people (together representing around 1 million people or 12% of the population). The long-standing conflict has affected the country's economy and living conditions, resulting in greater exploitation of natural resources. Refugees and internally displaced people often live in temporary settlements, and rely on intensive grazing and use of fuel wood, resulting in local land degradation around these settlements. In addition, a number of the Strict Nature Reserves and significant forest reserves are located within the occupied territories.

1.2.4 Key sectors affecting biodiversity

A number of economic sectors directly impact biodiversity in Azerbaijan.

- **Agriculture.** Reform of the agricultural sector over the last few years has reduced its impact on biodiversity. Previously under the Soviet system productivity was maintained by extensive use of pesticides and mineral fertilizers, and through the establishment of extensive monocultures. However, a significant portion of Azerbaijan's land remains under cultivation, and the associated biodiversity is still directly affected (for example, the regulations in place to protect wildlife during harvesting are not always observed, fields are burnt after harvest, unregistered pesticides and inappropriate fertilizers are used; pastures are intensively grazed, and irrigation systems affect soil and water bodies).
- **Forestry.** In general, the area of forest continues to decrease in Azerbaijan, and species composition and structure of woodland is changing. Lack of sources of fuel (such as gas) result in a reliance on wood for fuel, which is probably the greatest impact on forest resources. In addition, timber is cut illegally for construction, which results in the removal of older trees from the forests.
- **Industry.** Although pollution from industrial sources has decreased over the last decade as the economic status of the country changed, the legacy of pollution from previous years remains a problem, with poor decommissioning procedures leaving behind untreated industrial waste and obsolete equipment.
- **Transport.** The density of roads and growth in the transport infrastructure (including canal construction) has resulted in greater fragmentation of the habitat. In addition, there is now a growth in pollution from vehicle emission sources.

- **Construction.** In many cases new buildings are constructed without appropriate planning or impact assessment, based on local regulations, without effective State oversight. As a result some houses have been built in inappropriate areas (for example in pipeline buffer zones, and on the protected shores of lakes and the Caspian Sea).
- **Oil Industry.** Oil extraction and refining industries have had significant effects on biodiversity and on the general environment. For decades ground (soil) tanks and open canals have been used to collect oil flowing from onshore wells and to ensure flow of oil to processing centres. The lack of the necessary technologies, inappropriate drilling regimes, poor maintenance and disregard of environmental protection measures have contributed to impacts in both onshore and offshore ecosystems. On the Absheron Peninsula 7,400 ha has been badly contaminated, and the legacy of earlier oil extraction remains in polluted lakes, soil and ground water. The extent of oil extraction and processing has now decreased and new technological processes have been introduced. However the State oil company is still considered to be a major contributor to atmospheric pollution, and the issue of waste water discharge into the Caspian Sea remains a cause for concern
- **Mining.** The mining industry affects biodiversity in a number of ways, including direct destruction of natural habitats (such as destruction of pastures for quarrying), widespread erosion and pollution, increases in the transport network, extensive slag heaps covering surrounding areas, coupled with lack of appropriate restoration of the lands. Mining activities affect significant areas of mountain habitats in particular, and these have been related to increasing erosion in these areas. Many of the by-products of mining contain heavy metals contaminate surrounding soils and water courses.
- **Tourism.** If unregulated, tourism can significantly affect natural habitats and species. Unplanned and inappropriate construction in natural areas (for example in coastal, forest or green zones), coupled with increased transport and development of new paths in ecologically sensitive areas, increased collection of rare plants and increased litter are all problems.

1.2.5. Restrictions on protection process

Main factors impacting upon protection and rehabilitation of biological diversity:

- Deficiency of financial opportunities;
- Lack of information on proper management methods;
- Weak and incomplete execution mechanism of the adopted laws;
- Low-level environmental conscious and culture of the population;
- Weakness of ecological education and enlightenment;
- Underdevelopment or absence of regional cooperation;
- Dullness of economic encouragement in protection of biological diversity;
- Delay of the country adherence to a number of necessary international conventions (Bonn Convention on Conservation of Migratory Species of Wild Animals, Rotterdam Convention on prejustified reconciliation procedure on international trade for several dangerous chemicals and pesticides).

1.2.6. Opportunities for biodiversity conservation

A number of developments will support further efforts to improve biodiversity conservation in Azerbaijan.

The Constitution of the Republic of Azerbaijan outlines the core principles of environmental protection, and the legislative basis for this has been put in place, along with an improved environmental management structure has been developed. The Constitution, which was adopted after a national referendum in 1995, sets out the principles of environmental protection, ownership of natural resources and the regulation of this sector. Since then the Milli Mejlis (Parliament) has further developed the legislative basis for regulating environmental protection, and around 20 laws have been adopted to bring the country in line with international standards on environmental protection.

The Government of Azerbaijan Republic pays great attention to solution of ecological problems, including protection and management of biological diversity. In this regard, lines of priority importance have been defined.

According to Convention of Biological Diversity of the United Nations, there established State Commission in order to fulfill obligations and commitments undertaken by Azerbaijan Republic and to ensure implementation of integrated measures for prevention of extinction danger of genetic resources of plants, animals and microorganisms.

“National Programme on Ecologically Sustainable Social-Economic Development” which aimed at protection of current ecological systems and economic potential and efficient use of natural resources to provide needs of the existing and future generations of Azerbaijan Republic and “National Programme on forest renewal and enhancement in Azerbaijan Republic” aimed at renewal of forests through regionalized species and increasing of quality and productivity and, enhancement of countrywide vegetation by planting new forests and greeneries through additional land plots which approved by Decree №1152 dated February 18, 2003 of the President of Azerbaijan, create wide opportunities for protection and conservation of biological diversity.

“National Strategy on protection and sustainable use of biological diversity in Azerbaijan Republic and Action Plan” approved by Decree №1368 dated March 24, 2006 of the President of Azerbaijan Republic seriously stimulated and promoted definition and execution of priority commitments.

The Ministry of Ecology and Natural Resources established under Decree dated May 23, 2001 and organized its countrywide activity efficiently. As evident from one fact, only total area of protected areas reached to 10.1% by increasing from 4.5% in relation to the country territory in the course of the Ministry activity.

About 60 NGOs from more than 400 ones established in the republic work for ecology sector.

(See: Annexes 9.1 and 9.2)

1.2.7. Further phases

This document was prepared based on the requirements of Convention of Biological Diversity and involves current status of biological diversity in the territory of Azerbaijan Republic and factors impacted upon it.

The report has been drafted in the presence of all concerned parties in view of their opinions and proposals.

Chapter 2

Current Status of National Biodiversity Strategies and Action Plans

2.1. Legislation and policy on use and protection of biodiversity

Legislative framework in protection and use of biological diversity of Azerbaijan is created as follows:

- Laws of Azerbaijan Republic providing for public administration in protection of the environment, including air protection, conservation and use of wildlife areas, organization of hunting and game husbandries, implementation of hunting activity and protection, enhancement and use of shooting preserves and organization of protected areas;
- decrees and orders of the President of Azerbaijan Republic and decisions of the Cabinet of Ministers ensuring execution of provisions stipulated in Laws of Azerbaijan Republic;
- statutory acts of central executive powers (ministry and etc.) providing for proper actions in conservation of the environment and protection of biological diversity.

National legislation on protection of biological diversity is established in view of international treaties (Agreements and Conventions) to which Azerbaijan Republic adhered.

2.1.1. Protection of the environment and legislation regulating this sphere

Principles for protection of the environment, belonging of natural resources and regulation of this sphere were stipulated in the Constitution of Azerbaijan Republic adopted by all-people's referendum on November 12, 1995. According to the Constitution natural resources belong to Azerbaijan Republic without prejudice to rights and benefits of any individuals or legal entities, it is duty of every citizen to protect the environment and everybody has right to life in safe environment. Also it was established that everybody has right to collect information about current position of the environment and to compensation for damages to his/her health and property due to ecological disruption. Nobody can endanger or cause damage to the environment and natural resources more than tolerance provided by law. It is specified that the state ensures and maintenance of ecological balance and conservation of legally set species of wild plants and animals.

The state should adopt scientific bases and modern methods developed in order to preserve soil, earth core, wildlife, purity of air and water and, to use them efficiently and to provide increase of human beings under scientific bases and to improve and enhance the environment for benefit of current and future generations welfare.

Legislation of Azerbaijan Republic on protection of the environment is comprised by the Constitution of Azerbaijan Republic, Law of Azerbaijan Republic "On nature conservation" and statutory acts on preservation and use of separate components of the environment (water, soil, atmosphere, forest and etc.).

It should be noted that there created legal framework in accordance with local and international standards and legal norms on nature conservancy as applied in other spheres of Azerbaijan after gaining independency. More than 20 laws regulating nature conservation were adopted in the last years.

2.1.2. Laws on protected areas and sites

According to Law of Azerbaijan Republic “On nature conservation”, state nature reserve fund is a collection of environmental sites contains ecological, scientific-research, rare origin, educational and historical values. Protection of state nature reserve fund possessed scientific, ecological, historical and genetic values is provided by imposing restrictions and bans upon usage of them. Protected areas are comprised by natural complexes and sites of importance like special ecological, scientific, cultural, aesthetic and sanitation in nature conservation and, areals of rare and endangered fauna and flora species and, land and water basin (aquatory) areas which excluded from farming turnover completely or partially, permanently or temporarily and air space above them.

According to Law of Azerbaijan Republic “On protected areas and sites” organization and conservation of protected areas are based upon principles such as preservation of biological diversity and natural ecological system, rational utilization of protected areas and sites, efficient use hereof for development of science, culture, education and enlightenment and, growth of tourism and recreation in view of social-economic factors and interests of the local population, state regulation and control over protected areas and sites, paid-for usage of protected areas and sites in legally provided cases, participation of peoples and communities in conservation of protected areas and sites and international cooperation. Protection, sanitary-protection and other safeguard zones can be established in land and water areas adjoining protected areas and sites in order to ensure special protection. Any kinds of activity might adversely impacting upon natural complexes and sites of protected areas are prohibited in lands of these zones.

Lands of protected areas and sites include nature preservation, nature reserve, sanatoria, rest (recreation) and historical-cultural sites subject to rational utilization and legal regime.

Putting into use of other category lands is governed by the land legislation of Azerbaijan Republic for the purpose of protected areas organization.

Land plots under private ownership, use and lease can be purchased, use and lease rights hereof can be terminated in a manner provided by the land legislation of Azerbaijan Republic and according to terms and conditions stipulated in Civil Code of Azerbaijan Republic in order to organize protected areas.

Land plots where protected areas and sites located on, are used by consent of owners, users and tenants without disappropriation of them or subject to easement (right to a restricted utilization of someone’s land plot) by court decision.

Pursuant to the Land Code of Azerbaijan Republic, lands of protected areas are as follows:

- nature conservancy lands (lands of surface water flows and water protection zones of water reservoirs; protection zone for spawning; safeguarding forests; forest plantations for protection of pastures, fields, waters and against erosion and other land plots for nature preservation);
- nature reserve lands (lands of reserves, sanctuaries (except to hunting sanctuaries), natural monuments, natural (national) dendrological and zoological parks, botanical gardens);
- sanatoria lands (lands of sanatoria and resorts (beaches, mineral water sources, therapy oil, mud fields and etc.) used and can be used for arrangement of diseases prophylactics and treatment which contain favourable natural treatment factors);

- rest (recreation) lands (lands planned and used for organization of rest, tourism, physical culture and sport activity);
- historical-cultural lands (historical-cultural reserves, commemorative parks, cemeteries, graves, archaeological sites and rare geological formation).

Furthermore, protection and sanitary zones are created around reserve lands, habitats, sanitation zones, rivers, springs, water basins, hydrotechnical and water intake facilities, potable and technical water supply sources.

Water facilities of preferential scientific, historical, cultural, aesthetic and nature conservative importance are considered to be protected water facilities. They are referred to protected water facilities of countrywide, regional and local importance and are excluded from farming turnover completely or partially, permanently or temporarily under the legislation.

Protected water facilities can exist as a separate natural area or a part of natural area of preferential protection provided by the legislation of Azerbaijan Republic. Following categories of protected water facilities are specified in Water Code of Azerbaijan Republic:

- Areas of internal waters of Azerbaijan Republic and section waters of the Caspian sea (lake) belonged to Azerbaijan;
- wetlands;
- running waters and water reservoirs referred to exotic natural landscapes;
- protection zones around source and outfall of water facilities;
- spawning and hibernation/wintering grounds of valuable fish species;
- water facilities being an integral part of forests, wildlife and other protected natural resources.

There defined water protection zones for maintenance of water facilities in compliance with ecological requirements and prevention of pollution, contamination and exhaustion of surface and subsurface waters as well as conservation of fauna and flora areal and, coastal protection zones along boundaries of them.

“General framework and principles for soil zonation”, “Rules for categorization of protected water facilities”, “Rules for determination of water protection zones and extent/scope, boundaries and use of coastal protection zones”, “Rules for referring of forests to protective categories and transfer of forests from one protective category to another protective category” and etc. which approved by proper decisions of the Cabinet of Ministers of Azerbaijan Republic, are applied in determination of the protected areas.

2.1.3. Laws on flora and fauna

No specific law on protection of biological diversity exist in Azerbaijan Republic. But many laws regarding conservation and use of biological sites adopted in the last years. The laws on conservation and use of flora and fauna are as follows:

- On wild fauna (1999);
- On fishing (1998);
- On Forest Code (1997);
- On protected areas and sites (2000);
- On hunting (2004);

- On phytosanitary control (2006).

Proper decisions were adopted by the Cabinet of Ministers in relation to execution of these laws and rules regulating this sphere were approved by the same decisions hereof. A number of statutory documents were compiled and approved by central executive powers (the Ministry of Ecology and Natural Resources, the Ministry of Agriculture) providing for relevant actions in nature conservation and protection of biological diversity in order to ensure execution of such laws and decisions. But there emerged a necessity of relevant amendments to the Law “protected areas and sites” in order to ensure full effectiveness of laws and to eliminate discrepancies and gaps. Information on biosphere reserves were added and elaborated again by the Ministry of Ecology and Natural Resources in view of adequate amendments, thus the opinions of proper ministries and bodies were submitted to the Government for review of draft Law.

It should be noted that adoption of relevant laws is deemed expedient to ensure entire conservation and use of genetic resources and flora of Azerbaijan Republic.

There elaborated draft Law of Azerbaijan Republic “On safety during activity of gene engineering” regulating the relations in promotion of safety in gene engineering activity, nature conservation and protection of public health and, proper additions and amendments were made in the draft considering opinions and proposals of the related ministries and other organizations. The draft Law will be submitted to the Government to be accepted and adopted.

2.1.4. Land use and legislation for development

The land legislation of Azerbaijan Republic is comprised by Land Code and other statutory acts. The lands of Azerbaijan had been under state and collective farm-cooperative ownership. As a result of the reforms countrywide lands were granted to state, municipal and private ownership.

As it been in all spheres, a need had arisen for legal framework entirely covering the process and ensuring its dynamism in order to regulate land relations and to implement land reform.

In this regard, the following laws and more than 40 other statutory documents were adopted in the last years:

- On land reform (1996);
- On earth core (1998);
- On state land cadastre, lands monitoring and land regulation (1998);
- On soil fertility/land capability (1999);
- On land market (1999);
- Areas and lands of municipalities (1999).

Principles for implementation of land reforms were established in the Laws of Azerbaijan Republic such as “On reform for state owned farms and collective farms” (1995) and “On land reform” (1996). The Laws of Azerbaijan Republic adopted afterward - Land Code of Azerbaijan Republic (1999), Decree of the President of Azerbaijan Republic “On some actions regarding acceleration of agrarian reforms” (1999) and other statutory acts created a strong legal framework for land reform.

It should be noted that there emerged a necessity of additions and amendments in relevant statutory acts, i.e. bringing into line with each other of them, in relation to enforcement of the Laws adopted within the last years.

2.1.5. Laws stipulating legal bases for prevention of environmental pollution

Legislative acts on prevention of environmental pollution include relevant Laws of Azerbaijan Republic, decrees and orders of President of Azerbaijan Republic, decisions of the Cabinet of Ministers, instructions/directions of central executive powers and other documents.

The following laws on nature conservation and its regulation were adopted in the last 5 years:

- On nature conservation (1999);
- On ecological safety (1999);
- On air protection (2001);
- On production and household wastes (1998);
- On water supply and sewage (1999);
- On hunting (2004)
- On phytosanitary control (2006).
- On beekeeping (2009)

It should be noted that proper clauses were stipulated regarding prevention of environmental pollution in the laws of Azerbaijan Republic related to natural resources such as Water Code (1997), Land Code (1999), Hydrometeorology activity (1998), On wild fauna (1999), On fishing (1998), On radiation safety of population (1997).

Furthermore, the Cabinet of Ministers of Azerbaijan Republic adopted relevant decisions on environmental pollution in view of enforcement of the above laws and a number of Rules regulating this sphere hereof were approved.

2.1.6. Legislation on other spheres impacting upon biodiversity

It is very essential to establish administrative, civil and criminal responsibility due to violation of requirements of legislative enactments on protection and use of biological diversity.

Fine sanctions were contemplated against natural persons, public officers and legal entities in 38 clauses of Administrative Offence Code of Azerbaijan Republic for administrative infractions contrary to regulations on environmental conservation, nature use and ecological safety.

Compensation of any damage upon nature can be subject to civil action, which might arise resulted from violation of regulations on environmental conservation, nature use and ecological safety. Damage incurred fishes, water animals and invertebrates is fixed according to "Rules of types, grades and imposing of payments for use of fish resources and penalties for illegal fishing" approved by the Decision №146 dated September 16, 1999 of the Cabinet of Ministers of Azerbaijan Republic.

Damage incurred wildlife is fixed according to "Rules of types, grades and imposing of payments for use of wildlife and penalties for poaching" approved by the Decision#176 dated November 6, 2004 of the Cabinet of Ministers of Azerbaijan Republic.

Accordingly approved norms are applied in calculation of damage incurred other spheres. Application of fees for natural resources and of fine payments for pollutant emissions and discharges is carried out by “Rules on fees for natural resources and of fine payments for repugnant substances emitted to the environment and use of these payments” approved by the Cabinet of Ministers of Azerbaijan Republic.

Proper penalties on ecological crimes were stipulated in 15 clauses (247-261) of Crime Code of Azerbaijan Republic.

Pursuant to Decision №134 July 12, 2005 of the Cabinet of Azerbaijan Republic, “Rule of creation and use of special funds and aids of proper bodies established for management and conservation of Protected Areas” were approved. Aids of the fund are spent in maintenance and development of Protected areas. The Ministry of Ecology and Natural Resources and proper authorities carry out control over efficient use of aids of the fund. Aids of the fund to the extent of 10% can be assign to social security and material incentive fund.

2.1.7. International agreements and conventions

Azerbaijan is a member of most international agreements and conventions relating to biodiversity (Table 6.1).

Table 6.1 International environmental conventions ratified by Azerbaijan

International convention	Year ratified
UNESCO Convention on Protection of World Cultural and Natural Heritage	1994
UN Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention)	2001
UNESCO Convention on Wetlands of International Importance especially as Waterfowl Habitat' (Ramsar Convention)	2000
UN Framework Convention on Climate Change	1995
Protocol on UN Framework Convention on Climate Change (Kyoto Protocol)	2000
UN Convention on Biological Diversity (CBD)	2000
UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	1999
UNECE Convention on Environment Impact Assessment in the Trans-boundary Context (Espoo Convention)	1999
UNECE Convention on Long-range Trans-boundary Air Pollution	2002
Convention on Conservation of European Wildlife and Natural Habitats (Bern Convention)	1999
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and Agreement on Protection of Sturgeons	1998
UN Convention to Combat Desertification (CCD)	1998
UNECE Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes (Helsinki Convention)	2000
FAO Convention on Plant Protection	2000
UN Convention for the Protection of the Ozone Layer (Vienna Convention)	1996
Agreement on Mutual Cooperation of Commonwealth of Independent States in the area of Hydrometeorology	1998
Protocol on Substances that Deplete the Ozone Layer (Montreal)	2000
European Agreement about Transportation of Dangerous Loads on International Routes	2000
20. Agreement between the Republic of Azerbaijan and Russian Federation on the “Staus, utilize principles and conditions of Gabala sttaion (RLS “Daryal”)”	2002

2.2. Existing programmes for biodiversity conservation

2.2.1. Biodiversity inventory, monitoring and research

A number of organizations render assistance in evaluation and monitoring of the environment and biodiversity. There established National Monitoring Service attached to the Ministry of Ecology and Natural Resources of Azerbaijan Republic since 2001 and its activity was organized in compliance with high standards for the purpose of arrangement of monitoring observations on main components of the environment, water facilities, soil and atmosphere space and, assessment, forecasting, regulation and management of anthropogenous impacts upon its features. Furthermore, study on biological diversity is carried out by Department of Biological Diversity Protection and Specially Protected Nature Areas Development of the Ministry of Ecology and Natural Resources and the Caspian Integrated Ecological Monitoring Office within the framework of proper authorities.

However, further investment is needed to continue to support environmental monitoring activities. A range of scientific institutions (research institutes and universities) collect data directly relevant to biodiversity and its conservation, including inventories of fauna and flora, description of habitats, assessment of genetic diversity, evaluation of limits for sustainable use, and testing of appropriate methods for ecosystem restoration.

In addition, the private sector also contributes to monitoring and research on biodiversity. For example, British Petroleum (BP) monitors biodiversity both on- and off-shore (including populations of fish, birds and mammals), and were also involved in biodiversity related activities such as the Trans-boundary Diagnostic Analysis, a workshop on *Mnemiopsis*, an investigation into the causes of mortality in Caspian seals and environmental data sharing.

2.2.2 Environmental educational programmes and teaching

Although there are a great number of specialists in Azerbaijan, until recently environmental educational and training in the country was rather unsystematic. Over the last ten years the situation has improved, and courses about environmental issues have been included in school curricula, and some schools even offer advanced courses in ecology. However, the standard of teaching relating to ecology and the environment is constrained by lack of resources, such as specialist books and other materials. In addition, the improvement of training in this area goes hand in hand in broader education reforms, which allow teachers greater freedom in what and how they teach. The further improvement of efforts in environmental education will be supported by legislation, as a result of a Presidential Decree on public ecological education, which was passed at the start of 2003. Under this decree a special Commission was established to prepare a five-year action plan to be delivered by the Ministry of Education. Preparation and publication on textbooks, education materials and visual aids were put in order for “Ecology” subject taught in high and secondary schools.

This will also address access to environmental education materials, as well as the establishment of school reserves, ecological parks, and resource centres around wildlife reserves.

The Ministry of Education has a State Ecological Training and Education Centre, which runs a series of environmental education centres in different regions, for children and young people. This centre draws experts from Institutes of the Azerbaijan National Academy of Sciences, state and non-governmental organizations, and provides courses with the aim of

developing environmental responsibility among the next generation. In addition, other ecological teaching programmes and ecological clubs have been developed for schools.

As well as the above activities, a number of non-governmental organizations, and the private sector (notably oil companies) have run biodiversity awareness projects focusing specifically on environmental education of children. Other resources exist for environmental education, such as a number of zoological museums and collections (including the Baku City Zoological Park).

2.2.3. Public Awareness

Organization of population enlightenment and effective propaganda work is one of the necessary elements in arrangement of PAs conservation and biological diversity protection. Beside Department of Propaganda established in the composition of the Ministry of Ecology and Natural Resources, sectors of Propaganda are functioning within the related Regional Area Departments. At the same time, job descriptions of employees working for tourism and science field of PAs include enlightenment of population and propaganda/agitation works. There is a special section on PAs in webpage (www.eco.gov.az) of the Ministry of Ecology and Natural Resources.

Flexible collaboration has been created with Mass Media in view of delivery of information related to coverage of changes and innovations in PAs and protection of biological diversity. The population can regularly obtain any information and data about PAs through the Ministry of Ecology and Natural Resources and “Hot Line” service working for in the structure of proper Department.

Organization of activity for different categories and subcohorts of the population is particularly effective in enlightenment and propaganda works. In this standpoint, a particular attention is paid to actions on enlightenment of pupils and youth especially upon PAs in the past three years. Time and again knowledge competitions and contests are arranged among children at subject and theme of biological diversity protection in National Parks every year. Entry of pupils to national parks has been allowed for under the legislation without any charge and payment in order to raise interest of them toward nature.

There conducted competitions on painting at the subject of “The nature in outlook of children” by the Ministry of Ecology and Natural Resources every year. There published and distributed ten thousands of booklets and posters about PAs among the population, especially local communities. Literary programmes and advertising spots at the subject of nature conservation, including biological diversity protection were repeatedly shown in telecasts as being mass media in public awareness.

2.2.4 Planning and intervention for conservation and restoration

The need to ensure environmental sustainability is recognized as being as important as peace, political stability, social-economic development and democracy at a global, regional and national level. Thus environmental policies are developed to ensure ecological security and environmental protection and rehabilitation. Challenges such as loss of the ozone layer, climate change, desertification, biodiversity loss and environmental pollution must all be addressed by national policy development.

The legislative base for environmental protection has been established in Azerbaijan. In response to this activities are already underway to improve environmental conditions, such as redevelopment of water ways and drainage systems, tree planting to provide parks and to prevent erosion (including areas along the Caspian coast), and a number of nature reserves and protected zones were created for flora and fauna.

2.2.5. International projects

A number of projects have been prepared under the international financial support related to biodiversity issues in Azerbaijan Republic:

- **Strategy on Biodiversity of the Caspian Sea and Ecological Programme of the Caspian Sea (CEP).** Several donor organizations render assistance in this Programme (GEF, UNDP, UNEP, The World Bank and TACIS) and purpose of the Programme aims at solution of interboundary ecological problems such as pollution and loss of biodiversity through coordinated actions. “Strategy on Biodiversity of the Caspian Sea and Action Plan” was drafted in the presence of five Caspian states in 2001 under leadership of the CEP and it is implemented regularly.
- **Project on Rehabilitation and Accomplishment of Irrigation and Drainage Infrastructure.** The World Bank has supported 5-year programme oriented towards improvement of water supply and drainage works in order to enhance agricultural products. A number of irrigation systems were rehabilitated according to this Project until 2006.
- **Project on Construction of Sturgeon Plant.** This Project was completed within the framework of urgent environmental investment project of the World Bank in 2003. Presently, modern plant is functioning at its full capacity which constructed for the purpose of breeding alevin sturgeons in order to let them into Kura river and the Caspian sea.
- **Project on Preservation of Leopards in Caucasus Ecoregion.** This project of World Wildlife Fund (WWF) was established to determine status of Caucasus leopard species in the region and to ensure preservation of them. The Project aims at strengthening of current and planned protected areas, intensification of ecological education and promotion of actions against poaching. “National Action Plan on conservation of leopards” was drafted by the Ministry of Ecology and Natural Resources in 2009.
- **Ecoregional Planning for Caucasus.** WWF and Critical Ecosystems Partnership Fund (CEPF) lead a process on strategy building for conservation and sustainable use of biological resources in Caucasus. German Development Corporation (KfW), Conservation International and other international NGOs took a great part in determination of capital outlay priorities upon biodiversity of region together with representatives of every Caucasus states. As a result, investment strategy document of the CEP was prepared and a long-term programme focusing on range of landscape corridors along Caucasus region. Actions, such as development of current protected areas and establishment of new ones, species conservation arrangements and awareness raising among decision-makers are ongoing in the course of the project commenced since August of 2003.
- **Establishment of Samur-Yalama National Park.** According to “Programme on Ecoregional Nature Conservation for South Caucasus” relevant works are carried out under the financial support (2 500 000 Euro) of German Financial Cooperation (KfW) as per Contract dated December 5, 2005. Bid Commission was established and

prequalification procedure was conducted according to Order dated February 2, 2009 of the Ministry of Ecology and Natural Resources for the purpose of selection of experienced and highly qualified consulting companies and specialists in view of the project implementation.

- **Establishment of Zagatala Biosphere Reserve.** According to item 1 of Clause 1 of Final Protocol of Intergovernmental negotiations conducted between Germany Federal Republic and Azerbaijan Republic, it is planned to allocated fund to the extent of 4000000 Euro for the project “Ecoregional programme on nature conservation in South Caucasus, III phase, Zagatala biosphere reserve”. In this regard, preevaluation works were carried out and completed in the area and signing of Memorandum of Understanding is intended for commencement of the project.

2.3. Summary of existing measures, capacity and experience for biodiversity management

Environmental protection is strongly engrained in State policy, and ongoing economic reforms, socio-economic development and infrastructure rehabilitation can be managed so as to ensure that development is sustainable and does not compromise ecological protection, in line with international standards. Through the development of institutions responsible for biodiversity conservation (such as the State Commission of Genetic Resources on Biodiversity and the Ministry for Ecology and Natural Resources) the government has already taken important steps to ensure effective environmental protection. In particular, the Ministry for Ecology and Natural Resources is tasked to implement State policy on the study, use, protection and restoration of natural resources, on the provision of ecological security, and on ensuring the conservation of biodiversity.

Other recent achievements within the Republic of Azerbaijan include the approval of a National Environment Programme (dealing with issues of both sustainable development and forest rehabilitation), and the expansion of the protected areas system in 2003, including the creation of the Ordubad National Park.

The Republic of Azerbaijan also has a number of successful international projects relating to protection of biological resources and protected areas, in co-operation with UNDP, UNEP, World Bank, WWF, and the European Environmental Fund. In addition, a number of local NGOs operate in the field of biodiversity protection.

Chapter 3

Sectoral and cross-sectoral integration or mainstreaming of biodiversity considerations

3.1. Use and values of biodiversity

Biodiversity has significance to mankind in a range of ways, which may be economic or intrinsic. Biodiversity in Azerbaijan is used directly in a large number of ways, and in addition a range of cultural and aesthetic values are placed on species and ecosystems in the country.

3.1.1. Agrobiodiversity

In general, the Caucasus region is recognized as an important centre of origin for agrobiodiversity. Within this context Azerbaijan supports a number of wild relatives and varieties important for agriculture. The cereals and livestock varieties are particularly significant.

3.1.1.1. Crops under cultivation

Cereals

Of 454 species of gramineous plants (*Poaceae*) in Azerbaijan, 25 are cultivated. Azerbaijan is one of the centres of origin for cereal crops, and shows particular variety in the forms of wheat described. Some species of wheat are particularly important for agriculture, including so-called ‘tough wheat’ (*Triticum durum*) of which 43 varieties are described from Azerbaijan, and ‘soft wheat’ (*T. aestivum*), which is represented by at least 87 varieties, including a range of hybrid types. Although a range of native varieties of wheat have been developed over time, more recently a number of forms have been introduced associated with more intensive agricultural systems.

Other forms of cereals found in Azerbaijan include barley (*Hordeum spp.*), rye (*Secale spp.*), triticale (*Triticale spp.*), maize (*Zea spp.*) and rice (*Oryza spp.*). Ten species of barley have been recorded from Azerbaijan, of which two are cultivated (of which 500 genetic varieties, including a number of native forms, have been described) while five species of rye occur, although only one of these (*Secale cereale*) is cultivated. Only one species of maize is widely grown in Azerbaijan (*Zea mays*), and 90 distinct genetic varieties are registered. Similarly although only one species of rice is grown in Azerbaijan (*Oryza sativa*), over 80 local varieties have been registered, including a number of traditional cultivars. In the case of triticale (a hybrid of wheat and rye) 326 varieties have been described.

A wide range of other crops are grown in Azerbaijan, including vegetables, potatoes, vines, fruit, tobacco, tea and cotton.

Horticulture

A range of wild plants are widely cultivated in gardens, with domesticated varieties of fruits and berries having been developed from wild relatives, including apples, pears, walnuts, hazelnuts, blackberries, medlar and others. Over 6000 fruit and berry samples of 150 species are cultivated, many in a range of local forms including notably apricots (*Armeniaca vulgaris*), cherries (*Serasus spp.*), pomegranates (*Punica granatum*) and grapes (*Vitis vinifera*).

Wheat, barley and sweetcorn are currently the main crops grown in the Nakhichevan Autonomous Republic, with wheat being the most extensive crop (both ‘tough’ (durum)

wheat) and ‘soft’ forms are grown). Although millet and rye were once important crops, they are no longer commercially grown. The extent of land planted with grain increases each year, and ongoing efforts are made to increase productivity. In 2009, 103625 tonnes of grain was produced in the territory, representing over 12 varieties of wheat and three types of barley.

A range of plants have been grown in gardens in Nakhichevan since ancient times, and fruit from the area (particularly from the Ordubad region) is considered to be of high quality. Currently, nearly 2270 ha of land in Nakhichevan is cultivated in gardens, to grow grapes, a wide range of apricot varieties, peaches, plums, apples, mirabelle, cherries, quince, pear, almond, mulberry, lemon, walnuts, pomegranates, blackberries, strawberries, and dates. In 2009, around 37782 tonnes of fruit were produced. It is suggested that the Ordubad region may be suitable for increased productivity of certain fruits (particularly lemons) for export to world markets. Natural orchards of wild pomegranates grow around Kilit village in Ordubad.

3.1.1.2. Wild ancestors of crops

Cereals

Azerbaijan is significant for being a centre of origin for a number of crops, particularly cereals. Wild relatives of wheat, including single-grain wild wheat (*Triticum boeoticum*) and Ararat wheat (*T. araraticum*), are found in the lowlands and foothills, and to some extent in more mountainous areas. In addition, six wild barley species are common in Azerbaijan²⁷ and rye is represented in four wild forms²⁸

Other crops

Unfortunately, although Azerbaijan originally possessed a diversity of wild relatives of corn, beans, vegetables, fruits, berries and grapes, along with a range of traditional local varieties, most of these have since been lost due to poor protection and discontinued selection of these forms. Currently, a number of scientific research institutes within the Ministry of Agriculture, along with the Genetic Resources Institute of National Academy of Sciences, are undertaking collection, study and maintenance of examples of agricultural crops and their wild ancestors, to provide the basis for future selective breeding. Research is being carried out on arable crops (cereals, corn, beans and tobacco), vegetables, berries, grapes, fodder species and cotton. Since 1996 significant efforts have been made to increase the collection of genetic material relating to important crops, under the Republican Crop Genetic Resources Program (see Table 4.1).

Some wild ancestors of wheat (*Triticum monococcum*, *T. araratum*, and *T. urartu*) occur in Nakhichevan Autonomous Republic, mainly in the area of Garagush Mountain (2600 m).

Table 4.1 Number of species/forms and number of samples of different crop types collected to date under the Republican Crop Genetic Resources Program

Crop	Number of species/forms	Number of samples
Corn	18	15,900
Grain	20	3,500
Vegetables	64	643
Fodder	50	1,500
Cotton	2	1,000

²⁷ Wild barley (*Hordeum spontaneum*), blue barley (*H. glaucum*), bulbed barley (*H. bulbosum*), violet barley (*H. violaceum*), and rye barley (*H. secalinum*)

²⁸ Weed-field rye (*Secale segetale*), Transcaucasian rye (*S. vavilovi*), Anatoly rye (*S. anatolicum*), and wild rye (*S. silvestre*)

Tobacco	2	90
Fruit, berry and grape	116	7000

3.1.1.3. Livestock diversity

Cattle

Three species of long-horned cattle are found in Azerbaijan - neat, buffalo and zebu. A range of long-horned cow breeds are found in the country, including brown Caucasus (a local breed), black-light, Simmental, Kostroma, Svis, brown Lithuania, Lebedin, red desert, red Eston, Holstin Friz, Aberdeen Angus, Limousine and Hallovey. Buffalo numbers in Azerbaijan are significant (over 300,000) with most being privately owned, and these are an important source of milk and meat.

Sheep

Sheep-breeding has been widely developed in Azerbaijan, with a range of breeds specialised for fine fleeces, rough fleeces and meat/milk. Traditional forms include Azerbaijan mountain merinos, Bozakh, "Shirvan", "Garabakh", Mazex, Balbas, Jaro, and Herik, while a number of other breeds (Sovet merinos, Askaniya, Prekos) have been introduced into the country.

Goats

Goats have been selectively bred in Azerbaijan since ancient times. Since 1936 these native breeds have been supplemented by Angora goats from Turkey (concentrated in the Ganja-Gazakh and Upper Karabakh regions).

Pigs

Four breeds of pigs are regularly kept in private farms in Azerbaijan - big white pig, Ukrainian white desert pig, white Lithuanian pig and big black pig.

Horses

Azerbaijan is one of the countries where the horse was first domesticated and bred in ancient times. A number of famous horse breeds originated in Azerbaijan – including the “Karabakh” and “Dilbaz” breeds, and the less well-known “Guba” and “Shirvan” forms. Three key genetic forms of horse are recognised in the country: (i) Lower Caucasus type which originated in the foothills region of little Caucasus; (ii) Large Caucasus type, which are smaller forms originating from the higher mountain areas; and (iii) plain type – a larger workhorse from the Kura-Araz plateau. In addition a range of foreign horse breeds have been imported over the last 50 years (including English, Arab, Terek, Turkman, Budyonni, and Traken races).

Poultry

A number of common domesticated chickens (white rus, Leggorn Red Aylend Nyu-hempshir and Broyler-6) are bred for meat and eggs, alongside more traditional local hen breeds. Local Indian hen breeds are found in Guba-Khachmaz, Upper Karabakh, Shirvan, Ganja-Gazakh regions. Domesticated ducks (Pekin) were introduced in 1956, while a range of different local goose breeds have been developed in the Republic. These forms are adapted to local climatic conditions and do not require supplementary feeding as long as pasture is available.

3.1.1.4. Wild relatives of domesticated livestock

Goats

Two species of wild goat are found in Azerbaijan. Notably, the bezoar or cliff goat (*Capra aegagrus*) is a species dating from prehistoric times, and is smaller than other wild goats, with

a body length of 140-160 cm and height of less than 85 cm. The species is also distinguished from other goat species by the shape of its horns and its colouration (reddish-brown). Bezoar goats are distributed in the Lesser Caucasus (including the mountain chains of Shahdag and Murovdag), in the Upper Garabag, in Lachin and Kalbajar rayons, and in Nakhichevan are common in the mountain chains of Zangezur and Nasirvaz.

Sheep

The Asian mouflon (*Ovis orientalis*) occurs in Azerbaijan. It is a small species (standing up to 83 cm high, with a body length of less than 115 cm), with a short tail and curved horns. The species is found in the southern Caucasus (Alinja, Ilandag, Nasirvaz, Gapijig, Nehramdag and surrounding chains).

Pigs

Wild boar (*Sus scrofa*) is common throughout the Caucasus where a sub-species has been described. Wild boar are found in all forests and reed thickets in Azerbaijan and are the most common wild hoofed mammals in the Republic, and are a focus for hunting.

A range of local domesticated breeds of buffalo, goat, and sheep are found in the Autonomous Republic of Nakhichevan, along with wild ancestors of livestock such as mouflon and bezoar goat and wild boar live in the territory.

3.1.2. Wild species of economic importance

3.1.2.1. Use of wild plants

Food plants

A wide range of Azerbaijan's flora is used as a source of food. Key food species and their uses are listed in Table 4.2 below.

In addition, a number of other wild plants produce fruits and vegetables used in Azerbaijan, including cherries, plums, cornel tree, hawthorn, forest strawberry (*Fragaria vesca*), Russian cherry-plum (*Grossularia reclinata*), sea-buckthorn (*Hippophae rhamnoides*), apple, medlar, cherry-plum, blackthorn (*Prunus spinosa*), raspberry (*Rubus caesius*), dog-rose (*Rosa spp.*), blackberry (different varieties of *Rubus*), garlic (*Allium sativum*), onion (*Allium cepa*), and leeks (*A. porrum*).

Table 4.2 Key food species and their uses

Common name	Botanical name	Use
Chestnut	<i>Castanea sativa</i>	The nut is eaten roasted or raw; chestnut flour is made from the nut, and is combined with wheat flour to bake bread
Hazel-nut	<i>Corylus avellana</i>	Hazel nuts are eaten roasted or raw, and are widely used in bakery and confectionery products
Beech	<i>Fagus orientalis</i>	Fruits are eaten instead of sunflower seeds, and valuable oil is also acquired from its fruit
Linden	<i>Tilia caucasica</i>	Flowers and leaves are used for teas and tisanes, and linden flowers are a source of nectar for honey production
Shepherd's purse	<i>Capsella bursa pastoris</i>	Young leaves are used in making soup and borsch
Millet	<i>Echinochloa oryzoides</i>	Thick roots are pickled and eaten fresh
Ferula	<i>Prongos ferulaceae</i>	Cooked or pickled

Cow-parsnip	<i>Heracleum trachyloma</i>	Leaves and stem are eaten.
Sorrel	<i>Rumex spp.</i>	Leaves and stem are used
Caper	<i>Capparis herlacea</i>	Buds are pickled
Sugar cane	<i>Sorghum saccharatum</i>	Used to produce syrup and doshab (boiled down fruit juice)
Cockspur	<i>Echinochloa crusgalli</i>	Nutritional uses (America)
American Millet	<i>Milium effusum</i>	Seeds are used in baking bread
Chervil	<i>Chaerophyllum aureum</i>	Seeds are used as fodder for domestic animals and poultry

Timber

Around 400 species of trees and bushes are recorded in Azerbaijan (representing nearly 10% of the country's flora) and approximately 11% of the land area is forested. Timber provides a source of materials for construction and furniture making. Key timber species include hornbeam (*Caprinus spp.*), Georgian oak (*Quercus iberica*) and beech (*Fagus spp.*). Since 2005 it was prohibited by the MENR to use forest materials as a firewood.

Medicinal plants

Around 800 plant species of medicinal value have been recorded in Azerbaijan, including 150 species used in pharmacology. Key medicinal plants include elecampagne (*Inula helenium*), origanum (*Origanum vulgare*), coltsfoot (*Tussilago farfara*), valerian (*Valeriana officinalis*), and *Helychrisum arenarium*, with 33 dried products obtained from these plants, which are mainly traded by "Azerfarm Ltd". In addition a range of oil-based products are developed through cold pressing of various plants (including various nuts and fruits), and a traditional medicine called doshab (a concentrated syrup, usually of mulberry) is produced from a range of wild plants, including mulberries, medlar and rosehips. Currently there is a growing recognition of the importance of extending the cultivation of medicinal plants, and moves towards certification is necessary to broaden the access to European markets.

Plants in foreign trade

A number of plants from Azerbaijan have attracted foreign businessmen, and some valuable plants are exported abroad, including cultivated liquorice (*Glycyrrhiza glabra*), linden (*Tilia cordata*), cane (*Phragmites australis*), reed (*Arundo donax*) and nettle (*Urtica dioica*).

Export of plants to foreign countries is regulated under relevant permits (licences) issued by proper authorities.

The population of the Nakhichevan Autonomous Republic use wild plants for medicinal, food, wood, dyes and other purposes. Many of the species collected are rare, endemic or endangered. A great number of plants (up to 750 species) are used in traditional remedies and medicines, and resources of Nakhichevan can be seen as a 'natural pharmacy'. The level of collection of some natural products is relatively extensive.²⁹ A few of these are currently commercially cultivated (by the "Scientific-Production Co-operative for Medical Plants", and further expansion of cultivation may be an option in future.

²⁹ Figures for 1988 indicate production as follows: rose hips (83 tonnes), hawthorn (82 tonnes), wild apples and pears (157 tonnes) and thyme (56 tonnes).

Some plants are recognized as important sources of pollen and nectar for honey³⁰, and others provide flavourings for natural beverages and teas³¹. A number of plants are used as food, either raw, cooked or preserved³². A wide range of plants are recognized as important sources for aromatic and essential oils³³, camphor³⁴ and other extracts³⁵, and *Carpodium platycarpum* is recognized as a plant of potential medical and economic importance, restricted to Nakhichevan. Commercial production of essential oils from these plants may be possible in Nakhichevan. Other species of note include liquorice (*Glycyrrhiza glabra*), and decorative plants such as tulips and Caucasian oak.

3.1.2.2. Use of wild animals

Hunting

Species of some mammals (hare, fox, jackal, yenot, raccoon, Dagestan urus/aurochs, wild boar) and birds (ducks, geese, coot, pigeons, quail, pheasant and etc.) are traditionally used in hunting activity. There raised a keen interest of foreign tourists/hunters towards hunting of some species (Dagestan urus/aurochs, wild boar) of Azerbaijan fauna in the last years. Proper permits (licences) are issued by local authorities of Ministry of Ecology and Natural Resources for hunting activity in order to regulate such hunting. A ban has been imposed upon baiting of brown bear since 2004, upon bird hunting since 2005 concerning avian flu.

Fishing

Fishing occurs in freshwater internal water systems (Mingachevir reservoir, the Kura and Araz rivers), as well as in the Caspian Sea, utilising the many valuable kinds of fish found in Azerbaijan.

Most economically valuable are the sturgeon (*Acipenseridae*), which is a high fat-content fish and is the source of caviar. Four species of the genus *Acipenser* are considered to have a particularly fine taste: ship sturgeon (*Acipenser nudiventris*), sterlet (*A. ruthenus*), Russian sturgeon (*A. gueldenstadii*), and Kura sturgeon (*Acipenserstellatus cyrensis*). There are several hatchery programmes that release juvenile fish to support the existing populations. Spawn and caviar of species of this family are sold in domestic and foreign market on expensive price.

In addition, other species that are fished commercially include a number of Clupeiformes (herring). Sprats (*Clupeonella spp.*) are a source of bone meal for use in agriculture (for both poultry and livestock). The local population also uses a number of other species of the family Cypriniformes (carp) which are considered to be good to eat, including: Asp (*Aspius a.*

³⁰ For example *Chamaenerium angustifolium*, *Melilotus officinalis*, *Lamium album*, *Onobrychis transcaucasica* and *Salvia limbata*

³¹ For example, *Berberis vulgaris*, *Padus mahaleb*, *Jornus mas*, *Malus orientalis*, *Orchis mascula*, *Origanum vulgare*, *Prunus divaricata*, *Pyrus salicifolia*, *Ribes biebersteinii*, and *Rubus iberica*

³² For example, *Rheum ribes*, *Dorema glabra*, *Prongos ferulaceae*, *Chaerophillum auranta*, *Eremurus spektabilis*, *Falcaria sioides*, *Heracleum trachiloma*, and *Carum caucasicum*

³³ For example, *Carpodium platycarpum*, *Nepeta cataria*, *Thymus transcaucasica*

³⁴ Extracted from Siberian white pine (in Soviet times)

³⁵ For example *Betula pendula*, *Conium maculatum*, *Valeriana sisymbriifolia*, *V. tiliifolia*, *Inula helenium*, *Cris sulphure*, *Chenopodium botrys*, *Zizifora spp.*, *Mentha longifolia*, and *Tanacetum millifolium*

taeniatus), Balic vimba (*Vimba v. persa*), Black Sea roach (*Rutilus frisii kutum*), common carp (*Cyprinus c. carpio*), North Caspian roach (*Rutilus rutilus*), Caspian bream (*Abramis brama orientalis*), Kura bleak (*Chalcalburnus chalcoides guldentadt*) and Danubian bleak (*Ch. chalcoides longissimus*).

Medical use

Leeches (*Hirudinea medicinalis*) are used by the general public for the treatment of different diseases and hirudin³⁶ from leeches is considered to be a precious medical remedy. In addition, until the mid 1990's a special institution existed to collect venom from the Levantine viper (*Macrovipera lebetine*) populations.

There is a long history of the use of wild animals in Nakhichevan Autonomous Republic, including hunting of birds (such geese, ducks, bustards, quail, and partridge). Among the birds hunted in Nakhichevan are a number of locally endemic sub-species of non-migratory birds, which may be at particular risk from over-exploitation combined with loss of habitats and fires³⁷. In addition, other species caught by the general population include mountain goats, mouflon, fox, wolf, jackal, and vipers (including Radde's viper).

A wide range of fish is caught within Nakhichevan's rivers and lakes, particularly from the Araz River and reservoir. There is also fishing on the Iranian bank of the Araz. Fish populations have declined as a result of unsustainable offtake (particularly during the sensitive spawning period), use of illegal fishing devices, and overfishing from the Iranian side of the Araz reservoir) and as a result of pollution, changes in water composition and reduced invertebrate populations in the Araz River.

3.1.2.3. Evaluation of sustainability of use of wild species

The fauna and flora of different areas of Azerbaijan face different anthropogenic threats, resulting in inconsistent patterns of distribution of key biological resources. For example, the biological resources of the Caspian Sea are threatened as a result of its isolation from other oceans, and the intensity of pressure on its resources. In addition, the steppe and semi-deserts of the Kura-Araz and Absheron plains are threatened, as are the forest resources of the Greater and Lesser Caucasus Mountains. The regions with greater resilience to use of resources include the wetter areas in the subtropical regions (such as Astara and Lankaran), where the dry subtropical forests recover well and can be sustainably managed.

At the same time, expansion of protected areas network enables rapid and effective rehabilitation of fauna resources of areas covered their scope (10.1% part of the country is comprised by protected areas).

3.1.3. Use of biodiversity for biotechnology and genetic collections

Biodiversity is used for scientific and industrial purposes through biotechnology. Genetic material is sourced from wild and cultivated plant species and is maintained *in vitro* for both conservation and scientific goals. Forms of tomato, tobacco, wheat and roses have been developed under laboratory conditions. In industry, genetic material from wild and cultivated plants is used to develop hybrids with specific characteristics.

³⁶ From the saliva glands of the leech

³⁷ Quail (*Coturnix coturnix coturnix*), rock partridge (*Alectoris graeca jaujisijus*), grey partridge (*Perdix perdix janeshens*), Caspian snowcock (*Tetraogallus caucasicus taurijus*).

3.1.4. Indirect uses of biodiversity

Azerbaijan provides suitable conditions for the development of ecotourism, particularly for holidays based on bird-watching. Interesting bird populations can be observed at all times of year (for wintering, migration and breeding), and large colonies of herons, cormorants, gulls and tern can be seen in reed beds and islands. In winter extensive flocks of little bustards, eagles, and griffon vultures are seen in the lowlands, and large populations of water birds gather are concentrated along the Caspian coast and in inland water systems.

Creation of initial National Parks in the country since 2003 has played a legal framework role for development and rational organization of in-place ecotourism and aesthetic pleasure of tourists in its boons without damage to the environment and allowed to growth of ecotourism activity.

3.1.5. Cultural or traditional values of biodiversity

3.1.5.1. Wildlife and national cuisine

In Azerbaijan, the national cuisine reflects the traditional methods of food preparation, but incorporates the availability of foods and requirements of a modern diet. A range of agrobiodiversity and wild species are traditionally used within the national diet. Most dishes are prepared from veal, mutton and poultry. The region is also rich in fish - the main species consumed are sturgeon caught in the lake, rivers, and the sea. Meals are often prepared with a variety of ingredients to add taste. Ingredients include lemon, olives, vinegar, pomegranate syrup, plums, grapes, cherries, apricots, fruit paste, and sumakh spice.

Meals are accompanied by rice, bread, and a variety of vegetables, predominantly aubergine, tomato, sweet peppers, cabbage, spinach, sorrel, beetroot, turnip, and onion. Herbs such as saffron, caraway, anise, laurel leaf, coriander, mint, dill, parsley, celery, tarragon, basil and thyme are also commonly served with, and accompany meals. These ingredients are also combined into salads. Other popular foods include caviar, omelette with vegetables or walnuts, fried beans and walnut, and other snacks. Mixes of garlic, aubergine, and hot pepper, are preserved with salt or vinegar and are served with meat courses.

Meals usually start with strong black tea, to aid digestion, and for social reasons. Tea is often served with fruit preserves made from quince, watermelon, cherry, peach, plum, walnut and mulberry. The tea is sometimes flavoured with herbs and spices, such as thyme, cloves and cardamom to add flavour. In addition, the natural waters of Azerbaijan are rich in minerals and are believed to promote good health.

3.1.5.2. Arts, folklore, and music

Picture	Located between the Middle East, Europe and Asia, on the ancient ‘Silk Route’, Azerbaijan has historically played an important part in the world economy and exchange of culture. This history is reflected in the creative culture existing today through highly skilled musicians, astrologists, sculptures and craftsmen. Azerbaijan has a great artistic history, with craft methods passed down through families. Many types of folklore are depicted through art, music,
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dance, and in the history of architecture, and much of this folklore is related to the natural resources of the region and reflect the close relationship between culture and natural history.

The culture is globally renowned for its cultural and spiritual achievements. Ancient customs and traditions remain significant in the spiritual lives of modern Azeris. Families have played a central role in maintaining these traditions through the generations. Religious events are celebrated as national holidays, such as ‘Gurban Bayrami’ (the day of the sacrificial slaughter of an animal). The 21st of March (the equinox) is ‘Novruz Bayramy’, a celebration of the coming spring. Rural communities also celebrate the harvest on ‘Harvest holiday’. For all these celebrations Azeris prepare food as gifts for friends and relatives.

National crafts reflect the rich biological resources of the country. The main crafts are carpets, silks, jewellery, and wood, stone and metal carvings. The internationally renowned carpet makers are found in Guba, Shamakhi, Ganja, Gazakh, Garabach, and the villages around Baku. Carpets traditionally are made using plant dyes and wool.

Azeri literature depicts the many ancient traditions of the country, and many great authors (such as Khagani, Nizami, Fizuli, Nazimi, Vagif, Sabir, Jalil Mammadguluzadeh, and Husseyn Javid) reveal the close relationship between the culture of the region and its biodiversity.

3.1.5.3. Spiritual values of biodiversity

One of the unique aspects of Azeri culture is the variety of religions that are currently and historically practiced (see Chapter 2). Many religions teach the importance of biodiversity. In particular, Islamic religion worshipped by Azerbaijan nation emphasizes advocating of nature care and affection in sacred and holy Koran (even some of suras are titled with names of animals - bee, cow and etc.).

3.1.5.4. Recreation and biodiversity

Due to the need to house more than one million refugees in Azerbaijan, there is great pressure on recreation sites. The areas traditionally used for recreation and spas are now used for sheltering these people. Of the 12,000 tourist sites, 10,000 are occupied by refugees - despite the fact that these sites are unsuitable as permanent settlements.

The main areas used for tourism and spa use are within the Absheron, Nabran, Kura, and Lenkoran coastal resorts, and tourists visit such resorts over five months of the year. Changes in the level of the Caspian Sea have caused a great number of recreational centres on the coast to be flooded. Other areas in the forested mountain regions of Guba, Shemakha-Ismailli, Belokan-Gabala, Kelbajar, Karabakj, Kedabek, Nakhichevan and Ganja-Naftalan are visited because of the presence of thermal springs and medicinal mud volcanoes. Over 300 recreational sites have been identified in these regions, within a total area of 35,000 ha (much of which is forested).

Establishment of initial National Parks in Azerbaijan in 2003 - i.e. Ordubad National Parks named after H.Aliyev, Shirvan and Aghgol National Parks, then organization of Hirkan and Altiaghaj National Parks in 2004, Absheron National Park in 2005, Shahdag National Park in 2006, Goygol National Park in 2008 as continuance of regular actions carried out on this purpose, created a favorable condition for arrangement of ecotourism activity in natural areas where rich historical monuments, unique landscape, geological and climate features and various biodiversity exist.

3.2. Key economic sectors affecting biodiversity

3.2.1. Agriculture

One of general indices of national reporting system is accompanied by growth rate of Gross Domestic Product (GDP) to be key indicator by characterizing outcomes of performance of economic units-residents in both material production and services and, being assessed with volume of additional value of these units on output and services for final consumption and, featuring situation in countrywide economic and social spheres. Share of agriculture in the GDP totalled to 14.0% in 2002, 9.2% in 2005 and 6.0% in 2008. There produced output to the extent of 3.3 million Manat in agriculture in the same year that is higher 535.0 million Manat than the figure of 2007.

According to data of the State Statistics Committee, overall product of agriculture in 2008 increased as 6.1% in relation to 2007 under fixed prices. This increase was possible because of mainly actions carried out in the country towards execution of commitments arising from “State Programme on poverty reduction and economic development in Azerbaijan Republic for 2003-2005 years”, “State Programme on social-economic development of regions of Azerbaijan Republic (2004-2008 years)” and other adopted documents. Application of “Rules on aids under state budget funds for fuel and engine oil used by agricultural producers in cultivation of arable lands and privileged sale of mineral fertilizers to agricultural producers by individuals” in the country with the Decision#32 dated February 15, 2007 of the Cabinet of Ministers of Azerbaijan Republic subject to execution of the Decree №1907 dated January 23, 2007 of the President of Azerbaijan Republic “On state support to agricultural producers” has brought its positive results.

There approved “Rules on aids under state budget funds on purpose of promotion of financial interest of corn-growers and stimulation of corn production” in order to provide aid for corn-growers under the Decision dated November 16, 2007 of the Cabinet of Ministers.

Countrywide agricultural production increased mainly in 2009 as compared to 2002.

No	Agricultural products (thousand ton)	2009	2002	Difference ±
1	Corn	2988.3	2195.8	+792.5
2	Potato	979.1	694.9	+284.2
3	Vegetable	1161.7	974.6	+187.1
4	Truck crops	409.9	330.3	+79.6
5	Fruit	704.5	516.8	+187.7
6	Meat (in cut weight)	175.6	124.6	+51
7	Milk (physical weight)	1381.6	1119.8	+261.8
8	Wool (physical weight)	14.8	11.8	+3.0
9	Egg (million pieces)	1008.7	561.6	+447.1

Role of farming economy increased considerably in enhancement of volume of output production. More than 99.0% of produced agricultural output is shared by non-state sector.

80-85% of main foodstuffs consumed by the population is shared by non-state sector.

Lands under crop increased yearly. So that despite 1224.8 thousand ha land were used for cultivation purpose in 2002, this figure equalled to 1852.0 thousand ha in 2009. One of its main reasons is intensification of state support to agricultural producers, also another factor is existence and development of different farming economies. There existed 36 state farmings (limited liability companies) in the country up to January 1, 2009 and 2613 individuals (who established legal entities), 2 collective farm-cooperative ownership, 2258 agricultural enterprises, 873618 family farm corporations, 220 other state farms (scientific-research, training, practice and etc.).

Number of employed people in labor market was equivalent to 4194 thousand persons and hereof, totalled to 46.9% of the countrywide population up to beginning of 2009.

39.8% of the employed population are those working for agriculture.

Animal raising: Animal breeding sector was developed in dynamic way in 2009 as compared to 2002, thus number of horned livestock, sheeps and goats increased. There existed 2178.6 thousand heads of horned livestock, 6986.4 thousand heads of sheeps and goats in the country within 2002 and these figures reached to 2569.6 thousand and 8276.2 thousand heads in 2008 and totalled to 2356.3 thousand and 7630.9 thousand heads accordingly.

Also, number of birds and swines/boars increased in the compared period. Number of birds totalled to 17137.5 thousand heads in 2002 year, 19000.0 thousand heads in 2005 year, 2352.9 thousand heads in 2009 and number of swines/boars equalled to 19.8 thousand heads, 22.9 thousand heads in 2005 and 10.3 thousand heads in 2009 accordingly.

Share of cows and buffaloes totalled to 48.5% among horned livestock and hereof, preserved its growth tendency. Share of cows and buffaloes as 55-60% in cattle is deemed to be normal.

Development of cattle breeding together with plant growing is one of the most significant tasks of employees working for agrarian sector on the basis of responsibilities arising from "State Programme on reliable provision of foodstuffs and nutritions of the population in Azerbaijan Republic within 2008-2015 years" approved by the Decree dated August 25, 2008 of the President of Azerbaijan Republic, the Decree dated August 21, 2008 of the President of Azerbaijan Republic "On some issues related to additional support to supply of agricultural producers with seeds, fertilizers and pedigree livestock" as well as the Decision#46 dated February 14, 2006 of the Cabinet of Ministers of Azerbaijan Republic "On additional actions for development of animal breeding in Azerbaijan Republic".

As a result of expedient measures taken, share of the imported key foodstuffs is being declined and its share in export is being enhanced year by year.

Energy value of daily consumed foodstuffs of the countrywide population per capita reached to 2445 kcal in 2009 as compared to 2343 kcal in 2002 is more than normal rate recommended by the World Health Organization and demanded in physiological standpoint (daily food consumption to the extent of 2100 kcal per capita is recommended by the World Health Organization).

A tendency rised up towards efficient use of the existing lands and cultivated fields enhanced for sale purpose resulted from declining of share of croplands farmed for families only. Increase in number of cattle and birds in the last years is also related to growth of the

population engaged in animal breeding. A tendency to obtain profit from current lands strengthens gradually.

Control over quality of foodstuffs consumed by the population has been intensified.

According to the Decision#154 dated August 16, 2005 of the Cabinet of Ministers of Azerbaijan Republic, proper bodies of Ministry of Economic Development, Ministry of Agriculture, Ministry of Ecology and Natural Resources and State Committee on Standardization, Metrology and Patent execute control over adherence by legal entities and individuals to technical, ecological, sanitary, veterinary and phytosanitary standards, norms, rules and requirements providing for terms on quality and safety of foodstuffs and, conditions on production, transportation, storage, packing, labeling and sale.

Livestock breeding and pastures

The extent of livestock has increased significantly in recent years. In 2002 there were estimated to be 2,153,000 cattle and 6,800,000 sheep and goats in Azerbaijan, an increase since 1993 of 49% and 51% respectively. As a result of land privatization, livestock are now owned by private companies and individuals.

In the last 20 years, out of 80 infection and invasive diseases that are included in the International Epizodic Bureau list A and B, 38 diseases have been found in the livestock of the country. Foot and Mouth Disease has been a problem amongst CIS countries since 2001, and remains the main health problem for livestock in Azerbaijan. Sixteen control points have been established for meat inspection, but disease control is hindered by lack of finances and equipment.

Picture



Azerbaijan has the greatest extent of pastureland within the southern Caucasus region, totalling 3,873,800 ha (including 1,548,900 ha of winter pastures, 602,900 ha of summer pastures and 1,722, 000 ha around villages) (According to the information for 1.12.2009). Despite the existence of such large areas of natural pasture, only 43% of winter pasture, and 29% of summer pasture was provided for sheep in 2002, and just 24% of the pasture surrounding the villages was used to graze cattle. However, grazing densities for cattle were high, and were estimated to be over twice recommended grazing norms. Intensive use leads to erosion, changes in the structure of the pasture community and an increase of invasive species. Productivity of pasture lands in some places has reduced by 2-3 times, and the level of fodder has reduced by 50-60%, and it is thought that 70% of pastures are threatened by erosion, and 16-20% had become salinized. Research shows that the area of land suitable for both winter and summer pastures has been significantly reduced. Despite this, there are few measures are being followed to maintain the productivity of the pastures, and some pastures are being used inappropriately (for example for conversion into cropland, which destroys the pasture and increases risks of salinisation and erosion).

Summer and winter pastures, cattle grazing fields and moving roadways have been assigned to ownership of local executive powers or municipalities being referred to state land fund of

Azerbaijan Republic. These pastures are handed to use or lease in due manner for 10-15 years subject to fee by individuals and legal entities having sheeps and goats in ownership and use. According to data dated 01.01.2010 of Ministry of Agriculture, there exist 873618 families gained lands in rural regions of the country. 5969.0 thousand heads of sheeps and goats are kept by these families. There exist 1395.1 thousand ha winter pasture with capacity of 2946.0 thousand heads and 570 thousand ha summer pasture with capacity of 1941.0 thousand heads in their usage.

As a result of the agricultural land reforms, local executive bodies and municipalities have been given ownership of the pastures. These are then leased to organizations or individuals for 10–15 year terms. According to the Ministry of Agriculture figures for 2003, 785,400 families own the lands in the rural regions of Azerbaijan, to keep a total of 5,969 thousand animals. Out of owned 1,395,100 hectares of winter pastures and 570,000 hectares of summer pastures only 2,946,000 and 1,941,000 of animals accordingly may be kept. However, in some cases there are problems with this system as people wish to avoid the charges associated with leasing land. In addition, the influx of refugees and internally displaced people into rural areas has placed additional pressure on the agricultural environment, as use is intensified around refugee camps and centres.

Fertilizers. Rural chemical service enterprises of the republic are mainly privatized and no any centralized provision service exist. Mineral fertilizers are imported from foreign countries by several individuals and legal entities and delivered to consumers. Organic fertilizers are procured and used in farmings engaged in animal breeding and poultry.

It should be noted that volume of mineral fertilizers imported to the country declined, also its application was in very low up to 2002 resulted from absence of centralized provision, individual approach to production of majority of the farmers, escalation of prices and generally diminishing of previous economic relations.

Nevertheless there was demand for mineral fertilizers subject to total 301.0 thousand ton affective substance in the country in a year, 140.1 thousand ton was used in 1990 year, 52.6 thousand ton in 1994 year, 13.4 thousand ton in 2000 year and only 10.5 thousand ton in 2001 year. The used fertilizers were mainly (90-95%) comprised by nitrogenous manures.

Subject to affective substance for agricultural plants there delivered 14.3 thousand ton (12.9 thousand ton nitrogen, 1.43 thousand ton phosphorous) in 2002 year, 17.6 thousand ton (15.8 thousand ton nitrogen, 1.8 thousand ton phosphorous) in 2003 year, 20.6 thousand ton (16.9 thousand ton nitrogen, 1.8 thousand ton phosphorous and 1.9 thousand ton potassium) in 2004 year, 23.7 thousand ton (19.5 thousand ton nitrogen, 2.0 thousand ton phosphorous and 2.2 thousand ton potassium) in 2005 year, 25.2 thousand ton (20.7 thousand ton nitrogen, 2.5 thousand ton phosphorous and 2.0 thousand ton potassium) in 2006 year, 20.1 thousand ton (16.5 thousand ton nitrogen, 2.0 thousand ton phosphorous and 1.6 thousand ton potassium) in 2007 year, 40.7 thousand ton (31.7 thousand ton nitrogen, 4.5 thousand ton phosphorous and 4.5 thousand ton potassium) in 2008 year (Collection of data for 2009 has not been completed yet). As evident from table 5.2 and 5.3, quantity of mineral fertilizers given per ha of agricultural plants increases year by year. Rise in keen interest to grain growing is distinctive in stable increasing of manure use in this sphere.

(See: Annexes 4.1, 4.2, 4.3).

Protection and phyto-sanitary control of plants. Right usage of pesticides plays great role in protection of the environment. Harmful chemical products which commonly adopted and permitted, were used in Azerbaijan during Soviet regime. Including, application of long-term

used pesticides which decompounded lately, hardly solved in water, had toxicity and hazardous for human and wildlife, caused to pollution of the environment.

At the present, usage of more than 100 pesticides recorded at state registration is permitted in Azerbaijan. Import and sale of pesticides were implemented on the basis of special permit (licence) up to 2002. But after cancellation of licences multiple unregistered toxical pesticides are delivered and it should be prevented categorically in governmental level.

On the other hand, new biological and other prevention methods must be priority in order gradually minimize chemical prevention methods.

As many states (Iran, Turkey, Russia Federation, Georgia and etc.) of the world situated in border with geographical location of Azerbaijan, quarantine features of the imported vegetable (phytogenous) foodstuffs, seed and saplings which have special hazard and are not characteristic for Azerbaijan, should be prevented and phyto-sanitary measures should be carried out.

Adoption of relevant statutory documents on status in delivery, use and sale of pesticides would be deemed expedient.

In spite of the existing difficulties, there produced 103625 tons of corn including maize grain on agricultural entities of all categories of Nakhichevan Autonomous Republic in current year. Average 28.3 centner product was output of per ha.

In current year (2009) output of several key agricultural products by producers in view of demand of domestic market is as follows. So that 37423 tons of potato, 63627 tons of vegetable, 39583 tons of truck crops, 37782 tons of fruit, 13790 tons of grape, 15783 tons of sugar beet and 4.0 tons of tobacco were produced. In Nakhichevan Autonomous Republic, as elsewhere in Azerbaijan, recent land reform has had significant impacts on agriculture, resulting in upturn in this sector. Over 99% of agricultural output is now produced by the private sector. In 2000, agricultural products were worth 269 billion manats, which was 29.6% higher than the previous year. As a result of internal markets, production was increased for almost all products, apart from tobacco for which production fell by 81% between 1999 and 2000. Livestock numbers have also risen. Despite a drought in 2002 agricultural output remained high³⁸. In 2001, 15,724 ha of land were under cultivation (an increase of 46% on 1999), and productivity of this land also increased over this period, particularly in terms of grain production. However, one identified threat to ongoing production is the spread of a number of weed species, and measures are needed to prevent their further expansion. Weeds are also invading a number of pastures and hayfields, associated with their over-use and degradation, and some of these weeds are poisonous to livestock. As elsewhere in Azerbaijan, Nakhichevan relies on irrigation systems to support intensive agriculture, and much of the irrigation infrastructure is in a poor state of repair. Salination contributes to land degradation and the change in grassland communities to more salt-tolerant forms.

Limited access to pastures results in overstocking (with densities of up to 150 head/ha), and privately owned flocks from villages are often pastured freely on communal land, with little awareness of regulated use, resulting in trampling of vegetation, erosion, change in plant communities and destruction of natural habitats.

³⁸ Agricultural output in 2002 included 54,428 tonnes of grain, 13,454 tonnes of potatoes, 42,723 tonnes of vegetables, 33,567 tonnes of melons, 28,444 tonnes of fruits, 14,015 tonnes of grapes, 45,499 tonnes of sugar-beet and 28,200 tonnes of tobacco were produced

3.2.2. Forestry

Azerbaijan is referred to sparsely forested countries. Overall area of forest fund is 1213.7 thousand ha (out of them 989.5 thousand ha is covered with forest) and totalled to 11.4% of the countrywide territory. 0.14 ha forest area is shared by per capita in the country.

Forests of the republic is referred to first category and carries functions of soil protective, water- hold and climate sensitivity and it is prohibited to conduct top cutting in these forests.

Major forest areas were referred to state forest fund (934.5 thousand ha) and public and community facilities (54.0 thousand ha). Adequate protection and conservation regimes are applied in forests because of their categories.

Forests on area spreaded out unevenly. Share of Great Caucasus in overall forest area - 48.8%, Little Caucasus - 34.2%, Talish - 14.5%, Kura-Araz plain - 2.5%, Nakhichevan - 0.5%. There exist areas of thick forests (Balakan - 49.3%, Lankaran - 44.1%, Zagatala - 41.5% and etc.) alongside with bare and woodless fields (Zardab, Bilasuvar, Salyan and etc.).

Wood reserve of the forests totalled to 59.73 million m³ in beech forests, to 27.97 million m³ in oak forests and to 59.73 million m³ in hornbeam forests. Overall wood reserve in montane forests totalled to 110.92 million m³ or 81.4%. Total wood reserve of overall broadleaf trees is 114.85 million m³ or 94.67%.

Spread out of forests on density is various. 13.7% of the countrywide forests is in low density, 65.2% in medium density, 18.3% in normal density and 2.8% in high density (0.9-1.0). Total average density of the forests is determined as 0.5. High density forests total to 22.6 thousand ha of forest areas being remained mainly in outlying and inaccessible forest lands.

(See: Annex 5.1)

The greatest difficulties in forest preservation, forest renewal/ reforestation and implementation of actions in this line are made by forest peoples and other concerned parties. Demand for firewood and wood as fuel causes to occurrence of illegal cut-offs in the forests. Most significant of problems to be necessarily solved in forest conservation and preservation is to minimize illegal wood cutting.

Analysis of statistic reports on last period shows that illegal forest cut-offs decline year by year. Fuel shortage and deficiency can be mentioned as main reason for wood cut-offs in all cases. Replacement of demand for wood as fuel type with other fuel types can diminish impact of the rural peoples upon forests. Gasification of regions as well as villages has been expanded throughout the republic recently. Continuance of rural gasification is one of important issues for deterioration in demand for wood.

Usable wood gained from environmental harvesting and sanitation cutting in countrywide forests totalled to a few part of the need. As evident from analysis of the situation that 2 lines should be in focus to slow down demand for usable wood and woodware/timber materials and subsequently, to minimize pressure on forest resources:

1. Organization of more efficient usage of the existing forests.
2. Enhancement of volume of the imported usable wood and woodware.

Moreover, forestry of the republic has faced with more grevious challenge. 261 thousand ha (or 25% of wood covered area) forest area remained under occupation and getting out of 10.2 thousand ha forest area from farming turnover due to Armenian aggression.

Forests of the republic are conserved and reafforested by proper structural authorities of the Ministry of Ecology and Natural Resources. 40 forest guard and forest replantation enterprises are engaged in protection, preservation, renewal and reforestation. There approved "National Programme on forest renewal and enhancement in Azerbaijan Republic" by the Decree №1152 dated February 18, 2003 in order to provide elimination of problems appeared in foresteries within the last years and development of forests. Execution of this National Programme was entrusted with the Ministry of Ecology and Natural Resources.

Main purpose in adoption of the National Programme is to implement management of countrywide forestry more effectively and to increase density of I category forests having water hold, air cleaning, sanitary-hygienic and social-ecological functions and to enhance valuable tree and bush species. Goals and objectives of the Programme included partial satisfaction of people's demand for small usable wood through cultivation of short-duration and quickly growing trees, expansion of protective forest strips and belts, preservation of agricultural lands, prevention of soil erosion, conservation of water sources and protection of forests from fires and harmful insects.

The Ministry of Ecology and Natural Resources commenced execution of the National Programme and completed it successfully in 2008 since approval of the National Programme.

Forest Development Department of the Ministry of Ecology and Natural Resources and its local divisions overfulfilled forecasts planning of forest renewal and reforestation provided for every year since spring season of 2003 including 2008. So that forests were regenerated and reafforested in approximate 60 thousand ha field within the past period. This figure was higher as two times in comparison with the previous 5 years.

There established forest plantation enterprises such as Jangi, Garadagh, Gilazi, Zardab and Nakhichevan and regional forest seed orchards such as Absheron, Guba and Kura in order to create forest landscape by modifying wild landscape in arid and semidesert areas which deprived of natural vegetation peculiarized with the hardest forest planting condition, to change soil and climate condition of the area, to prevent erosion processes and to avoid desertification. 213 million plant materials were cultivated in various cultivars and strains comprised by trees and shrubs at seed orchards within 2003-2008. Seed harvesting totalled to 1127 tons.

One of priority features of the aforesaid National Programme is to renew sparse woodlands in the country, to improve its species, to reafforest in bare and nonwood areas and thereby to pave the way for enhancement of countrywide forest covered areas and rising up to international norms.

Forests are sparse in Nakhichevan Autonomous Republic, they are functioning as park and have been fragmented. There exist no any forests in Sadarak and Sharur regions. There are 3365 ha forest at balance of Nakhichevan AR and 1348 ha are covered with forests. At the present, area forests became sparse and cut-off forest fields have been replaced with shrublands due to undergoing intensive human impacts. Natural recovery and restoration stopped due to mowing and grazing of forestside meadows and forest glades. On one hand, biological diversity of forest lands is impacted by hard ecological factors and on the other hand, by farming activity of people as well as disease and insects. Assignment of a part of forest lands to the population as a lot impacted its destructive effect upon forests within the last years.

Large-scale forestry and greenery works started in the territory of Nakhichevan Autonomous Republic in the last years. So that there carried out forest plantation and reforestation works and more than 400 thousand tree saplings and flower shrubs were planted in 486 ha area in spring season of 2008 and 2009. It means that every person has planted one tree in the Autonomous Republic. Furthermore schemes and layouts of areas to be planted in cities, settlements, villages, roadsides of highways and around of water reservoirs and water canals have been drafted and dislocation plan of plant fields has been elaborated through selection of trees and seeds in compliance with soil and climate features. Hundreds ha of differently salinized and eroded soil have been recovered for arable rotation as a result of multiple actions. Green belts are planted not only in water reservoir areas of the Autonomous Republic. Many gardens exist in the region being planted in bench form on hillock and slopes. Experience gained in several foreign countries are successfully used while planting new woodlands. One of them is application of drop irrigation system.

Nature guard and its enrichment are internationally important with global peculiarities. Nevertheless greenery areas totalled to 0.6% of the territory of the Autonomous Republic in 2000, this figure reached to 1.6% in 2008. Volume of greenery per capita rised up to 0.021 ha from 0.012 ha.

3.2.3. Fisheries

There constructed and commissioned fish rearing station for Khilly sturgeon in 2003 in order to preserve and recover resources of sturgeons in the Caspian sea.

Serious problems appeared in procurement of sturgeon spawning fishes in Azerbaijan within the past years as been in all Caspian countries. These problems adversely impacted upon quantity indicators of artificial propagation of sturgeons. Dependence of sturgeon fish rearing stations on private companies in view of spawning procurement cause this problem to be salient. Creation of repair-spawning fund in Khilly sturgeon fish rearing station started since 2004 in order to eliminate this problem partially even. At the present, 400 thousand fishes of various cohort are represented in this fund. Use of these fishes as spawner is intended in the nearest future. Application of hard roe method without killing spawners is one of the actions oriented towards solution of this problem. Besides, all these will serve to declining of pressure upon resources of such valuable fishes existing in nature.

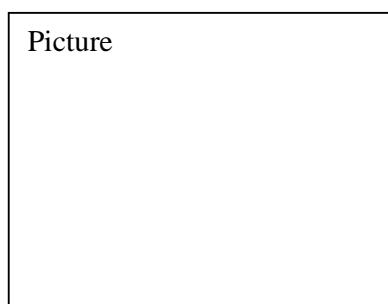
Conducting of marine expeditions in the Caspian was renewed by Azerbaijan Scientific-Research Fishery Institute in 2004 after a long time (1998-2004). Fishery resources, quality and quantity indices, dissemination of fishes in Azerbaijan waters of the Caspian, feeds provision and areal are studied through expeditions carried out by "Alif Hajiye" research vessel that it ensures fishery on scientific basis.

Decline in fishing as compared to 2003 was possible mainly on account of sprat and sturgeons. Its reason is related to reduction as 12-16 times of number and biomass of zooplanktons which sprats feeded with and subsequently, diminishing of volume of sprat fishery due to impact of *Mnemiopsis Leidyi* being alien specy for the Caspian.

Notwithstanding national quotas were allocated by the Bioresources Commission in 2006 and 2009 no requests were addressed for industrial fishing of sturgeons by the organizations engaged in fishing and fish trade, because export quota has not been ratified by the Convention on International Trade in Endangered Species.

(See: Annexes 6.1, 6.2 , 6.3 and 6.4)

3.2.4. Industry



Picture

As a result of downswing in industrial production under economic crisis condition at the beginning of 1990 years, generation of social-economic crisis situation within the following five years and nonoccurrence of new social-economic relations quantity of industrial wastes decreased. But the problems accrued from the previous years remained unsolved. Most significant problems - pollution of the environment (mainly soil and water sources) with industrial wastes in industry zones and surrounding fields and expiry of operating life of old technologies and equipment.

In this situation involvement of foreign investors for application of ecologically safe modern technologies is put forward.

As a result of large-scale and fundamental reforms in countrywide economy essential outcomes were obtained in the industry within 1995-2008. Contracts on joint activity in oil & gas industry which signed with advanced companies representing worldwide developed countries on September 20, 1994 stimulated rapid growth of oil and gas industry.

Production of cash registers, microcalculators, telephone sets, household electricity appliances, plastic doors and window units, special pipes for oil transportation and other output were digested in the last years. Launching production in Azerbaijan of a part of many goods previously imported from foreign countries enabled enrichment of our domestic market and almost elimination of import dependency.

All these gave a strong push for enhancement of business activity in the industry and development of small entrepreneurship. It is a result of “open door” policy pursued by the President that number of foreign and joint enterprises increased as three times. Presently, about 200 foreign investment enterprises are working for in the industry which representing 63 states and, there created thousands of work places. Considerable increase of newly generated economies, expansion and dynamic growth of small enterprises and engagement of individuals in business are accompanied by gradual rise of non-governmental sector.

So that share of non-state sector in overall output of industrial product increased to 75% in 2008 as compared to 5.5% in 1995.

Dynamic growth of oil sector will pave a strong way for more acceleration of non-oil sectors development. Moreover, favourable investment atmosphere created in non-oil sector, ongoing privatization process and other reforms will provide more intensive development of non-oil sector within 2008-2012.

Industrial output to the extent of 28 billion Manat was produced in 2008 and increased as 6% in comparison with 2007. There produced 44.5 million tons of oil and 16.3 billion m³ of gas within 2008 that it is higher as 4.6% and 50.4% as compared to 2007.

Untreated discharged effluents diverted to water facilities totalled to 181 million m³ in 2008. Volume of pollutant emissions totalled to 923.0 thousand tons and 281 thousand tons out of them are shared by stationary pollution sources/ fixed sources of environmental pollution. Volume of sewage diverted to water reservoirs decreased as 1.7 times, volume of pollutant emissions as 3.1 times in 2008 in comparison with 1990.

Volume of waters incoming from countrywide water-storage basins totalled to 11.735 billion m³ in 2008. Volume of waters taken from countrywide water sources decreased as 1.4 times in 2008 as compared to 1990. Actual consumption of water was 7.886 billion m³, 68% hereof was used in irrigation, 26% in production and 4.4% for household-farming purposes. Despite strong water demand appeared in the country, 32.8% of intake water is lost while its delivery.

Basic indices characterizing effect of human activity upon the environment are mentioned in the following table:

	1990	1995	2000	2005	2006	2007	2008
Water taken from water sources, million m ³	16176	13976	11110	12050	12360	12270	11735
Water consumption, million m ³	12477	10223	6588	8607	8865	8371	7886
Discharge of water to surface watercourses, million m ³	303	134	171	161	163	177	181
Pollutant emissions, thousand tons	2846.1	1325.4	908.1	1054	875	970	923
including: stationary sources motor transport	2108.5	878.6	515.4	558	344	386	281
	737.6	446.8	392.7	496	531	584	642

Share of pollutant emissions from fixed sources of environmental pollution per m² area unit of the republic totals to 3.2 tons, share of of pollutant emissions per capita totals to 33 kg.

It should be noted that one of factors considerably effecting to aggravation of countrywide ecological situation is characterized in previously accumulated and presently generated hazardous wastes. At the present, there remained approximate 2.5 million tons of hazardous wastes in landfills, enterprises and refuse dumps.

Alongside with that declining in scale of construction and reconstruction of nature conservancy facilities due to insufficient investment to basic capital adversely impacted upon

protection of environment. So, basic capital outlay towards protection of environment and effective use of natural resources totalled to 97.8 million Manat in 2008.

*Table 3.10. Air pollutants in the largest four cities of Azerbaijan
(exceeded norm for some times)*

Pollutant	Baku	Sumgayit	Mingachevir	Shirvan
Dust	1-1.2	2	2-2.3	2
Sulphur anhydride	--	--	1-1.2	--
Carbon oxide	--	--	1-1.5	--
Nitrogen 4-oxide	1.5-2	2-2.2	1-1.5	1.6-1.8

3.2.5. Construction

Economic and social progress of Azerbaijan was closely related to the extent of construction in the years of 2003-2008. Production and non-production designated large buildings and facilities were constructed and commissioned, the existing ones were expanded and reconstructed in the country territory within these years.

38.1 billion Manat investment was laid on basic capital by enterprises and organizations of all ownership forms for development of countrywide economy and social sphere. 13.6 billion Manat (35.8%) of the used investment are shared by state owned organizations, 24.5 billion Manat (64.2%) by non-state owned organizations. The investment laid on basic capital totalled to 9.9 billion Manat in 2008 and it is higher as 3.0 times in comparison with 2003.

There spent 1.5 billion Manat or funds to 3.8% of overall investment on basic capital by the population in order to improve current social condition. Commissioning of new production facilities was provided in these years by spending 31.1 billion Manat or funds to 81.7% of overall investment towards development of countrywide production sector.

Favorable condition created together with foreign investors in the course of market economy transition resulted in outlay of more investments for economy growth in the country by them. Foreign investment totalled to 18.5 billion Manat (48.6%) of overall volume of investment laid on basic capital within 2003-2008.

There spent investment of 24.1 billion Manat (63.2%) for development of industry branch of the economy, 2.7 billion Manat (7.2%) for housing, 4.5 billion Manat (11.9%) for transport and 0.6 billion manat (1.7%) for trade and service in the years of 2003-2008.

Individual dwelling houses to the extent of 6.0 million m² were put into usage on account of personal funds within these years and 2.5 million m² i.e. 41.4% of them were constructed in rural areas.

But it should be noted that in many cases dwelling houses and facilities are constructed without agreement of proper organizations and state expertise for relevant documents on allocation of land plots. For example, we can mention building massive allocated for property development in sanitary zone of Jeyranbatan water reservoir on sides of Baku-Rostov highway. Such developments were carried out in Absheron peninsula and Nabran-Khudat areas in sanitary-protection zones of the Caspian coast within the last years. Construction, repair-refurbishment and reconstruction works in Baku city were performed in violation of key design principles and requirements of applicable master plot plan in many cases. Dwelling houses and other facilities were constructed in protection zones of oil and gas

pipelines, water mains, multiple underground communication lines and power substations and, even in green zones. Such cases were observed in territories of other regions, too. Absence of connection to relevant public utilities and nonavailability of necessary infrastructure cause to pollution of the environment.

Impacts upon the environment enhanced due to construction of many facilities in coastal areas without adherence to ecological and sanitary norms in the last years. The Decree dated January 13, 2003 of the President of Azerbaijan Republic is very important in ensuring regulation of use of the Caspian beach and shore.

Establishment of industrial complexes, plants and other like designated enterprises on construction materials, reinforced-concrete, brick, marbled travertine and etc.in Nakhichevan Autonomous Republic having rich and multiple building materials, enabled delivery of building materials to worldwide markets. Construction-assembly and building-repair works carried out hereof, are provided on account of internal construction materials and funds. Presently, 62 construction-assembly organizations exist in the region that out of them 38 are large-scale, 24 are small and medium production-scale units. Capital outlay on construction increased as 5.2 times in comparison with the previous years within the past 6 years and there performed construction-assembly works to the amount of 813.4 million Manat in the Autonomous Republic in this period.

3.2.6 Mining industry

Proper geological study of Azerbaijan territory started from 1930 years and a number of industrial fields and deposits such as iron Fe, molibdenum, cobalt, polymetal were discovered at the shortest time and put into operation.

Field development works were carried out by russian, german, english and partially local manufacturers in cobalt deposits of Dashkasan, copper deposits of Gadabay, Bittibulag and Balakan from 40 years of XIX century to 20 years of XX century because of library materials. There extracted 56 thousand tons of copper, 6.3-12.7 tons of gold, 120.6-126.1 tons of silver from Gadabay copper deposit, 608 tons of cobalt ore from Dashkasan cobalt deposit, 16000 tons of copper ore from Bittibulag copper deposit and they were transported to Germany by "Siemens" firm within 1867-1914 years.

Beginning of geological prospecting works and mining industry in the territory of Azerbaijan Republic fell on the second half of XIX century.

Current status and prospects of mineral raw materials base of Azerbaijan territory and involvement of foreign and national investments on mining industry and geological survey of countrywide earth core create wide opportunities for integration of mining products into world market. Pursuant to the Decree №782 dated September 2, 2002 of the President of Azerbaijan Republic "On improvement of rules for issuance of special permit (licence) to some activities", activity on use of earth core has not been included in the register and therefore, issuance of licences has been suspended.

According to the Decision №1 dated January 9, 1999 of the Cabinet of Ministers of Azerbaijan Republic, 470 Acts like "Mining certificate" were issued for geological survey of earth core, use of subsurface waters and development of non-metallic deposits by governmental, private and foreign organizations in the years of 2003-2009.

At the present, territory of the republic was divided into Shaki-Balakan, Lok-Garabagh, Lachin-Kalbajar, Vejnali, Araz and Talish geological-economic regions in compliance with feature of mineralization and, Zagatala-Balakan, Shaki-Gonagkand, Gadabay-Dashkasan, Mehmana, Murovdagh, Gazakh, Aghjakand, Khojavand, Joyja-Akara, Kalbajar-Gochaz, Vejnali, Astara-Lerik, Ordubad, Sharur, Nakhichevan regions subject to structure formation and structure metallogeny zones, industrial development and prospectivity of metallic ore mineral deposits and peculiarity of its oil bearing was reviewed.

Current mineral-raw materials base and industrial resources of Azerbaijan Republic contain 460 deposits, including 20 ore minerals (iron, alunite, copper, lead, gold, cobalt, mercury, molibdenum), 39 nonmetallic minerals (bentonite clay, rock salt, dolomite, gypsum, sulphur, kaolin clay, quartz sand, mineral color, flux and limestone for soda production), 303 building materials (saw stone, ornamental/cap stone, clay, cement raw meal, building stone, sand-gravel mix, mortar sand, bitumen sands, perlite and etc.) and 98 subsurface water deposits (iodine-bromide, potable, mineral and thermal) which appropriately recorded at state registration and area balance.

68 of them are under occupation, including 6 ore, 4 nonmetallic, 47 building materials and 11 subsurface water deposits are situated in the occupied territories.

According to the Decree dated February 5, 1996 of the President of Azerbaijan Republic “On prospecting and development of several gold deposits in Azerbaijan Republic” for purpose of creation of gold-mining industry in the republic, there signed an agreement on prospecting, development and production sharing of prospective gold deposits such as Gadabay, Gosha, Ordubad range (Pyazbashy, Aghyurd, Shakardara, Kalaki), Soyudlu, Gizilbulag and Vejnali gold deposits between former “Azergizil” State Company and “RV Investment Group Services” LLC of USA on August 20, 1997 and additional survey works were launched in other deposits except to Soyudlu (Zod), Gizilbulag and Vejnali deposits located in the areas occupied by armenians since 2005.

There signed an Agreement “On survey, exploration, prospecting, development and production sharing of Garadagh, Chovdar, Goydag, Dashkasaman ore fields, Kohnamadan area and Kurakchay deposits” between the Government of Azerbaijan Republic and “Londex Resources S.A”, “Will and Mayris S.A”, “Fargeit Mining Copogeyhn”, “Olobex International LLR” and “Mitsui Mineral Development Engineering Co. Ltd” on December 30, 2006 according to the Decree №1877 dated December 28, 2006.

303 mineral deposits being in operation and reserve - 27 ore deposits (including 7 deposits in the occupied territory), 84 nonmetallic deposits (20 deposits in the occupied territory), 191 building material deposits (47 deposits in the occupied territory) and 1 subsurface water deposit were recorded at field balance.

It should be noted that total 142 mineral deposits and appearances of various types remained in the occupied territories of the republic.

The environment is damaged in a great number during open type operation of mineral deposits.

Ten thousands ha of winter pasture fields in Absheron peninsula and Gobustan area became unsuitable due to operation of building materials.

At the present, there exist quarries in the above areas. Millions m² surface rocks and mineral rocks flow out surrounding areas because of operation works and subsequently, sparse vegetative environment is suffered seriously. A progress has been achieved in this sphere related to land reform implemented after gaining independency of our republic.

Geoecological works and seismic-hydrogeodynamic survey are ongoing in ore-based regions and adjoining plain areas of Azerbaijan in the last years in order to assess changes occurred in the environment as well as to observe and forecast development of Exogen Geological Processes which considerably damage countrywide economy resulted from various scale geological, geophysical, hydrogeological and engineering geoplanning works and, operations on exploration and prospecting of solid mineral and subsurface potable water deposits and, pollution of the country territory and subsurface waters by technogen impacts.

Mining works to the overall extent of ten thousands cubic meters are carried out every year in the course of exploration and prospecting of mineral deposits and roads to the overall extent of hundred thousands cubic meters are paved in slopes and small squares and grounds are laid for drilling of bore wells. The environment suffer seriously while performing such works. Soil erosion processes intensify as a result of mining excavations and recovery of the laid roadways after completion of geological exploration and prospecting works and, vegetation fall out due to slopes washout and appearance of ravines.

Thousands ha of areas become unusable resulted from flowout to surrounding areas of industrial wastes (slag/refuse burnout, ash and etc.) generated upon processing of minerals. Production wastes disrupt vegetation, input repugnant compounds to the migration and contaminate air, water and soil. Polluted river waters intoxicate wildlife upon flowing in sea.

Heavy metals take dominany place among pollutants of the environment. Major and adjoining minerals in ore deposits discovered in Little Caucasus and southern slopes of Great Caucasus contain mainly high-toxic heavy metals. Usually, there happens pollution of the environment with heavy metals comprising deposits in areas where such deposits situated in.

Mining excavations and the paved roadways should be recovered in the course of exploration and prospecting of mineral deposits after completion of field works and, quarry places should be recultivated and soil-vegetation should be restored after completion of operation works in the quarries in order to protect biodiversity.

Sufficient prospectivity of molibdenum, zinc, lead, building lime and rock salt resources which produced based on raw source of Nakhichevan Autonomous Republic, is evident. Rock salt reserve of Duzlag deposit was calculated as 100 thousand tons, reserve of Nehram rock salt deposit totals to 1-1.2 billion tons being the richest deposit. Sustan salt deposit has reserve of 750 thousand tons. Reserve of Nehram dolomite deposit equals to 130 million tons. Shahtakhly lining reserve totals to 8 million m³.

Non-ferrous metals of Mehri-Ordubad area such as lead, zinc, molibdenum, copper and, Gumushlu lead-zinc, Aghdara polymetal, Paraghachay, Gapijig, Aghyurd, Diakhchay, Kilit copper-molibdenum, Kotam cobalt, Munundara and Pezbashy gold deposits are very important. Copper-molibdenum minery is operated in the territory of Ordubad region. There exist rich mineral and thermal water resources in the territory of the region.

3.2.7. Energy and oil extraction

Reserves of fuel & energetics being one of the most advanced branches of countrywide industry totalled to 44.1 million tons of fuel equivalent in 2001 that it was less than the figure of 1990 as 45.6 million tons or 51%, but higher than the figure of 1995 as 4.6 million tons or 12%. 28% of the consumed fuel was spent for production of electric and heat energy. Production of electric energy totalled to 21.6 billion kilowatt-hour in 2008 and it increased as 1.7% in comparison with 2003. 88.2% of electric energy produced in 2008 is shared by heat

Picture



power stations, 6.8% by water power stations and 0.8% by mobile generators. Heat power stations cause to high level air pollution because of their functioning with gas and heavy oil (residual).

There observed a decline in fuel equivalent spent for per kilowatt-hour of electric energy produced in power stations within the past years. In this period average 300 gram fuel equivalent was spent for per kilowatt-hour in a year.

Considering electric energy production of 19.1 billion kilowatt-hour in heat power stations within 2008, then air pollution extent can be imagined.

Oil extraction industry historically played a leading role in industrial complex of the country. This sector constituting a basis of fuel-energetics material supply determined structure of our economy and led to creation of industry branches such as oilrefinery, oil-chemistry and chemistry. At the present, role of this sector increased more.

There established State Oil Company including enterprises on oil refinery and end products after gaining independency of Azerbaijan. This body was granted authorities necessary for execution of prospecting and development of oil & gas fields onshore and in Azerbaijan sector of the Caspian sea in order to provide development of oil-gas complex and to satisfy

fully demand of consumers for energy sources. Presently, the Company carried out oil & gas operations in 22 thousand ha area onshore and 10 thousand km² area offshore.

The SOCAR employs 60400 persons, including 15500 women. Out of them 46000 work for oil & gas production, 6050 for refinery complex and 8350 for construction and other supporting units.

At the present, there extracted oil and gas from 54 fields. 37 of them are situated in onshore area, 17 in shelf of the Caspian sea. All fields became wateriness in high extent due to long-term operation, except to Gunashli and Chirag offshore fields and oil production decreased sharply. As more than 70% of well stock are technically unsuitable, they are considered to be potential pollution source. Trestle and trestleside scaffolds and stationary/fixed platforms which expired its operation life, pollute the sea, too.

Joint development of three large oil fields (Azeri, Chirag and deepwater sections of Gunashli) launched in Azerbaijan sector of the Caspian sea according to Contract signed between the SOCAR and the Consortium in which eleven foreign companies from six countries included on 1994 in order to eliminate the current situation. There established Azerbaijan International Operating Company (AIOC) for implementation of the Contract. Following this Contract more 20 large-scale oil contracts were signed with foreign oil companies on joint prospecting, development and production sharing of offshore and onshore oil fields and exploration targets. Good results were obtained under these contracts - Ashrafi oil field, Garabagh and Shah Daniz gas condensate fields were discovered. Shah Daniz field having one trillion m³ gas and 300 million condensate reserve is very important in growth of countrywide economy.

At the present, construction of Baku-Tbilisi-Arzurum export gas pipeline and Baku-Tbilisi-Ceyhan export oil pipelines have been completed and commissioned. Length of the pipeline passing through Azerbaijan is 443 km and width 44 m. Protection zone of the pipelines cover 2517.8 ha area in 58 m width and surface technical facilities involve 25.3 ha area and these lands were leased for 60 years.

It should be noted that the Environment Impact Assessment documents are compiled and agreed with the Ministry of Ecology and Natural Resources in all phases of oil fields development in order to minimize environmental impact.

Production of crude oil totalled to 44.5 million tons in 2008, including 96% offshore and 4% onshore. So, the decline in oil production was prevented which continued yearly due to objective causes since the end of 1960 years and oil production was higher as 2.9 times in comparison with 2003. Gas recovery totalled to 15.5 billion m³ (including 99.2% offshore) in 2008 and it increased as three times in comparison with 2003. Oil production totalled to 42.3 million tons and gas recovery to 13.5 billion m³ that within ten months of 2009 that it equals to 112.1% and 102.8% as compared to similar period of the previous year.

Oil extraction and oil refinery industry had great impact upon the environment, including biological diversity. There started oil extraction by industrial method in Azerbaijan in 1871 in Balakhany-Sabunchu-Ramana fields of Absheron peninsula. Then new oil & gas fields were discovered and on stream without performance of necessary technical accomplishment works following one another in the peninsula and other onshore areas of the republic and Azerbaijan sector of the Caspian. Land storages and open canals were used in collection and transportation of well products for tens years. Ecosystems of both onshores and offshores were seriously damaged resulted from usage of elementary technical means in initial phases

and, absence of adherence to operational and maintenance conditions in drilling, operation and refurbishment of wells and, indifferent attitude to nature conservancy actions. Particularly, land resources of Absheron suffered considerably and 7400 ha area became completely unusable together with boring and oil sludge, produced waters, various chemical reagents, heavy metals and other repugnant wastes. Natural lakes were polluted and there appeared multiple artificial lakes. Oil and petroleum derivatives settled down to 3 m or more and polluted subsurface waters hereof. Local areas contaminated with natural radioactive nuclides were discovered in sites of major mines. It should be noted that Absheron peninsula is one of the passage routes of migratory birds.

A great extent of lands were contaminated with petroleum derivatives in areas of oil fields in Guba-Caspian zone and medium and lower Kura valley.

30 thousand m³ household-sanitary sewages diverted to the Caspian, 81 thousand tons of repugnant substances, including 58 thousand tons of hydrocarbons emitted in 2003. Presently, pollution of the environment is ongoing due to overdepreciation and obsolescence of oil mining and treatment facilities.

Oil & gas extraction enterprises intermediately impact upon environmental components and other industry branches. Pollution of sea waters adversely impact to its fauna and flora and restricts shipping and fishery in any extent.

Energy shortage occurs in electricity networks of Nakhichevan Autonomous Republic. Therefore, power energy is transmitted from neighbouring Iran and Turkey with intervals. Water power station over Araz river constructed jointly with Iran does not satisfy demand for energy. Great difficulties emerge in delivery of gas and pit coal fuels because of being under blockade condition of the region by Armenia Republic.

No any oil are not extracted in Nakhichevan Autonomous Republic, but geological prospecting works conducted in many areas of the region proved existence of oil hereof.

Presently, capital works are planned to be started in this sphere.

3.2.8. Transport

Rise in transportation volume through International Eurasia transport corridor functioning within the framework of TRASECA programme, increased number of transport enterprises and individuals engaged in automobile transport as well as growth in industry, agriculture, construction and other major production lines of the country in comparison with the previous years, seriously effect to development of transport.

Number of transport enterprises which recorded at State Register of accounting units as legal entities, increased as 1.7% in comparison with the previous year totalled to 1220 and natural persons engaged in automobile transport without establishment of legal entity totalled to 40000 by increasing as 28.4% up to January 1, 2009.

Number of vehicles existing in the republic increased as 860.1 thousand in 2008 or as 348.6 thousand in comparison with 2003. 81.4% of vehicles is shared by cars, 13.1% by trucks, 3.4% by buses and remaining part by other automobiles. Number of private cars subject to per hundreds families equalled to 36 in the past year. Cargo transportation by legal entities and natural persons working for transport sector in 2001 increased as 183.1 million tons or 66.4% in comparison with 2003.

Rehabilitation of ancient Silk Way is one of the successful milestones during independency of our country. Creation of favorable condition in useful and safe transportation and delivery of cargo on mutual basis among countries of Asia-Caucasus-Europe since 1996 continued its good outcomes in the past years and it has become a corridor could compete with regional transport corridors and, remained to be one of key factors seriously effecting upon development of countrywide economy and forming of ground transport complex. Cargo transportation through the corridor increased as 19.0%, transit cargo transportation as 37.3% and amount of income generated from cargo transportations increased as 29% in 2008 in comparison with 2003.

It should be noted that emissions from motor transport are dominant in pollution of countrywide atmosphere. 642 thousand tons or 70% of overall volume of noxious emissions generated from automobile transport.

Density of transport routes and construction of highways and pipelines result in fragmentation of living circumstances and it impacts upon protection and recovery of biological diversity . (Annex 7.1)

3.2.9. Tourism

Azerbaijan is a country possesses rich nature, historical and cultural potential for development of tourism. Azerbaijan became a place could cause to keen interest of both internal and foreign tourists during the Soviet regime. There were various sites serving for tourists in majority regions of the republic. But such sites became unserviceable due to uncared attitude until the last years, approximate 30% of tourist sites were out of order and 60% of them were settled by the refugees.

However, favorable natural climate condition and enrichment of cultural-historical sites of the republic as well as rapid development of tourism infrastructure and services to the level of worldwide standards led to yearly growth of number of the tourists arriving in the country and thus, tourism has become one of the priority lines of the country economy.

The Ministry of Culture and Tourism executes state tourism policy in the country. "State Programme on Tourism Development for 2002-2005 years" was compiled and implemented successfully by this body in 2002. Considering prospectivity of this sphere and in view of enhancement of tourist flows to the country in future, "State Programme on Tourism Development for 2009-2013 years" has been compiled as a continuance of reforms and presently, it is under ratification. Besides, according to proper Decree of the President of Azerbaijan Republic there established special tourism and recreation zones in order to integrate internal tourism market into international tourism market.

Several exhibitions are held for organization of countrywide tourism propaganda and involvement of foreign investors to this sector and thematic publications are issued to introduce local traditions, national kitchen and cultural-national heritage. Tourism Institute was established

in 2006, then regularly working courses on different professions were arranged attached to it and furthermore, various training programmes are implemented under support of the World Trade Organization and the Ministry of Culture and Tourism of Turkey in order to raise qualification and upgrade professional skills of employees working for tourism.

At the present, more than 300 hotels and inns and more than 250 tourism centers work for the country. Significant works are carried out towards construction of hotel centers meeting international standards and, improvement of service quality. Number of foreign citizens who visit to our country, rises up every year. Number of persons arriving in the country totalled to two millions in 2008 that it is higher as 42% in comparison with 2007.

International experience and practice are used for achievement of the successes planned on tourism. So that there signed agreements on tourism cooperation with 20 countries and such draft agreements with 27 countries are discussed. Azerbaijan cooperates with many international regional organizations on tourism, including the World Tourism Organization, Islamic Conference Organization, Economic Cooperation Organization, Organisation of Economic Cooperation and Development, Black Sea Economic Cooperation Organization, GUAM and Tourism Council of the CIS member nations.

Picture



Chapter 4. Conclusions: Progress Towards the 2010 Target and Implementation of the Strategic Plan

4.1. Protected areas system

4.1.1. Description of status, location and scope of protected areas

Pursuant to legislation of Azerbaijan Republic, protected areas and sites are national wealth of Azerbaijan Republic and cover natural complexes having specific ecologic, scientific and aesthetic value.

Protected areas of Azerbaijan Republic differed in conservation goals and usage features are assigned the following status:

- state nature reserves, including biosphere reserves
- national and natural parks
- ecological parks
- natural monuments
- state nature sanctuaries
- zoological parks
- botanical and dendrological parks
- sanatoria and resorts.

Activity of the existing protected areas necessitates execution of the scientific, conservative and tourism designated functions that it constitutes basis of activity of the same areas and their institutional commitments.

According to the Law №840/IG dated March 14, 2000 “On protected areas and sites” of Azerbaijan Republic:

State nature reserves - areas having status of nature conservative and scientific-research institutions, which established for the purpose of preservation of typical and exotic natural complexes and sites in natural condition and study of progress of natural processes and occurrences. Functions of the state nature reserves are as follows:

- to carry out conservation of natural areas in order to preserve natural condition of genebank, biological diversity, ecological systems, natural complexes and sites;
- to organize and conduct scientific researches and to compile “Nature chronicle”;
- to implement ecological monitoring within the framework of state monitoring of the environment and natural resources;
- to participate in state ecological expertise of location designs and schemes of farming areas and other facilities;
- to assist in training of scientific personnel and specialists on environmental protection and nature conservation.

National parks - areas having status of nature conservative and scientific-research institutions where natural complexes of preferential ecological, historical, aesthetic and likewise importance located on and, used for nature conservative, enlightenment, scientific, cultural and other purposes. Functions of the national parks are as follows:

- to preserve natural complexes, exotic and standard natural zones, historical-cultural sites;
- to create opportunities for tourism and rest (recreation);

- to develop and apply scientific methods of nature conservation and ecological enlightenment;
- to enlighten the population from ecological standpoint;
- to implement ecological enlightenment;
- to restore the damaged natural and historical-cultural complexes and sites.

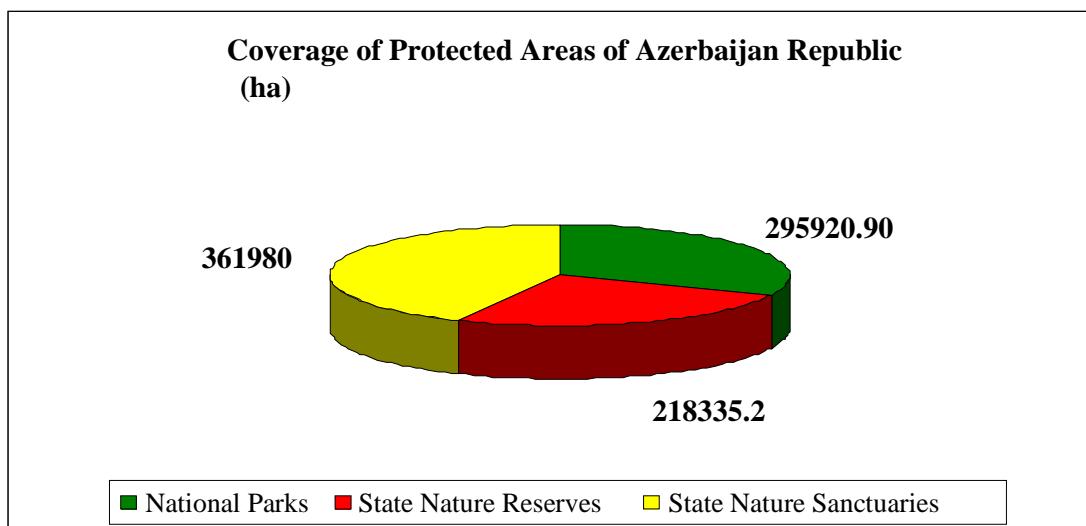
State natural sanctuaries - areas of particular importance for protection or restoration of natural complexes and or their components as well as for maintenance of ecological balance. State natural sanctuaries can be organized in land plots of owners, users and tenants without disappropriation of them in a manner provided by the legislation. Functions of the state natural sanctuaries are as follows:

- to protect or restore natural complexes and or their components;
- to maintain ecological balance;
- to ensure adherence to restrictions set in farming activity of land owners, users and tenants depending on establishment profile (objective);
- to implement scientific, cultural, educational and limited farming activities.

First preservations, i.e. Goygol, Zagatala and Gizilaghaj state nature reserves were established in 30th years of the last century in order to protect charming nature of Azerbaijan. Adoption of "Law on Azerbaijan Nature Conservation" in 1969 caused a rise in number and growth of the reserves in our country. As a result, additional 6 other protected areas - Shirvan, Basitchay, Garayazi, Aghgol, Ismayilly, Ilisu and Altiaghaj state nature reserves were established.

It should be noted that there existed 14 state nature reserves and 20 state nature sanctuaries with total area of 478000 ha in the territory of our country till 2001.

For conformity with up-to-date requirements of protected areas system in the Republic, conservation of all necessary ecosystems and key species and creation of buffers and protective zones, departments and administrations at status of National Park have been established since 2003 for the first time in the country history through more sustainable actions within the last years. Actions carried on enhancement and expansion of Protected Areas since 2003 were continued according to "Towards effective protected areas system - A guide for action on implementation of PAs Work Programme of Convention of Biological Diversity" and presently, there exist protected areas at total 876236.1 ha, including 8 National Parks, 11 state nature reserves and 24 state nature sanctuaries in our country.



Moreover, Gobustan state nature reserve and Baku Seaside National Park (area of 80 ha) are functioning, there exist 2083 centennial trees, 37 geological and paleontological sites and 15 thousand ha endemic and valuable forest lands.

While speaking on countrywide protected areas and their potential it should be noted regretfully that Basitchay and Gara-gol state nature reserves, Dashalty, Lachin, Gubadly, Arazboyu state nature sanctuaries and a number of valuable and exotic natural monuments left uncared in the territories of our republic, which occupied as a consequence of armenian aggression. There are hundreds of centennial trees, 13197.5 ha valuable forestries, 6 geological sites in the conserved regions with total area of 44.3 thousand ha which undergone occupation and are being destroyed by armenian plunderers savagely.

Brief information on national parks and state nature reserves of Azerbaijan Republic

Shirvan National Park

Established at 54373.5 ha in administrative areas of Garadagh district of Baku, Salyan and Neftchala regions on July 5, 2003. Shirvan National Park is located at 54373.5 ha of protected area overall 65580.0 ha in south-eastern Shirvan plain of Kura-Araz lowland, Shirvan State Nature Reserve at 6232.0 ha and Bandovan State Nature Sanctuary at 4930.0 ha.

Key objective in establishment of National Park aims to conserve semidesert landscape, gazelles included in the Red Book of Azerbaijan Republic and fauna species specific for the area.

Aghgol National Park

Established at 17924 ha in administrative areas of Aghjabedi and Beylagan regions on July 5, 2003. Shirvan National Park is located at 54373.5 ha.

Aghgol was included in “Ramsar List” of Ramsar Convention on wetlands of international importance as main habitats of water birds, being wintering place of migratory bird species as significant wetland.

Hirkan National Park

Established on February 9, 2004. The National Park is located in south-eastern of Azerbaijan, i.e. in administrative areas of Lankaran and Astara regions. Its area is 40358 ha. Main purpose in establishment of National Park aims at complex protection of nature in the same area and conservation of unique relic and endemic plant species of III era.

Altiaghaj National Park

Established in administrative areas of Khizi and Siyazan regions on August 31, 2004. Its area is 11035 ha.

Main purpose in establishment of the National Park aims at conservation of natural landscapes, flora and fauna species of south-eastern slopes of Great Caucasus.

Absheron National Park

Established at 783 ha in administrative area of Azizbayov district of Baku city on February 8, 2005. The National Park is located in south-eastern end of Absheron peninsula - Shah Dili area.

Main purpose in establishment of Absheron National Parks aims at conservation of rare nature complexes, sites, Khazar seal, gazelle and wetlands.

Shahdag National Park

Established in administrative areas of Guba, Gusar, Ismayilly, Gabala, Oghuz and Shamakhy regions on December 8, 2006. Its area totals to 115895 ha. Ismayilly and Pirkulu State Nature Reserves were included in area of the National Park.

Objective in establishment of Shahdag National Park is to restore and protect globally important mountain forests and pasture ecosystem located in uplands including multiple endemic and endangered species and transboundary migratory animals.

Goygol National Park

Established in administrative areas of Khanlar, Dashkasan and Goranboy regions on April 1, 2008. Its area totals to 12755 ha.

The National Park was established for the purpose of conservation of typical landscape, fauna and flora of Little Caucasus.

Gizilaghaj State Nature Reserve

Established on July 3, 1929. Its area is 88360 ha. There exists Little Gizilaghaj State Nature Sanctuary at 10.7 thousand ha area together with the reserve.

Main purpose in establishment of the reserve aims at creation of favorable condition for study of natural complex in the area, protection and growth in number of wildlife inhabited here.

Gizilaghaj State Nature Reserve was included in “Ramsar List” of Ramsar Convention on wetlands of international importance as main habitats of water birds in 1976 and therefore, it is considered to be internationally important reserve.

Considering possible attraction of multiple local and foreign tourists to the area by variety of the reserve nature and richness of flora and mainly of fauna, it is planned to establish first seaside national park at the area of approximate 100000 ha on the basis of the reserve in the future.

Zagatala State Nature Reserve

Established in administrative areas of Zagatala and Balakan regions in 1929. Its area totals to 47349 ha.

Main purpose in establishment of Zagatala State Nature Reserve aims at conservation of natural complex, flora and fauna of south slope of Great Caucasus.

Turyanchay State Nature Reserve

Established on May 6, 1958. Its area is 22488 ha. The reserve is located in administrative areas of Aghdash, Oghuz, Yevlakh and Gabala regions.

Objective in establishment of Turyanchay State Nature Reserve is to protect one of arid forest areas, i.e. Bozdagh arid forest landscape complex being the principal one.

Shirvan State Nature Reserve

Established in administrative areas of Salyan and Neftchala regions on April 30, 1969. Its area is 6232 ha.

Objective in organization of the reserve is to conserve and rehabilitate gazelles included in the Red Book of Azerbaijan Republic and other fauna species specific for this area. The reserve is functioning in the composition of Shirvan National Park.

Basitchay State Nature Reserve

Established in administrative area of Zangilan region on July 4, 1974. Its area totals to 107 ha. It was arranged for conservation of rare natural plane forest.

The reserve is under occupation of armenian aggressors presently and rare natural plane trees located in the reserve area are savagely cut off by the armenians.

Garayazy State Nature Reserve

Established in administrative area of Gazakh region on March 2, 1978. The area is 9658 ha. Nature complex of well-known tugai (riparian) forests is protected in the reserve.

Ilisu State Nature Reserve

Established in administrative area of Gakh region on February 20, 1987. Area of the reserve is 17381.5 ha.

Objective in organization of the reserve is to conserve and restore natural complex.

Garagol State Nature Reserve

Established in administrative area of Lachin region on October 17, 1987. The area totals to 240 ha and is one of the high mountainous lakes being particularly interesting. Alp has landscape complex. This lake is characterized in important hydrological and economy.

The reserve is under occupation of armenian aggressors presently.

Eldar Shamy State Nature Reserve

Established in administrative area of Samukh region on December 16, 2004. The area covers 1686 ha.

Objective in establishment of the reserve is to conserve rare Eldar shamy forest.

State Nature Reserve for Mud volcanoes range of Baku and Absheron peninsula

Established on August 15, 2007. 52 mud volcanoes were titled as state nature reserve. Objective in establishment of the reserve is to organize elimination of anthropogenic impacts upon mud volcanoes and protection of them which located in Baku and Absheron peninsula.

Korchay State Nature Reserve

Established in administrative area of Goranboy region on April 1, 2008. The area covers 4833.6 ha.

Objective in establishment of the reserve is to conserve rare animal and bird species.

There created Zangazur National Park named after academician Hasan Aliyev on the basis of Ordubad National Park and Shahbuz State Nature Reserve on November 25, 2009. Area of National Park is 42797.4 ha.

Alongside with National Park, Ordubad State Nature Sanctuary is located in 27870.0 ha of the protected area.

Objective in establishment of Zangazur National Park aims at protection of separate components in the area, availability of the unique climate, relief and other physical-geographical features and conservation of various animals, including endemic species.

There created Arpachay State Nature Sanctuary in 68911 ha area of Sharur region on June 26, 2009.

Objective at establishment of Protected Areas aimed to protect rich and endemic vegetation and wildlife.

(Appendix 3)

4.1.2. Evaluation of gaps in protected areas system

Gaps existing in protected areas of Azerbaijan Republic are as follows:

- a) uncontrolled existence and destruction of Basitchay and Garagol State Nature Reserves, Dashalty, Lachin, Gubadly, Arazboyu State Nature Sanctuaries, more than 150 centennial trees, 13197.5 ha valuable foresteries and 6 geological sites in the occupied territories of our republic caused by Armenian aggression;
- b) development of countrywide livestock farming, especially sheep-breeding and subsequently, appearance of facts of illegal grazing in PAs because of need for pasture lands (number of countrywide sheep exceeds 8 millions);
- c) low level knowledge of conservation employees, lack of highly educated personnel, including scientific workers due to insufficiency of salaries and wages;
- d) non-availability of vehicles (car, marine transport and horse) for efficient organization of the conservation as a result of shortage in supply of all PAs with vehicles;
- e) absence of air transport means for inventory taking of wild animals in PAs and operative organization of conservation work and lack of proper funds for their lease hereof;
- f) noncompletion of infrastructure building fully up today and lack of management plans and modern radio receiver sets in major PAs notwithstanding there carried out large-scale actions towards creation of necessary infrastructure in PAs within the last years;

- g) driving of livestock and cattle into the area and coming of people hereof for the purpose of recreation, hunting and wood procurement due to absence of border marks in major parts of PAs boundaries and nondigging of protection trenches in necessary parts;
- h) weakly organization of enlightenment of local communities living in frontier with PAs and absence of interest for them in protection of these areas;
- i) low level knowledge of specialists for arrangement of ecotourism in National Parks and poor necessary conditions for tourists in recreational zones and etc.

In Nakhichevan Autonomous Republic a number of villages are located along the borders of the protected areas, and summer pastures near Zangazur National Park and Ordubad State Nature Sanctuary are significantly overgrazed, being used by up to 250,000 head of livestock each year.

4.2. Conservation outside Protected Areas

4.2.1. In situ conservation measures in the wider landscape

The President of Azerbaijan Republic signed a Decree №1152 dated February 18, 2003 “National Programme on forest renewal and enhancement in Azerbaijan Republic” and according to the Decree the Ministry of Ecology and Natural Resources prepared National Programme on forest renewal and enhancement by involving state and local self-governing bodies and scientific organizations. There carried out actions for forest renewal and reafforestation at 69700 ha area under the Programme. 66400 ha of them are shared by the Ministry of Ecology and Natural Resources.

There established regional forest seed orchards such as Absheron, Guba and Kura (Hajigabul) in order to create plant materials containing various trees and shrubs required for establishment of protective forest lands in Caspianside sandy places. More than 21 million various trees and shrubs were cultivated in the above regional forest seed orchards from their establishment time up today. The Ministry of Ecology and Natural Resources carried out reafforestation works at total 60674 ha area from its establishment time up today that 24132 ha are shared by newly planted forests. At the same time, total 200 million plant materials were cultivated in various cultivars and strains comprised by trees and shrubs within this period. Seed harvesting totalled to 1155 tons.

Moreover, launching of National Monitoring system on 2001 aims at collection of environmental monitoring data and tracking of processes in water basins, soil and atmosphere and, assessment of anthropogenous impacts upon the environment. The Ministry of Ecology and Natural Resources has created special network engaged in collection of information and data on biodiversity monitoring, i.e. vegetation and forests and animal population within this structure.

4.2.2. Ex situ conservation

In general, there is little *ex-situ* propagation or reintroduction of rare native species in Azerbaijan, despite recent efforts to improve the situation including legislation to support *ex-situ* conservation³⁹. In particular, there is a real lack of local expertise in *ex-situ* conservation.

³⁹ Presidential Decree No 675 IQ (1999) and Cabinet of Ministers Decree No 117 (2000)

There is a need to develop a coherent strategy for *ex-situ* conservation, captive breeding and reintroduction in Azerbaijan, in line with international (IUCN) guidelines. As a start, laws are currently in force, that protect threatened species from unlicensed collection for unofficial breeding or propagation programmes.

Plant propagation and botanic gardens

The main collection and site for plant propagation in Azerbaijan is the Mardakan Tree Nursery, which was established in 1926 on a 12 ha site on the Absheron Peninsula, 40km from Baku. This garden hosts a wide collection of specimens, both of exotic and native species.

(See: Annex 8.1)

Captive breeding

The main centre for captive breeding in Azerbaijan is at the Baku City Zoological Park, which has a collection of nearly 200 different species. The zoo is active, and the size of collections has grown over the period 2001 to 2003. The collection includes a number of species that are listed on the Azerbaijan Red Book, including Mediterranean turtle (*Testudo graeca*), greater flamingo (*Phoenicopterus roseus*), Dalmatian pelican (*Pelecanus crispus*), purple gallinule (*Porphyrio porphyrio*), mute swan (*Cygnus olor*), tawny eagle (*Aquila rapax*), Peregrine falcon (*Falco peregrinus*), lammergeier (*Gypaetus barbatus*), and goitred gazelle (*Gazella subgutturosa*).

In addition, the zoo is actively involved in breeding a number of animals, including native species such as European pond turtle (*Emys orbicularis*), Mediterranean turtle (*Testudo graeca*), Caspian gecko (*Cyrtopodion caspius*), Griffon vulture (*Gyps fulvus*), purple gallinule (*Porphyrio porphyrio*), golden jackal (*Canis aureus*), wolf (*Canis lupus*), badger (*Meles meles*), and goitred gazelle (*Gazella subgutturosa*).

According to the Decree №109 dated 26, 2008 of the President of Azerbaijan Republic, works are ongoing towards creation of Zoological Park to the extent of 200 ha area responding the highest standards by the Ministry of Ecology and Natural Resources.

4.3. Organizations involved in biodiversity conservation and management

4.3.1. Government structures and agencies

The underlying legislative base pertaining to conservation of biological resources is developed by the Milli Mejlis (Parliament). Under this framework, a number of government institutions exist which contribute to the delivery of environmental policy.

- **The Ministry of Ecology and Natural Resources.** Established by Presidential Decree in 2001, the Ministry manages forestry and hunting activities (including oversight of hunting quotas and permits), oversees protection and rehabilitation of fish stocks (and other aquatic bioresources) in marine and freshwater habitats, and is also responsible for biodiversity conservation. It develops strategies for long-term and short-term approaches to sustainable development and sustainable use of biological resources. The activity of the Ministry of Ecology and Natural Resources is divided into six areas: (i) ecological policy development; (ii) ecological protection; (iii) water monitoring and management; (iv)

protection of marine (Caspian) bioresources; (v) forest management; and (vi) protected areas. Further information about the work of the Ministry can be found on their website (www.eco.gov.az).

- **The Ministry of Agriculture.** As a major land user and the biggest user of water resources in the country (using 75% of supplies) agriculture has a significant impact on biodiversity. The Ministry of Agriculture carries out work on plant protection and on the rural environment. It runs a number of research institutes, focusing on crop and vegetable cultivation, horticulture, cultivation of cotton, grapes and fodder and livestock breeding,

In addition, the Ministry of Health, the Ministry of Youth, Sport and Tourism, and the State Committee of Land and Cartography conduct some activities which are relevant to biodiversity conservation. Other relevant state organizations include:

- **State Commission of Genetic Resources on Biodiversity.** This was established by Presidential Decree in December 2002, to implement measures in line with Azerbaijan's commitments under the Convention on Biological Diversity in order to prevent the loss of genetic resources of plants, animals and microorganisms.
- **National Academy of Sciences.** This is key national scientific research organization, and operates a series of research institutes, many of which conduct work relevant to biodiversity conservation (including, among others, the Institutes of Geography, Botany, Zoology, Genetic Resources, Microbiology, Oil-Chemistry Processes and Soil Research). Further information about the work of the ANAS can be found on their website (www.science.az).

4.3.2. Non-governmental organisations

At present there are over 60 ecological NGOs and associations, of which up to 30 are on biodiversity (See Annex 9.2). Among these are scientific groups undertaking basic biodiversity research (such as the Society of Botanists, the Society of Zoologists, the Society of Geographers, the Society of Mammologists and the Azerbaijan Centre for the Protection of Birds). A number of other NGOs are active in environmental education relating to biodiversity, and have an important role in raising public awareness.

4.3.3. Business and the private sector

In addition to local private entrepreneurs a number of international corporations operate in the Republic of Azerbaijan. Representatives of local private businesses have not yet taken an active role in solving environmental problems, mainly due to the relatively early stage of business development in Azerbaijan. In general, foreign investors have been more involved in ecological protection than the local business sector. In particular, the oil sector (including companies such as BP, Exxon Mobil) has been directly involved in biodiversity protection activities, as a result of their recognition of both potential corporate impacts and social responsibility.

Of particular note is the work undertaken to date by BP, whose local operation (BP Azerbaijan) has developed the Biodiversity Strategy, in full consultation with local stakeholders. Under this strategy BP will support both short-term local projects (to be delivered by local NGOs under a small grants scheme) and longer-term regional initiatives

(such as work to rehabilitate Tugai forest along the Kura river), and will also support activities to increase public awareness about biodiversity.

Appendices

Appendix 1 - Information concerning reporting Party

Contracting Party	Republic of Azerbaijan
NATIONAL FOCAL POINT	
Full name of the institution	Ministry of Ecology and Natural Resources of the Republic of Azerbaijan
Name and title of contact officer	Mrs.Sadagat Mammadova Head of Sector Division of Environment and Nature Protection Policy Ministry of Ecology and Natural Resources
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CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)	
Full name of the institution	
Name and title of contact officer	
Mailing address	
Telephone	
Fax	
E-mail	
SUBMISSION	
Signature of officer responsible for submitting national report	
Date of submission	Submitted on the 24 th of February 2010 to the Secretariat of CBD

Appendix 2 - Information concerning the preparation of national report

National Consultants

The steering committee in the frame of the preparation of the IV National Report consists of following members:

Ministry of Agriculture of the Republic of Azerbaijan

Haziyev Mammad
Ahadov Sabir
Huseynov Gurbanali

State Statistic Committee of the Republic of Azerbaijan

Lazimova Rena

State Land and Cartography Committee of the Republic of Azerbaijan

Amirquluyev Hikmat

Ministry of Culture and Tourism of the Republic of Azerbaijan

Gahramanov Mahir

Ministry of Ecology and Natural Resources of the Republic of Azerbaijan

Division of Law
Shakaraliyev Teymur
Bakirov Anar

Division of Environment and Nature Protection Policy

Abdulhasanov Mutallim

Division of Industry Policy
Orujov Zamin

Department of Biological Diversity Protection and Specially Protected Nature Areas Development
Alizade Hikmat
Mammadova Solmaz
Abdurahmanova Nigar
Pashayev Jeyhun
Ismayilov Emin
Majidov Elshan
Mustafayev Arzu

Department of Environment Protection
Mammadov Fuzuli

Department of Reproduction and Protection of Aquatic Bioresources
Zahidli Gahraman
Hashimov Tahir

Department of Forestry Development
Aliyev Loghman
Mammadova Gulnare

National Hidrometeorological Department
Taghiyeva Umayra

Appendix 3 – Progress towards Targets of the Global Strategy for Plant Conservation and Programme of Work on Protected Areas

More than 10% of plants in Azerbaijan are considered to be under danger of extinction, 450 species of them were presented as exotic and extinct species in order to be included in second edition of the Red Book of Azerbaijan Republic. (although only 140 of them are mentioned in the current Red Book of Azerbaijan⁴⁰) and three species are listed as globally threatened in 1989 - *Iris acutiloba*, *Calligonum bakuense* and *Astragalus bakuensis*. In 1982 the government recognised that 2,124 plant species in Azerbaijan are rare, endemic, threatened, or of economic importance (Government Order number 167).

Just under 2% of the flora of Nakhichevan Autonomous Republic is listed in the Azerbaijan Red Data Book (54 species or subspecies are listed⁴¹). In addition, some species have not been found in the territory for a number of years and may have become locally extinct⁴².

Threatened Species recorded from Azerbaijan⁴³

Scientific name	English and/or Common name(s)	Azeri	Status (IUCN and CITES)	National Status
PLANTS				
<i>Sporophyta</i> - Ferns and horsetails				
<i>Dryopteris raddeana</i> (Fomin) (1911)	Радде айыдюшайи	-	-	Included in the Red Data Book of Azerbaijan.
<i>Gymnospermae</i> - Gymnosperms				
<i>Pinus eldarica</i> Medw. (1902)	Елдар шамы	-	-	Included in the Red Data Book of Azerbaijan.
<i>Pinus kochiana</i> Klotzsch ex C. Koch, (1849) (<i>Pinus hamata</i> (Stev.) Sosn.)	Кох шамы (гармагвари шам)	-	-	Included in the Red Data Book of Azerbaijan.
<i>Juniperus foetidissima</i> Willd.	Аърийли ардыж	-	-	Included in the Red Data Book of Azerbaijan.
<i>Angiospermae</i> - Angiosperms				
<i>Monocotyledonous</i> - Monocotyledons				
<i>Nectaroscordum dioscoridis</i> (Sibth. et Smith.) Stank (1966)	Рянэли нектароскордум	-	-	Included in the Red Data Book of Azerbaijan.
<i>Nectaroscordum tripedale</i> (Trautv.) Grossh. (1940)	Цыфумту нектароскодум	-	-	Included in the Red Data Book of Azerbaijan.
<i>Galanthus caucasicus</i> (Baker) Grossh. (1924)	Гафгаз хядиксяэчи	-	-	Included in the Red Data Book

⁴⁰ Red Book of Azerbaijan SSR, Published: Ishig, (1989). This classifies species by threat (0-4): extinct, endangered, rare, vulnerable or data deficient.

⁴¹ Of particular note are *Nectaroscordum tripedale*, *Ferula oopoda*, *Stenotaenia daralaghiezica*, *Campanula radula* and *Salsola tamamschiana*

⁴² For example, *Aristolochia bottae*, *Paeonia tenuifolia*, *Campanula minesterana* and *Triticum monococcum*

⁴³ In total 303 species are considered to be nationally or internationally threatened, and these are listed here.

			of Azerbaijan.
<i>Sternbergia colchiciflora</i> Waldt. et Kit. (= <i>S.alexandre Sosn.</i>) (1936)	Гышида чичякляйян шимернберэйиа, Фишиер шимернберэйасы	-	Included in the Red Data Book of Azerbaijan.
<i>Sternbergia fisheriana</i> (Herb.) M. Roem.	Фишиер шимернберэйасы	-	Included in the Red Data Book of Azerbaijan.
<i>Sternbergia lutea</i> (L.) Spreng. (1847)	Winter daffodil (<i>Capri</i> шимернберэйиа)	-	Included in the Red Data Book of Azerbaijan.
<i>Danae racemosa</i> (L.) Moench (1974)	Будаглы данайа	-	Included in the Red Data Book of Azerbaijan.
<i>Ruscus hyrcanus</i> Woronow (1907)	Щиркан бикяяри	-	Included in the Red Data Book of Azerbaijan.
<i>Crocus caspius</i> Fisch. et Mey. (1838)	Хязяр зяфяраны	-	Included in the Red Data Book of Azerbaijan.
<i>Gladiolus halophilis</i> Boiss. et Heldr. (1853)	Шоран гаръасоъаны	-	Included in the Red Data Book of Azerbaijan.
<i>Iridodictyum reticulatum</i> (Bieb.) Rodionenko= <i>Iris reticulata</i> Bieb. (1808)	Торлу ириододиктиум	-	Included in the Red Data Book of Azerbaijan.
<i>Iris acutiloba</i> C. A. Mey. (1831)	Итикянарлы сүсъян	-	Included in the Red Data Book of Azerbaijan.
<i>Iris camillae</i> Grossh.	Камилла сусъани	-	Included in the Red Data Book of Azerbaijan.
<i>Iris elegantissima</i> Sosn. (1915)	Гияянэ сүсъян	-	Included in the Red Data Book of Azerbaijan.
<i>Iris grossheimii</i> Woronow ex Grossh. (1928)	Гроссциёйм сүсъани	-	Included in the Red Data Book of Azerbaijan.
<i>Iris iberica</i> Hoffm. (1806-08)	Эчржсү сүсъани	-	Included in the Red Data Book of Azerbaijan.
<i>Iris lycotis</i> Woronow (1915)	Гурдегулавы сүсъани	-	Included in the Red Data Book of Azerbaijan.
<i>Iris paradoxa</i> Stev. (1820)	Параадоксал сүсъани	-	Included in the Red Data Book of Azerbaijan.
<i>Iris prlipkoana</i> Kem.-Neth.	Прилипко сүсъани	-	Included in the Red Data Book of Azerbaijan.
<i>Fritillaria grandiflora</i> Grossh. (1919)	Иричичяк лаляяр	-	Included in the Red Data Book of Azerbaijan.
<i>Lilium ledebourii</i> (Baker) Boiss. (1884)	Ледебун замбабы	-	Included in the Red Data Book of Azerbaijan.
<i>Merendera candissima</i> Micz. et Grossh. (1928)	Аъаран данагыран	-	Included in the Red Data Book of Azerbaijan.
<i>Muscat elegansissimum</i> Schchian (1947)	Гияянэ илансоъаны	-	Included in the Red Data Book

			of Azerbaijan.
<i>Ornithogalum hyrcanum</i> Grossh. (1929)	Циркан хынжалаусу	-	Included in the Red Data Book of Azerbaijan.
<i>Scilla atropatana</i> Grossh. (1935)	Атрапатен зүмрүдчиччайи	-	Included in the Red Data Book of Azerbaijan.
<i>Tulipa biebersteiniana</i> Schult. et Schull. Fil. (1829)	Биберштейн даълаляси	-	Included in the Red Data Book of Azerbaijan.
<i>Tulipa florenskyi</i> Woronow (1924)	Флоренски даълаляси	-	Included in the Red Data Book of Azerbaijan.
<i>Tulipa julia</i> C.Koch (1948)	Йулайа даълаляси	-	Included in the Red Data Book of Azerbaijan.
<i>Tulipa karabachensis</i> Grossh. (1936)	Гарабаъ даълаляси	-	Included in the Red Data Book of Azerbaijan.
<i>Tulipa schmidtii</i> Fomin (1909)	Шимит даълаляси	-	Included in the Red Data Book of Azerbaijan.
<i>Tulipa eichleri</i> Regel.	Ейхлер даълаляси	-	Included in the Red Data Book of Azerbaijan.
<i>Cephalanthera longifolia</i> (L.) Fritsch. (1888)	Үзүнйарнаң тозбаши сяцляб	-	Included in the Red Data Book of Azerbaijan.
<i>Himantoglossum formosum</i> (Stcv.) C.Koch = <i>Loroglossum formosum</i> Stev. (1908)	Гаяянэ гайышлячак	-	Included in the Red Data Book of Azerbaijan.
<i>Limodorum abortivum</i> (L.) SW (1799)	Намамам лимодорум	-	Included in the Red Data Book of Azerbaijan.
<i>Orchis purpurea</i> Huds. (1762)	Фырфыр сяцляб	-	Included in the Red Data Book of Azerbaijan.
<i>Ophrys caucasica</i> Woronow ex Grossh.	Гагаз гаш сяцляби	-	Included in the Red Data Book of Azerbaijan.
<i>Steveniella satyrioides</i> (Stev.) Schlechter (1918)	Сатериодвари стевениелла	-	Included in the Red Data Book of Azerbaijan.
<i>Paeonia mlokosewitschii</i> Lomak (1897)	Млокосевик ж пиону	-	Included in the Red Data Book of Azerbaijan.
<i>Ammochloa palaestina</i> Boiss. (1853)	Фялястин гүмому	-	Included in the Red Data Book of Azerbaijan.
<i>Avena ventricosa</i> Bal. (1854)	Шишикин вялямир, Шишикин щажасагүйрг	-	Included in the Red Data Book of Azerbaijan.
<i>Stipa pellita</i> (Trin, el Rupr.) Tzvel. (1966)	Түкжекли шийяав	-	Included in the Red Data Book of Azerbaijan.
<i>Triticum monococcum</i> L. (1753)	Тякдянили бүйда	-	Included in the Red Data Book of Azerbaijan.
Dicotyledonae - Dicotyledons			
<i>Dorema glabrum</i> Fisch. et Mey.	Dorema (Чылпаг дорема)	-	Included in the

(1835)			Red Data Book of Azerbaijan.
<i>Carpodium platycarpum</i> (Boiss et Hanskn.) Schishk.	<i>Орагмейвя капонодуум</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Ferula caspica</i> Bieb. = <i>F. caucasica</i> Korov. (1808)	<i>Гафгаз иланкюләяси</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Ferula oopoda</i> (Boiss. et Buhse) Boiss. (1872)	<i>Йұмуртавари иланкюләжиси</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Ferula persica</i> Willd. (1797)	<i>Иран иланкюләяси</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Ferula szowitsiana</i> D. C.	<i>Шовитс иланкюләяси</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Smyrniopsis oneberi</i> Boiss. (1936)	<i>Оше ляляклияси</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Stenotaenia macrocarpa</i> Freyn et Sinl. ex Freyn. = <i>S. daralaghiezica</i> (Takhl.) Schischk. (1949)	<i>Иримейвя стенотенийа</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Ilex hyrcana</i> Pojark. (1947)	<i>Циркан шымшияси</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Hedera pastuchowii</i> Woronow (1932)	<i>Пастухов даисармашыбы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Aristolochia bottae</i> Jaub. et Spach (1842-43)	<i>Ботта зярвянди</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Cladochaeta candissima</i> (Bieb.) DC. (1837)	<i>Парлаг кладохета</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Gundelia tournefortii</i> L. (1753)	<i>Түрнегор гунделлийасы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Lactuca takhtadzhianii</i> Sosn.	<i>Тахтажсан сүдлямяси</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Pyrethrum komarovii</i> Sosn. (1945)	<i>Камаров биряому</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Pyrethrum kotschyi</i> Boiss. (1855)	<i>Кочи биряому</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Scorzonera grossheimii</i> Lipsch. et Vass.	<i>Гроссциейм тякясаггалы, кечи йемлийи</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Scorzonera pulchra</i> Lomak. (1897)	<i>Эюзял тякясаггалы, кечи йемлийи</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Scorzonera pusilla</i> Pall. (1804)	<i>Кичик тякясаггалы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Telekia speciosa</i> Schred.) Baumg. (1816-46)	<i>Эюзял телекийа</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Alnus subcordata</i> C. M. Mey.	<i>Црякйарнаң гызылаňаң</i>	-	Included in the

(1831)			Red Data Book of Azerbaijan.
<i>Betula raddeana</i> Trautv.(1887)	Радде тозаражы	-	Included in the Red Data Book of Azerbaijan.
<i>Physoptychis caspica</i> (Habl.) V. Boczan.= <i>P. gnaphalodes</i> (DC) Boiss. (1867)	Хязар бозговаж	-	Included in the Red Data Book of Azerbaijan.
<i>Pseudovesicaria digitata</i> (C. A. Mey.) Rupr.(1869)	Бармагвари гөваг	-	Included in the Red Data Book of Azerbaijan.
<i>Buxus sempervirens</i> L. = <i>B. colchica</i> Pojark.+ <i>B. hyrcana</i> Pojark.(1907)	Common box (Щамшияшыл шумыад)	LR/nt ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Gleditsia caspia</i> Desf.(1809)	Каспи, Хязар шейтанаражы	-	Included in the Red Data Book of Azerbaijan.
<i>Campanula radula</i> Fisch. ex Tchih. (1860)	Шыалы зянэчичайи	-	Included in the Red Data Book of Azerbaijan.
<i>Euonymus velutina</i> Fisch. et Mey (1838)	Мякмари эярмяшов	-	Included in the Red Data Book of Azerbaijan.
<i>Anabasis brachiata</i> Fisch. et Mey. ex Kar. et Kir. (1842)	Шамданвари юлдирэян	-	Included in the Red Data Book of Azerbaijan.
<i>Anabasis eugeniae</i> Iljin (1937)	Йевэни юлдирэяни	-	Included in the Red Data Book of Azerbaijan.
<i>Corylus colurna</i> L.= <i>C. cævorum</i> V.Petrov.(1936)	Turkish hazelnut (<i>Марал</i> фындыбы)	-	Included in the Red Data Book of Azerbaijan.
<i>Diospyros lotus</i> L.(1753)	Date plum (<i>Гафгаз</i> хурмасы)	-	Included in the Red Data Book of Azerbaijan.
<i>Rhododendron caucasicum</i> Pall. (1784)	Гафгаз ханымяли	-	Included in the Red Data Book of Azerbaijan.
<i>Rhododendron luteum</i> Sweet (1830)	Сары ханымяли	-	Included in the Red Data Book of Azerbaijan.
<i>Euphorbia grossheimii</i> Prokh.(1930)	Гроссцием сүддүйини	-	Included in the Red Data Book of Azerbaijan.
<i>Astragalus bakuensis</i> Bunge (1868)	Бакы эяяни	-	Included in the Red Data Book of Azerbaijan.
<i>Astragalus nachitschevanicus</i> Rza-zade (1954)	Нахчыван эяяни	-	Included in the Red Data Book of Azerbaijan.
<i>Astragalus kubensis</i> Grossh. (1933)	Губа эяяни	-	Included in the Red Data Book of Azerbaijan.
<i>Astragalus paradoxus</i> Bunge (1859)	Гярибә эяяни	-	Included in the Red Data Book of Azerbaijan.
<i>Astragalus prilipkoanus</i> Grossh. (1936)	Приликко эяяни	-	Included in the Red Data Book of Azerbaijan.
<i>Castanea sativa</i> Mill.	European chestnut (<i>Ади</i>	-	Included in the

	<i>шабалыд)</i>		Red Data Book of Azerbaijan.
<i>Quercus boissieri</i> Reult.= <i>Q. araxina</i> (Traulv.) Grossh. (1930)	<i>Боасийе палыды, Араз палыды</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Quercus castaneifolia</i> C.A.Mey.(1831)	<i>Шабалыдтарнаг палыд</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Platanus orientalis</i> L.	Oriental planetree (<i>ииярг чинары</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Gentiana lagodechiana</i> (Kusn.)Grossh. (1932)	<i>Лагодех ажычиччайи</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Globularia trichosantha</i> Fisch.et Mey.(1879)	<i>Дарлячак глобуларийа</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Parrotia persica</i> (DC.) C.A.Mey. (1831)	<i>Дамираъажы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Anogramma leptophylla</i> (L.) Link	<i>Назиктарнаг анограмма</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Hypericum formosissimum</i> Takht.	<i>Эюзял дазы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Pterocarya pterocarpa</i> (Michx.) Kunth exI.Iljinsk.(1824)	<i>Ганадмейвя йалангоз</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Acantholimon schemachense</i> Grossh. (1931)	<i>Шамахы тыс-тысы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Acantholimon tenuiflorum</i> Boiss. (1846)	<i>Назикчичак тыс-тыс</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Alcea kusariensis</i> (Iljin) Iljin ((1949)	<i>Гусар эңхятми</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Alcea lenkoranica</i> Iljin (1949)	<i>Лянкяран эңхятми</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Alcea sachsachanica</i> Iljin (1940)	<i>Саъсаан эңхятми</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Marsilea strigosa</i> Willd.	<i>Сярттықлы марсиллия</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Ficus hyrcana</i> Grossh.	<i>Циркан янксири</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Albizia julibrissin</i> Durazz. (1772)	<i>Лянкяран эңлябришини, Иняк акасийасы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Nelumbo caspica</i> (DC) Fisch. (<i>Nelumbium caspica</i> (DC.) Fisch.) (1823)	<i>Шанаңчиля</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Nymphaea alba</i> L. (1753)	European white waterlily (<i>Аб сузанбабы</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Nymphaea candida</i> J. et C. Persl	<i>Гар сузанбабы</i>	-	Included in the

			Red Data Book of Azerbaijan.
<i>Calligonum bakuense</i> Litv. (1922)	Бакы жузгуну	-	Included in the Red Data Book of Azerbaijan.
<i>Calligonum polygonoides</i> L. (1753)	Гырхбұйым жузгун	-	Included in the Red Data Book of Azerbaijan.
<i>Rheum ribes</i> L. (1973)	Гарағат рявянди	-	Included in the Red Data Book of Azerbaijan.
<i>Primula juliae</i> Kusn.(1899)	Йүлийа новрузиччайи	-	Included in the Red Data Book of Azerbaijan.
<i>Cyclamen elegans</i> Boiss. et Buhse	Зяриф мешінновруззәңли	-	Included in the Red Data Book of Azerbaijan.
<i>Punica granatum</i> L.	Pomegranate (<i>Ади нар</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Anemone kuznetzowii</i> Woronow et Grossh.(1930)	Күзнетсов ясмаси	-	Included in the Red Data Book of Azerbaijan.
<i>Frangula grandiflora</i> (Fisch. el Mey.) Grub.(1949)	Ирийарнақ кюөрек мірдяшир	-	Included in the Red Data Book of Azerbaijan.
<i>Cotoneaster saxatilis</i> Pojark. (1938)	Гайа довшиналмасы	-	Included in the Red Data Book of Azerbaijan.
<i>Laurocerasus officinalis</i> M. Roem.(1847)	Дярман дәфнәэйлінары	-	Included in the Red Data Book of Azerbaijan.
<i>Padus avium</i> Miel.= <i>P. racemosa</i> (Lam.) Gilib.(1785)	Гүш мешізиласы	-	Included in the Red Data Book of Azerbaijan.
<i>Pyrus boissierana</i> Buhse(1860)	Буасиіе армуды	-	Included in the Red Data Book of Azerbaijan.
<i>Pyrus eldarica</i> Grossh.(1944)	Елдар армуды	-	Included in the Red Data Book of Azerbaijan.
<i>Pyrus hyrcana</i> Fed.(1952)	Щиркан армуды	-	Included in the Red Data Book of Azerbaijan.
<i>Rosa pulverulenta</i> Bieb. (<i>Rosa azerbaidzhanica</i> Novopokr. et Rza-zade(1947))	Азярбайжан итбұрнысу	-	Included in the Red Data Book of Azerbaijan.
<i>Pyracantha coccinea</i> (L.) M. Roem. (1847)	Scarlet firethorn (<i>Гырмызы туғулыға</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Rosa karjaginii</i> Sosn.(1944)	Гаріазин итбұрну	-	Included in the Red Data Book of Azerbaijan.
<i>Rosa nisami</i> Sosn.(1944)	Низами итбұрну	-	Included in the Red Data Book of Azerbaijan.
<i>Rosa canina</i> L. (<i>Rosa sosnovskyi</i> Chrishan.(1951))	Dog rose (<i>Итбұрну</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Salix kuznetzowii</i> Laksch ex	Kuznetsov's willow (<i>Күзнетсов</i>)	-	Included in the

Goerz.	сюйцди)		Red Data Book of Azerbaijan.
<i>Atropa caucasica</i> Kreyer (1925)	Caucasian belladonna (<i>Гафгаз ханымоту</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Staphylea colchica</i> Stev.	Колхида Страфуласы	-	Included in the Red Data Book of Azerbaijan.
<i>Taxus baccata</i> L.	English yew (эилляли гаражющря)	-	Included in the Red Data Book of Azerbaijan.
<i>Daphne transcaucasica</i> Pobed.	Transcaucasian daphne (<i>загафгазийиа жсанаварэйляси</i>).	-	Included in the Red Data Book of Azerbaijan.
<i>Stelleropsis magakjanii</i> (Sosn.) Pobed. . (1940)	Магакийан жинжисимжяси	-	Included in the Red Data Book of Azerbaijan.
<i>Trapa hyrcana</i> Woronow(1917)	Циркан суфындыбы	-	Included in the Red Data Book of Azerbaijan.
<i>Zelkova carpinifolia</i> (Pall.) C.Koch (1892)	Вялясайланғаз азат	LR/nt ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Valeriana alliariifolia</i> Adams (1805)	Сарымсағайарнағ пишикоту	-	Included in the Red Data Book of Azerbaijan.
<i>Vitis sylvestris</i> C.C.Gmel. (1905)	Меңия үзүмү	-	Included in the Red Data Book of Azerbaijan.
<i>Woodsia alpina</i> R. Br. (1823)	Alpine woodsia, Northern woodsia, Woodsie alpine (<i>Алн вүдйасы</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Lactuca takhtadzhianii</i> Sosn. (1941)	Тахтажсан сүдлямяси	-	Included in the Red Data Book of Azerbaijan.
<i>Salsola tamamsahjanae</i> Iljin (1936)	Тамамшийан шоранәси	-	Included in the Red Data Book of Azerbaijan.
<i>Zeravschania pauciradiata</i> (Tamamsch.) M. Pimen. (<i>PseuCEDANUM paucirodiatum</i> Tam. (1936))	Азишталы даңчытири	-	Included in the Red Data Book of Azerbaijan.

ANIMALS

Phylum: Annelida

Class: Hirudinoidea

Order: Arhynchobdellae

Family: Hirudinidae

<i>Hirudo medicinalis</i> Linnaeus, 1758	Тибби зяли (<i>Medicinal leech</i>)	LR/nt ver 2.3 (1994)	-
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Phylum: Molluska

Class: Gastropoda

Order: Stylommatophora

Family: Vertiginidae

<i>Vertigo angustior</i> Jeffreys, 1830	Narrow-mouthed Whorl Snail	LR/cd ver 2.3 (1994)	-
<i>Vertigo moulinsiana</i> Dupuy, 1849	<i>Des Moulin's Snail</i>	LR/cd ver 2.3 (1994)	-

Phylum Arthropoda

Class Insecta

Order Hymenoptera			
Family Apidae			
<i>Bombus (Mg.) portchinskyi</i> Radoszkowski, 1883	Portchinskii's Bumblebee (Порчински золаглы арысы)	-	Included in the Red Data Book of Azerbaijan.
<i>Bombus (Th.) mlokosievitzii</i> Radoszkowski, 1877	Mlokosievitz's Bumblebee (Млокосевич золаглы арысы)	-	Included in the Red Data Book of Azerbaijan.
<i>Bombus (Ev.) persicus</i> Radoszkowski, 1883	Persian Bumblebee (Фарс золаглы арысы)	d-	Included in the Red Data Book of Azerbaijan.
Order: Odonata			
Family: Cordulegastridae			
<i>Cordulegaster mzymtae</i> Bartenev, 1929	-	VU B1+2c ver 2.3 (1994)	-
Family: Gomphidae			
<i>Onychogomphus assimilis</i> (Schneider, 1845)	-	VU B1+2c ver 2.3 (1994)	-
Order Coleoptera			
Family Cerambycidae (Longhorned Beetles)			
<i>Rosalia alpina</i> Linné, 1758	Rosalia longicorn (Алп розалийасы)	VU A1c ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Mallosia scovitzi</i> Fald., 1837	Scovitz's longhorned beetle (Сковитз узунбысы)	-	Included in the Red Data Book of Azerbaijan.
<i>Purpuricenus talyschensis</i> Reitt., 1891	Purple talysh longhorned beetle (Түндгүрмөзы талыш узунбысы)	-	Included in the Red Data Book of Azerbaijan.
<i>Dorcadion talyschense</i> Gang., 1883	Talysh root-eating longhorned beetle (Талыш кюкійяни)	-	Included in the Red Data Book of Azerbaijan.
<i>Parandra caspia</i> Men., 1832	Caspian parandra (Хазяр парандрасы)	-	Included in the Red Data Book of Azerbaijan.
Family Carabidae (Ground Beetles)			
<i>Carabus clypeatus talyschensis</i> Men., 1832	Talysh three-bladed runner (Цчярлы талыш гачааны)	-	Included in the Red Data Book of Azerbaijan.
<i>Carabus scabrosus caucasicus</i> Adams, 1817	Caucasian splashing snaileater (Гафгаз илбизшайян фынғыраны)	-	Included in the Red Data Book of Azerbaijan.
<i>Calosoma sycophanta</i> L., 1758	Pretty ground beetle (Гияянэ бюжяк)	-	Included in the Red Data Book of Azerbaijan.
<i>Megacephalus euphraticus</i> Latr., 1885	Euphrates runner (Фярат чапааны)	-	Included in the Red Data Book of Azerbaijan.
Family Buprestidae (Jewel Beetles)			
<i>Ancyloderes salomonii</i> Thomson, 1878	Solomon's jewel beetle (Соломон гызыл бюжяйи)	-	Included in the Red Data Book of Azerbaijan.
Order: Orthoptera			
Family: Tettigoniidae			
<i>Saga pedo</i> (Pallas, 1771)	Predatory bush cricket	VU B1+2bd ver 2.3 (1994)	-
Order Lepidoptera – Butterflies and moths			
Family Papilionidae			
<i>Parnassius apollo</i> L., 1758	Apollo butterfly (Аполлон)	VU A1cde ver 2.3 (1994)	Included in the Red Data Book

			of Azerbaijan.
<i>Parnassius nordmanni</i> Men., 1849	Нордман аполлону	-	Included in the Red Data Book of Azerbaijan.
<i>Zerynthya cericyi caucasica</i> Led., 1850	Гафгаз зеринтийасы	-	Included in the Red Data Book of Azerbaijan.
<i>Papilio alexanor orientalis</i> Rom., 1884	Шярги алексанор ўелкянжили	-	Included in the Red Data Book of Azerbaijan.
<i>Anthocharis gruneri</i> Chr., 1870	Шяфягсачан	-	Included in the Red Data Book of Azerbaijan.
<i>Zegris menestho</i> Men., 1832	Ейфема	-	Included in the Red Data Book of Azerbaijan.
<i>Colias thisoa</i> Men., 1832	Алп сарыжасы	-	Included in the Red Data Book of Azerbaijan.
<i>Colias caucasica</i> Strgr., 1871	Гафгаз сарыжасы	-	Included in the Red Data Book of Azerbaijan.
<i>Colias aurorina</i> H.-S., 1850	Аврорина сарыжасы	-	Included in the Red Data Book of Azerbaijan.
<i>Colias chlorocoma</i> Chr., 1888	Күрд сарыжасы	-	Included in the Red Data Book of Azerbaijan.
<i>Danais chrysippus</i> L., 1758	Хризип	-	Included in the Red Data Book of Azerbaijan.
<i>Pararge adrastoides</i> Bien., 1870	Талыш мяхмари кяпняйи	-	Included in the Red Data Book of Azerbaijan.
<i>Melanargia hylata</i> Men., 1882	Щилата	-	Included in the Red Data Book of Azerbaijan.
<i>Satyrus alpina</i> Stgr., 1879	Алп сатири	-	Included in the Red Data Book of Azerbaijan.
<i>Thaleropis jonia</i> Fisch., 1851	Ионийа бяргевураны	-	Included in the Red Data Book of Azerbaijan.
<i>Argynnис alexandra</i> Men., 1832	Александра сядяфлиси	-	Included in the Red Data Book of Azerbaijan.
<i>Heodes ochimus</i> H.-S., 1851	Охим гызылы кяпняйи	-	Included in the Red Data Book of Azerbaijan.
<i>Tomares romanovi</i> Ch., 1882	Романов томареси	-	Included in the Red Data Book of Azerbaijan.
<i>Manduca atropos</i> L., 1758	"Кялля шякили" щаф	-	Included in the Red Data Book of Azerbaijan.
<i>Daphnis nerii</i> L., 1758	Олеандр щафы	-	Included in the Red Data Book of Azerbaijan.
<i>Rethera komarovi</i> Chr., 1885	Комаров щафы	-	Included in the Red Data Book

			of Azerbaijan.
<i>Hippotion celerio</i> L., 1758	<i>Ири тяняк иңафы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Brahmaea christophi</i> Strg., 1885	<i>Талыш брамейасы</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Axiopoena maura</i> Eichw., 1832	<i>Түтгүн айыжса</i>	-	Included in the Red Data Book of Azerbaijan.
<i>Zygaena Tamara</i> Chr., 1889	<i>Тамара алажасы</i>	-	Included in the Red Data Book of Azerbaijan.
Family: Lycaenidae			
<i>Lycaena dispar</i> (Haworth, 1802)	<i>Large Copper</i>	LR/nt ver 2.3 (1994)	-
<i>Maculinea arion</i> (Linnaeus, 1758)	<i>Large Blue</i>	LR/nt ver 2.3 (1994)	-
<i>Maculinea nausithous</i> (Bergstrasser, 1779)	<i>Dusky Large Blue</i>	LR/nt ver 2.3 (1994)	-
Order: Sphingidae			
<i>Hyles hippophaes</i> (Esper, 1793)	-	DD <u>ver 2.3 (1994)</u>	-
<i>Proserpinus proserpina</i> (Pallas, 1772)	<i>Willowherb Hawkmoth</i>	DD <u>ver 2.3 (1994)</u>	-
Phylum Chordata			
Pisces - fish			
Class Cephalaspidomorphi			
Order Petromyzontiformes			
Family Petromyzontidae			
<i>Caspionymzon wagneri</i> Kessler, 1870	<i>Caspian Lamprey</i> (<i>Иланбалыбы</i>)	-	Included in the Red Data Book of Azerbaijan.
Class Actinopterygii - ray-finned fishes			
Order Acipenseriformes			
Family Acipenseridae - Sturgeons			
<i>Acipenser gueldenstaedtii</i> Brandt, 1833	Russian Sturgeon (<i>Рус няряси</i>)	EN A2d ver 2.3 (1994), CITES (appendix II)	-
<i>Acipenser nudivetntris</i>	Fringebarbel sturgeon (<i>Кялямо, Гайабалыбы</i>)	EN A1acd+2d ver 2.3 (1994) CITES (appendix II)	Included in the Red Data Book of Azerbaijan.
<i>Acipenser persicus</i> Borodin, 1897	Persian sturgeon	EN A2d ver 2.3 (1994), CITES (appendix II)	-
<i>Acipenserstellatus</i> Pallas, 1771	Starry sturgeon (<i>Үзүнбұрун</i>)	EN A2d ver 2.3 (1994), CITES (appendix II)	-
<i>Acipenser ruthenus</i> Linnaeus, 1758	Sterlet (<i>Чюкя</i>)	VU A1c+2d ver 2.3 (1994), CITES (appendix II)	-
<i>Huso huso</i> Linnaeus, 1758	Beluga, European Sturgeon, Giant Sturgeon, Great Sturgeon (<i>Бюләя</i>)	EN A2d ver 2.3 (1994), CITES (appendix II)	-

Order Salmoniformes Family Salmonidae - Salmonids			
<i>Salmo trutta fario</i> Linnaeus, 1758	Brown trout (<i>Гызылхалы</i>)	-	Included in the Red Data Book of Azerbaijan.
Order Clupeiformes Family Clupeidae (Herrings, shads, sardines)			
<i>Clupeonella cultriventris</i> Nordmann, 1840	Black Sea sprat (<i>ады килкя</i>)	DD ver 2.3 (1994), Not included in the Red book of Azerbaijan	-
<i>A. pontuca</i> (<i>A. pontuca kessleri</i> , <i>A. p. volgensis</i>)	Волга сийянийи вя Грабел сийяняк(<i>Pontuc shad</i>)	DD ver 2.3 (1994)	-
Order Cypriniformes Family Cyprinidae (Minnows and carp)			
<i>Abramis sapo</i> Pallas, 1814	White-eye bream (<i>Поры</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Pelecus cultratus</i> Linnaeus, 1758	Ziege (<i>Гылынжбалаыг</i>)	DD ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Rutilus frisii</i> (Nordmann, 1840)	Күтүм, зийад (<i>Black Sea Roach</i>)	DD ver 2.3 (1994)	-
Фасия: Cobitidae			
<i>Sabanejewia aurata</i> (De Filippi, 1863)	Гызылы илишкян (<i>Goldside Loach</i>)	DD ver 2.3 (1994)	-
Order Perciformes Family Percidae (Perches)			
<i>Lucioperca marina</i> Cuvier, 1928	Marine Zander (<i>Дяниз сыфы</i>)	-	Included in the Red Data Book of Azerbaijan.
Class Amphibia - Amphibians			
Order Caudata			
Family Salamandridae - Salamanders			
<i>Triturus vulgaris</i> Linneus.,1758 (In Azerbaijan <i>Triturus vulgaris lantzi</i> threatened)	Smooth Newt (<i>Ады тритон</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Triturus cristatus</i> Laur., 1786 (In Azerbaijan <i>Triturus cristatus karelini</i> threatened)	Great Crested Newt (<i>Дараалы тритон</i>)	LR/cd ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
Order Anura			
Family Pelobatidae			
<i>Pelobates syriacus</i> Boettger., 1889	Eastern Spadefoot (<i>Сурийа сарымсагайлы гурбаъасы</i>)	-	Included in the Red Data Book of Azerbaijan.
Family Hylidae			
<i>Hyla arborea</i>	Common Tree Frog (<i>Ады аъаж зурбаъасы</i>)	LR/nt ver 2.3 (1994)	-
Family Pelodytidae			
<i>Pelodytes caucasicus</i> Boul., 1896	Caucasian Parsley Frog (<i>Гафгаз хаччылжасы</i>)	-	Included in the Red Data Book of Azerbaijan.
Family Bufonidae - Toads			
<i>Bufo verucosussma</i> (Pallas,1813)	Гафгаз гурӯ гурбаъасы (<i>Caucasuan Toad</i>)	-	Included in the Red Data Book of Azerbaijan.
Class Reptilia - Reptiles			
Order Testudines			

Family Testudinidae			
<i>Testudo graeca</i> Linnaeus, 1758	Common Tortoise, Greek Tortoise, Moorish Tortoise, Spur-thighed Tortoise (<i>Аралыг Даңизи Тысбаасы</i>)	VU A1cd ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
Order Squamata			
Suborder Sauria (Lacertidae)- Lizards			
Family Agamidae - Agamas			
<i>Trapelus ruderatus</i> Rastegar-Pouyani, 2000	Horn-scaled Agama (<i>Харабалыг кялязи</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Phrynocephalus helioscopus</i> Engelmann et al, 1993	Sunwatcher Toadhead Agama (<i>Эирдабаш ийвшанлыг кяртняңялси</i>)	-	Included in the Red Data Book of Azerbaijan.
Family Scincidae - Skinks			
<i>Mabuya aurata</i> Greer & Nussbaum, 2000	Golden Grass Mabuya (<i>Гызылы мабуя</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Ablepharus bivittatus</i> Engelmann et al, 1993	Twin-striped Skink (<i>Золаглы чылпакэлюз кяртняңяля</i>)	-	Included in the Red Data Book of Azerbaijan.
Suborder Ophidia (Serpentes) - Snakes			
Family Colubridae - Colubrids			
<i>Coluber longissimus</i> Laurenti, 1768	Aesculapean Snake (<i>Ескулап шланы</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Elaphe situla</i> (Linnaeus, 1758)	Leopard snake	DD ver 2.3 (1994)	-
<i>Rhynchocalamus melanocephalus</i> Engelmann et al, 1993	Palestine Kukri Snake (<i>Гарабаш ринхокаламус</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Natrix megalopephala</i> Engelmann et al, 1993	Bighead-European Grass Snake, Large-headed Water Snake	VU A1d, C1 ver 2.3 (1994)	-
<i>Vipera raddei raddei</i> Boettger, 1890	Caucasus Viper (<i>Кичик асийа эирзяси</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Vipera dinniki</i> McDiarmid, Campbell & Toure	Dinnik's Viper	VU C1+2a ver 2.3 (1994) Not included in Azerbaijan red data book	-
Class Aves - Birds			
Order Pelecaniformes			
Family Pelecanidae - Pelicans			
<i>Pelecanus onocrotalus</i> Linn.1758	White pelican (<i>Чицрайы гүтән</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Pelecanus crispus</i> Bruch, 1832	Dalmatian pelican (<i>Гыверымляяк гүтән</i>)	LR/cd ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
Family Phalacrocoracidae			
<i>Phalacrocorax pygmaeus</i> Pall.,1773	Pygmy cormorant (<i>Кичик гарабатдаг</i>)	LR/nt ver 2.3 (1994) Not included in red data book	-
Order Ciconiiformes			
Family Threskiornithidae			

<i>Platalea leucorodia</i> Linn.,1758	Spoonbill (Ярсандымдик)	-	Included in the Red Data Book of Azerbaijan.
Family Ciconidae			
<i>Ciconia nigra</i> Linn.,1758	Black stork (Гара лейляк)	-	Included in the Red Data Book of Azerbaijan.
Order Ciconiformes			
Family Phoenicopteridae			
<i>Phoenicopterus ruber</i> Pall., Linn.,1758	Greater flamingo (Гызылгаз)	-	Included in the Red Data Book of Azerbaijan.
Order Anseriformes			
Family Anatidae			
<i>Branta ruficollis</i> Pallas., 1769	Brent goose (Гырмызыдыюш газ)	VU B1+2c ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Anser erythropus</i> Linnaeus, 1758	Lesser white-fronted goose (Аъгаш газ)	VU A1acd+2bcd ver 2.3 (1994) Not included in red data book	-
<i>Cygnus olor</i> Gm., 1789	Mute swan (Фысылдашын гү)	-	Included in the Red Data Book of Azerbaijan.
<i>Cygnus columbianus bewickii</i> Varrell, 1830	Bewick's swan (Кичик гү)	-	Included in the Red Data Book of Azerbaijan.
<i>Marmaronetta angustirostris</i> Menetr.,1832	Marbled teal (Мярмэр жиця)	VU A1cd+2cd, C1 ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Aythya nyroca</i> Guld., 1770	Ferruginous duck (Абэюз далбыж)	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Oxyura leucocephala</i> Scop., 1769	White-headed duck (Эюйдимдик)	EN A1acde ver 2.3 (1994) Not included in Azerbaijan red data book	-
Order Falconiformes			
Family Accipitridae			
<i>Pandion haliaetus</i> Linn.,1758	Osprey (Чай гарагуу)	-	Included in the Red Data Book of Azerbaijan.
<i>Haliaeetus albicilla</i> Linn.,1758	White-tailed (sea) eagle (Аъгуруг дяниз гартаалы)	LR/nt ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Accipiter gentilis</i> Linn., 1758	Goshawk (Тепрачалан)	-	Included in the Red Data Book of Azerbaijan.
<i>Accipiter badius</i> Gmelin, 1788	Shikra (Түркістан түсүйү)	-	Included in the Red Data Book of Azerbaijan.
<i>Aquila nipalensis</i> Temm.,1828	Steppe eagle (Чюл гартаалы)	-	Included in the Red Data Book of Azerbaijan.

<i>Aquila clanga</i> Pall., 1811	Greater spotted eagle (<i>Кичик гартачы</i>)	VU C1 ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Aquila heliaca</i> Savigny, 1809	Imperial eagle (<i>Мязар гартачы</i>)	VU C1 ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Aquila chrysaetus</i> Linn., 1758	Golden eagle (<i>Бяргүд</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Gypaetus barbatus</i> Linn., 1758	Lammergeier or Bearded vulture (<i>Төйлүэютүрүн</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Aegypius monachus</i> Linn., 1758	Black vulture (<i>Гара кяркяс</i>)	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Circaetus gallicus</i> Gmelin, 1788	Short-toed eagle (<i>Илангейян</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Circus macrourus</i> Gm., 1771	Pallid harrier (<i>Чюл белебаълысы</i>)	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
Family Falconidae			
<i>Falco cherrug</i> Gray., 1834	Saker falcon (<i>Цмяләи</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Falco peregrinus</i> Tunstall, 1771	Peregrine (<i>Шацин, лачын</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Falco naumanni</i> Fleischer, 1818	Lesser kestrel (<i>Чюл муймұлу</i>)	VU A1bce+2bce ver 2.3 (1994) Not included in Azerbaijan red data book	-
Order Galliformes			
Family Tetraonidae			
<i>Tetrao mlokosiewiczi</i> Taczan., 1875	Caucasian black grouse (<i>Гафгаз тетрасы</i>)	DD ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Tetraogallus caspicus</i> Gm., 1784	Caspian snowcock (<i>Хязар улары</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Tetraogallus caucasicus</i> Pall., 1811	Caucasian snowcock (<i>Гафгаз улары</i>)	-	Included in the Red Data Book of Azerbaijan.
Family Phasianidae			
<i>Francolinus francolinus</i> Linn., 1758	Black francolin, black partridge (<i>Туракс</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Phasianus colchicus talischiensis</i> Lor., 1888	Pheasant (<i>Гырговулун талыштарымнюви</i>)	-	Included in the Red Data Book of Azerbaijan.
Order Gruiiformes			
Family Gruidae			

<i>Grus leucogeranus</i> Pall., 1773	Siberian crane (<i>Аъ дұрна</i>)	CR A2cde ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Crex crex</i> Linn., 1758	Corn crake (<i>Жиөдимдик</i>)	VU A2c ver 2.3 (1994) Not included in Azerbaijan red data book	-
Family Rallidae			
<i>Porphyrio porphyrio</i> Linn., 1758	Purple gallinule (<i>Сүттан мойыбы</i>)	-	Included in the Red Data Book of Azerbaijan.
Family Otididae			
<i>Otis tarda</i> Linn., 1758	Great bustard (<i>Дөвдәз</i>)	VU A2c ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Otis tetrax</i> Linn., 1758	Little bustard (<i>Бязэяэ</i>)	LR/nt ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Chlamydotis undulata</i> Jacquin, 1784	Houbara bustard (<i>Эяшянә довдәз, Жек</i>)	LR/nt ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
Order Charadriiformes			
Family Charadriidae			
<i>Vanellus gregarius</i> Pall., 1771	Sociable plover (<i>Чюккбұрун жылдың</i>)	VU A1ac+2bc, C1 ver 2.3 (1994)	-
<i>Vanellus</i> (= <i>Chettusia</i>) <i>leucura</i> Licht., 1823	White-tailed lapwing (<i>Ағыуруг чюккбұрун</i>)	-	Included in the Red Data Book of Azerbaijan.
Family Scolopaciidae			
<i>Numenius tenuirostris</i> Vieillot, 1718	Slender-billed curlew (<i>Кичик кронинен</i>)	CR C2b, D ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Gallinago media</i> Latham, 1787	Great snipe (<i>Тымбял бекас</i>)	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
Family Glareolidae			
<i>Glareola nordmanni</i> Nordm., 1842	Black-winged pratincole (<i>Чюл щачағайруғ жылдың</i>)	DD ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
Order Columbiformes			
<i>Pterocles orientalis</i> Linn., 1758	Black-bellied Sandgrouse (<i>Гарагарын баърығара</i>)	-	Included in the Red Data Book of Azerbaijan.
Order Passeriformes			
Family Turdidae			
<i>Irania gutturalis</i> Guerin, 1843	White-throated Robin (<i>Аъбоғаз бүгібүл</i>)	-	Included in the Red Data Book of Azerbaijan.
Family Parinae			
<i>Parus hyrcanus</i> Loscot, 1977	Hircan tit (<i>Ширкан ағысиии</i>)	-	Included in the Red Data Book of Azerbaijan.

<i>Rhodopechys githaginea</i> (= <i>Bucanetes githagineus</i>) Licht., 1823	Trumpeter finch (<i>Сиура заргуун</i>)	-	Included in the Red Data Book of Azerbaijan.
Class Mammalia - Mammals			
Order Chiroptera - Bats			
<i>Rhinolophus euryale</i> Blasius, 1835	Mediterranean horseshoe bat (<i>жынуб налбұрунү</i>)	VU A2c ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Rhinolophus mehelyi</i> Matschie, 1901	Mehely's horseshoe bat (<i>Мещели налбұрунү</i>)	VU A2c ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Rhinolophus blasii</i> Peters, 1866	Blasius's horseshoe bat	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Rhinolophus ferrumequinum</i> Schreber, 1774	Greater horseshoe bat	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Rhinolophus hipposideros</i> Bechstein, 1800	Lesser horseshoe bat	VU A2c ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Miniopterus schreibersi</i> Kuhl, 1817	Common bentwing bat, Schreiber's long fingered bat	LR/nt ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Nyctalus lasiopterus</i> Schreber, 1780	Giant noctule	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Nyctalus leisleri</i> Kuhl, 1817	Lesser noctule	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Tadarida teniotis</i> Rafinesque, 1814	European freetailed bat (<i>Бюйікдөдәг еңлийарнаң</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Barbastella barbastellus</i> Schreber, 1774	Western barbastelle	VU A2c ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Myotus bechsteini</i> Kuhl, 1817	Bechstein's bat (<i>Берштейн шабнұясы</i>)	VU A2c ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Myotus emarginatus</i> É. Geoffroy, 1806teniotis	Geoffroy's bat (<i>Цирянэ шабнұяя</i>)	VU A2c ver 2.3 (1994) Not included in Azerbaijan red data book	-

Order Carnivora			
Suborder Feliformia			
Family Felidae - Cats			
<i>Panthera tigris virgata</i> Illiger, 1815 ⁴⁴	Tiger, turan tiger (<i>Пялянэ</i>)	EN C2a(i) ver 3.1 (2001)	Included in the Red Data Book of Azerbaijan.
<i>Lynx lynx</i> Linnaeus, 1758	Eurasian lynx (<i>Бауаз</i>)	LT ver 3.1 (2001)	Included in the Red Data Book of Azerbaijan.
<i>Panthera pardus</i> Linnaeus, 1758	Leopard (<i>Бябір (халы пялянэ)</i>)		Included in the Red Data Book of Azerbaijan.
<i>Felis silvestris</i> Schreber, 1775 ⁴⁵	Wild cat (<i>чюл пишийи</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Otocolobus manul</i> Pallas, 1776	Pallas' cat (<i>Манул пишийи</i>)	NT ver 3.1 (2001)	Included in the Red Data Book of Azerbaijan.
Sub-order Pinnepedia			
Family Phocidae			
<i>Phoca caspica</i> Gmelin, 1788	Caspian Seal (<i>Хязяр сүуми</i>)	VU B1+2e ver 2.3 (1994) Not included in Azerbaijan red data book	-
Family Hyaenidae - Hyenas			
<i>Hyaena hyaena</i> Linnaeus, 1758	Striped hyaena (<i>Золаглы кафтар</i>)	LR/nt ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
Family Mustelidae - Mustelids			
<i>Vormela peregusna</i> Güldenstädt, 1770	Marbled Polecat (<i>Сағсар (сарыглы)</i>)	-	Included in the Red Data Book of Azerbaijan.
<i>Lutra lutra</i> L., 1758	Common Otter (<i>Чай самуры</i>)	VU A2cde ver 2.3 (1994)	-
Order Rodentia - Rodents			
Family Hystricidae - Scirtidae			
<i>Sciurus anomalus</i> Güldenstädt, 1785	Caucasian Squirrel, Persian Squirrel (<i>Загағазийә синжабы</i>)	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
Family Didodidae			
<i>Sicista betulina</i> Pallas, 1779	Northern Birch Mouse	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
Family Myxodae			

⁴⁴ The last recorded Turan tiger was killed in the Talysh region (Prishib village) in 1932. Reports of tigers in the Lenkoran region persisted since 1950, however there was thought to be some confusion with observation of leopards, and the tiger was listed in the Red Book subsequent to its extinction in Azerbaijan.

⁴⁵ The steppe form of wild cat, which is distributed across Africa and Asia, is protected in Azerbaijan

<i>Glis glis</i> Linnaeus, 1766	Fat dormouse	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
Family Muridae			
<i>Apodemus hyrcanicus</i> Vorontsov, Boyeskorov & Mezhzherin, 1992	Caucasus field mouse	DD ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Calomyscus urartensis</i> Vorontsev & Kartavseva, 1979	Urartsk mouse-like hamster	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
<i>Chionomys nivalis</i> Martins, 1842	European snow vole, snow vole	LR/nt ver 2.3 (1994) Not included in Azerbaijan red data book	-
Order Artiodactyla			
Family Bovidae			
<i>Gazella subgutturosa</i> Güldenstädt, 1780	Goitred Gazelle, Sand Gazelle (Жейран)	NT ver 3.1 (2001)	Included in the Red Data Book of Azerbaijan.
<i>Capra cylindricornis</i> Blyth, 1841	Eastern Caucasian Tur (Даъстан турү, Даъ кяли)	VU A1d+2de, C1 ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Capra aegagrus</i> Erxleben, 1777	Wild goat (Безоар кечиси, Гайын кечиси)	VU A2cde ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.
<i>Rupicapra rupicapra</i> L., 1758	Alpine chamois (Кюэяр (Гарапача))	-	Included in the Red Data Book of Azerbaijan.
<i>Ovis orientalis</i> Gmelin, 1774	Mouflon (Кичик Асия Муфлону, Вяцкий гойун)	VU A2cde ver 2.3 (1994)	Included in the Red Data Book of Azerbaijan.

Rare plant species listed in the Red Book of Nakhchivan Autonomous Republic

Latin name	Status	Localities
<i>Nektaroskordum tripedale</i> (Trautv) Grosssh.	Population declining, endemic	Demirlidag, Soyugdag
<i>Carapodium platicarpum</i> (Boiss. et Hausskn.) Schischk.	Rare, at risk of extinction	Kuku, Arafsa, Nasirvaz, Nusnus
<i>Dorema glabrum</i> Fisch. et Mey.	Rare, at risk of extinction	Duzdag, Daridag, Nehramdag
<i>Ferula oopoda</i> (Boiss. et Buhse) Boiss	Rare, in danger of disappearing	Duzdag
<i>Ferula persica</i> Willd.	Rare, habitat declining	Sederek, Validag
<i>Ferula szowitsiana</i> DC.	Rare, habitat declining	Duzdag, Validag, Nehramdag
<i>Peucedanum pauciradiatum</i> Tamamsch.	Rare, endemic	Ordubad, Genze, Saridag
<i>Smyriopsis oneberi</i> Boiss.	Rare, limited habitat	Kechli, Bjenek, Kuku, Nurs
<i>Stenotaenia daralaghezica</i> Takth.	Rare, Caucasus habitat	Arinch, Kuku, Upper Remeshen
<i>Aristolochia bottae</i> Jaub. et Spach	Rare, reducing	Within Garababa village
<i>Gundelia tournefortii</i> L.	Rare, Eurasian species	Bashkend, Gazanchi, Hanaga, Aza
<i>Lactuca takhtadzhianii</i> Sosn.	Rare, population declining	Novruz village, Garababa
<i>Pyrethrum komarovii</i> Sosn.	Rare, endemic	Ordubad, Paraga, Nasirvaz
<i>Scorzonera pusilla</i> Pall.	Rare, habitat declining	Duzdag, Sahtaxti
<i>Physoptychis gnaphalooides</i> (DC.) Boiss.	Rare, small population	Demirlidag, Gemigaya
<i>Sampanula radula</i> Fisch. et Tchih	Rare, restricted habitat	Aznaburd, (now Chalhangala)
<i>Anabasis eugeniae</i> Iljin	Rare, restricted habitat	Kirna, Diza, Daridag
<i>Salsola tamamschjanae</i> Iljin	Rare, restricted habitat	Velidag
<i>Juniperus foetidissima</i> Willd.	Rare, small population	Batabat, Bijanak, Ilanlidag
<i>Eurhorbia grossheimii</i> Pokh.	Rare, endemic	Julfa, Ordubad, Kotam, Kilit
<i>Astragalus nachitsceanicus</i>	Rare, endemic, restricted habitat	Garababa, Kotam, Kechili
<i>Astragalus paradoxus</i> Bunge	Rare, restricted habitat	Nehrem, Jannab, Alinchachay
<i>Astragalus pilipkoana</i> Grossh.	Endemic, restricted habitat	Bilev, Paraga
<i>Globularia trichosantha</i> Fisch. et Mey	Rare, low-numbered	Garagurd, Garagush mountains
<i>Hypericum formosissimum</i> takht.	Rare, endemic, restricted habitat	Aznaburd (Chalhangala)
<i>Iris grossheimii</i> Woronow ex Grossh.	Rare, restricted habitat	Shixyrdlu, Soyugdag
<i>Iris elegantissima</i> Sosn.	Rare, endemic	Around Sederek
<i>Iris lycotis</i> Woronow	Rare, endemic	Aznaburd, Daridag, Aza, Arafsa
<i>Iris paradoxa</i> Stev.	Rare, endemic	Around Nahchivan
<i>Iris pilipkoana</i> Kem.-Nat.	Rare, endemic	Bijanak, Batabat, Kuku
<i>Iridodictium reticulata</i> Bieb.	Rare, small population	Arafsa (Hazina)
<i>Scilla atropatana</i> Qrosssh.	Rare, small population	Dirnis, Nusnus
<i>Tulipa eichlnri</i> Regel.	Rare, endemic, restricted habitat	Nusnus (Sari mountains)
<i>Tulipa karabachensis</i> Qrosssh.	Rare, endemic, restricted habitat	Kotam, Kilit, Horhatdag
<i>Tulipa florenskyi</i> Woronow	Rare, habitat declining	Nusnus, Galaguney, Dirnis
<i>Tulipa julija</i> C. Koch.	Rare, restricted habitat	Bjenek, Arachidag,

		Goydag
<i>Tulipa schmidtii</i> Fomin	Endemic species	Nusnus (Diah, Fahladarasi)
<i>Platanus orientalis</i> L.	Population declining, relict specie	Nahchivan, Ordubad, Nusnus
<i>Avena ventricosa</i> Bal. ex Coss.	Rare, small population	Payiz, Chalhangala
<i>Triticum monococcum</i> L.	Rare, at risk of extinction	Chalhangala, Garagush, Payiz
<i>Calligonum polygonoides</i> L.	Rare, declining and at risk of extinction	Velideg, Kotam-Kilit
<i>Rheum ribes</i> L.	Rare, at risk of extinction	Duzdag, Daridag, Kolani ,Kuku
<i>Punica granatum</i> L.	Reducing in numbers	Around Kotam, Kilit, Nehrem
<i>Cotoneaster saxatilis</i> Pojark	Rare, endemic	Around Ahura, Hemzeli, Havus
<i>Padus avium</i> Mill.	Declining and at risk of extinction, rare	Ahura-Havus, Bijenek, Batabat
<i>P. racemosa</i> (Lamp.) Gilib.	Declining and at risk of extinction, rare	Ahura-Havus, Bijenek, Batabat
<i>Rosa azerbajdzhanica</i> Novopokr et Rzazade	Rare, endemic	Around Kuku
<i>Rosa karjaginii</i> Sosn.	Rare, small population	Around Urmis
<i>Rosa nizami</i> Sosn.	Rare, endemic	Kuku, Bijenek
<i>Rosa sosnowskyi</i> Chrshan.	Rare, endemic	Batabat, Bicenek
<i>Daphne transcaucasica</i> Pobed.	Rare, declining habitat	Payiz, Chalhangala, Bijenek
<i>Stelleropsis magakjanii</i> (Sosn.) Pobed.	Rare, endemic	Around Kuku
<i>Valeriana alliarifolia</i> Adam.	Rare, habitat specific	Hurs, Nurgut, Kuku, Bayahmed

Endemic plant species recorded in Nakhchivan Autonomous Republic⁴⁶

Latin plant names	Endemism			Also in neighbouring regions
	Caucasus	Azerbaijan	Nakhichevan AR	
<i>Allium dictyoprasum</i> C.A.Mey.ex Kunth.	+			
<i>A. affine</i> Ledeb.(<i>A.transcaucasicum</i> Grossh.)	+			
<i>A. pseudoampeloprasum</i> Misch. ex Grossh.	+			
<i>A. leucanthum</i> C. Koch	+			
<i>A. mariae</i> Bordz.		+	+	
<i>A.woronowii</i> Misch.ex Grossh.		+	+	
<i>A. leonidii</i> Grossh.		+	+	
<i>A. kunthianum</i> Vved.	+			+
<i>A. syntamanthum</i> C.Koch	+			+
<i>A. materculae</i> Bordz.		+		+
<i>A. viride</i> Grossh.	+			+
<i>Alchimilla sedelmeyeriana</i> Juz.	+			+
<i>A. amicta</i> Juz.		+	+	
<i>A. grossheimii</i> Juz.	+			
<i>A. ortotricha</i> Juz.	+			
<i>A. epipsila</i> Juz.	+			
<i>A. smirnovii</i> Juz.	+			
<i>A. venosa</i> Juz.	+			
<i>Aethionema diastropis</i> Bunge	+			
<i>Anabasis eugeniae</i> Iljin		+	+	
<i>Asparagus persicus</i> Baker (<i>A.leptophyllus</i> Schischk.)	+			
<i>Aconitum nasutum</i> Fisch.ex Reichenb.	+			
<i>Atropatenia rostrata</i> (N. Busch.) F. K. Mey.		+	+	
<i>Arabis carduchorum</i> Boiss. (<i>A.armena</i> N. Busch)	+			
<i>Amygdalus naticra</i> Fed. et Takht.	+			
<i>Androsace kozo-poljanskii</i> Ovez.- (<i>A. barbulata</i> Ovez.)	+			
<i>A. raddeana</i> Somm.et Levier	+			
<i>A. lehmanniana</i> Spranq.	+			
<i>Arctium transcaucasicum</i> Sosn.	+			
<i>Astragalus cancellatus</i> Bunge (<i>A.perrarus</i> Boiss.)	+			+
<i>Astragalus szovitsii</i> Fisch.		+		+
<i>A. shelkovnikovii</i> Grossh.		+		+
<i>A. conspicus</i> Boriss.	+			+
<i>A. aznabjurticus</i> Grossh.		+	+	
<i>A. schachbuzensis</i> Rzazade		+	+	
<i>A. nachitschevanicus</i> Rzazade		+	+	
<i>A. euoplus</i> Trautv.	+			
<i>A. insidiosus</i> Boriss.		+	+	
<i>A. badamensis</i> Chalilov		+	+	
<i>Astragalus karakuschensis</i> Gontsch.		+	+	
<i>A. regelii</i> Trautv.		+	+	
<i>A. gezeldarensis</i> Grossh.	+			
<i>A. kochianus</i> Sosn.	+			
<i>A. hajastanus</i> Grossh.	+			
<i>A. goktschaicus</i> Grossh.	+			
<i>A. chalilovii</i> Grossh. et Fed.		+	+	
<i>A. ordubadensis</i> Grossh.	+		+	
<i>A. prilipkoanus</i> Grossh.	+		+	
<i>A. achundovii</i> Grossh.ex Fed.		+	+	
<i>A. erivanensis</i> Bornm.et Woronow	+			

⁴⁶ 331 species are listed as endemic

<i>A. montis-aqulis</i> Grossh.		+	+	
<i>A. johannis</i> Rzazade		+		+
<i>Astracantha barba-carpinus</i> (AI. Theod., Fed. et Rzazade) Podlech		+	+	
<i>A. vedicus</i> (Takht.) Czer. (<i>Astraqalus vedicus</i> Takht.) Podlech	+			
<i>A. jucundus</i> (AI. Theod., Fed. et Rzazade) Podlech		+	+	
<i>A. gudrathi</i> (AI. Theod., Fed. et Rzazade) Podlech	+		+	
<i>A. flavirubens</i> (AI. Theod., Fed. et Rzazade) Podlech	+			
<i>Alyssum stapffii</i> Vierh. (<i>A. buschianum</i> Grossh.)		+	+	
<i>Aphanopleura trachysperma</i> Boiss.	+			
<i>Bellevalia longistila</i> (Miscz.) Grossh.		+	+	
<i>B. pycantha</i> (C. Koch) Losinsk	+			
<i>B. zygomorpha</i> Woronow.		+		
<i>Bromus tzvelevii</i> Musayev et Sadichov		+	+	
<i>Camelina sativa</i> (L.) Grantz.	+			
<i>Carlina acaulis</i> L.	+			
<i>Cymatocarrus grossheimii</i> N Busch.		+	+	
<i>Cirsium tricholoma</i> Fisch. ex C. A. Mey.		+		+
<i>C. sinuatum</i> (Trautv.) Boiss.	+			+
<i>C. megricum</i> Charadze	+			
<i>C. schelkownikowii</i> Petrak.	+			
<i>Carum caucasicum</i> (Bieb.) Boiss.	+			+
<i>Crataegus caucasica</i> C. Koch.	+			+
<i>C. armena</i> Pojark.	+			
<i>C. cynovskisii</i> Kassumova		+	+	
<i>Colutea komarovii</i> Takht.		+	+	
<i>Cephalaria nachiczevanica</i> Grossh.		+	+	
<i>C. armeniaca</i> Bordz.	+			
<i>Cephalorynchus kirpicznikovii</i> Grossh.		+	+	
<i>Campanula karakuschensis</i> Grossh. (<i>C. ministeriana</i> Grossh)		+	+	
<i>C. bayerniana</i> Rupr. (<i>C. elegantissima</i> Grossh.)	+			
<i>C. daralaghezica</i> (Grossh.) Kolak. et Serdjukova (<i>Symphyandra daralaghezica</i> Grossh.)	+			+
<i>C. zangezura</i> (Lipskyi) Kolak et Serdjukova (<i>Symphyandra zangezura</i> Lipsky)	+			+
<i>C. trautvetteri</i> Grossh. ex Fed.	+			
<i>Chamerion transcaucasicum</i> Manden	+			
<i>Ch. caucasicum</i> (Willd.) Boiss.	+			
<i>Chamaemelum nobile</i> (L.) All.	+			
<i>Colchicum szovitsii</i> Fisch. et C. A. Mey.	+			
<i>C. zangezurum</i> Grossh.	+			
<i>Celtis caucasica</i>	+			+
<i>Carduus seminudus</i> Bieb.	+			
<i>Cousinia lomkinii</i> C. Winkl.	+			
<i>Centaurea Fischeri</i> Schlecht		+	+	
<i>Cotoneaster saxatalis</i> Pojark		+	+	
<i>Crepis karakuschensis</i> Czer.		+	+	
<i>Draba bruniifolia</i> Stev.	+			
<i>D. bryoides</i> DC.	+			
<i>D. siligrosa</i> Bieb.	+			+
<i>Dianthus raddeanus</i> Vierh.	+			+
<i>D. subulosus</i> Freyn et Conrath	+			
<i>Delphinium foetidum</i> Lomak.	+			
<i>D. flexuosum</i> Bieb.	+			
<i>D. buschianum</i> Grossh.	+			
<i>D. caucasicum</i> C. A. Mey.	+			
<i>D. lomakinii</i> Kem.-Nath.		+	+	
<i>Doronicum macrophyllum</i> Fisch. ex Hornem.	+			

<i>D. oblongifolium</i> DC.	+			
<i>Dorema glabrum</i> Fisch. et C.A.Mey.		+	+	
<i>Dracocephalum botryoides</i> Stev.	+			+
<i>D. multicaule</i> Montbr.	+			+
<i>Echinops orientalis</i> Trautv.(<i>E.arachinus</i> Mulk.)	+			+
<i>E. polygamus</i> Bunge (<i>E. grossheimii</i> Iljin)	+			
<i>Elytrigia heydemaniæ</i> Tzvel.		+	+	
<i>Eurhrasia georgica</i> Kem.-Nath.	+			
<i>E. caucasica</i> Juz.-Qafqaz g.	+			
<i>Euphorbia leucographus</i> Bunge	+			
<i>E. marschalliana</i> Boiss.	+			+
<i>E. nutans</i> Lag.				
<i>E. grossheimii</i> Prokh		+	+	
<i>Eryngium wanaturi</i> Woronow	+			
<i>Erysimum chazarjurti</i> N. Busch.	+			
<i>E. lilacinum</i> Steimb.	+			
<i>E. leptophyllum</i> (Bleb.) Andrz. (<i>E. feodorovii</i> M. Kassumov)		+	+	
<i>E. buschii</i> M. Kassumov		+	+	
<i>E. subulatum</i> J. Gay (<i>E. Iljinii</i> M. Kassumov)		+	+	
<i>E. crassipes</i> Fisch. et C. A. Mey. (<i>E. transcaspium</i> M. Kassumov)	+		+	
<i>E. wagifii</i> M. Kassumov		+	+	
<i>E. nachiczevanicum</i> M. Kassumov		+	+	
<i>Fritillaria caucasica</i> Adams	+			+
<i>Fuernrohria setifolia</i> C. Koch.	+			
<i>Ferula oopoda</i> (Boiss. et Buhse) Boiss.		+	+	
<i>Gagea alexeenkoana</i> Misch.	+			+
<i>G. caroli-kochii</i> Grossh.	+			+
<i>G. improvisa</i> Grossh.		+	+	
<i>Galium czerepanovii</i> Pobed.		+	+	
<i>G. consanguineum</i> Boiss. (<i>G. majmechense</i> Bordz.)	+			
<i>G. achurensis</i> Grossh.		+	+	
<i>G. atropatanum</i> Grossh.		+	+	
<i>G. bulbatum</i> Lipsky		+	+	
<i>G. hyrcanum</i> C.A.Mey. (<i>G. grossheimii</i> Pobed.)		+	+	
<i>Gypsophila szovitsii</i> Fisch. et C.A.Mey. ex Fenz	+			+
<i>G. stevenii</i> Fisch. ex Schrank	+			
<i>G. lipskyi</i> Schischk.	+			
<i>Dianthus caucasicus</i> Smith. (<i>G. discolor</i> Smith.)	+			
<i>D. raddeanus</i> Vierh.	+			
<i>D. subulosus</i> Freun et Conrath.	+			
<i>Hylotelephium caucasicum</i> H. Ohba. (<i>Sedum caucasicum</i> Grossh.)	+			
<i>Hypericum formosissimum</i> Takht.		+	+	
<i>H. atropatanum</i> Rzazade		+	+	
<i>H. helianthoides</i> (Spach) Boiss.	+		+	
<i>Haplophyllum villosum</i> (Bieb.) G. Don fil.	+			+
<i>H. schelkovnikovii</i> Grossh.		+	+	+
<i>Hedysarum ibericum</i> Bieb.	+			+
<i>H. cericeum</i> Bieb.	+			+
<i>H. caucasicum</i> Bieb.	+			
<i>Helichrysum araxinum</i> Takht. et Kirp.		+	+	+
<i>Hieracium cincinnatum</i> Fries.	+			
<i>H. perileucum</i> (Schischk. et Zahn.) Juxip	+			
<i>H. akinfiewii</i> Woronow et zahn.	+			
<i>Heracleum pastinacifolium</i> C.Koch.	+			+
<i>H. schelkovnikovii</i> Woronow	+			
<i>Iris spuria</i> subsp. <i>I.musulmanica</i> Fomin	+			+
<i>I. paradoxa</i> Stev.	+			+
<i>I. iberica</i> Hoffm.	+			+
<i>I. prilipkoana</i> Kem.- Nat.	+			
<i>I. grossheimii</i> Woronow ex Grossh.		+	+	
<i>I. limbata</i> Lindl. (<i>I.sulphurea</i> C.Koch.)	+			

<i>I. lycotis</i> Woronow		+	+	
<i>Irydodictyum hyrcanum</i> (Woronow ex Grossh.) Rodionenko		+		
<i>Juno schischkini</i> (Grossh.) Czer.		+	+	
<i>I. caucasica</i> (Hoffm.) Klatt.	+			
<i>I. pseudocaucasica</i> (Grossh.)	+			+
<i>Inula mariae</i> Bordz.	+			
<i>Jurinea spectabilis</i> Fisch. et C.A. Mey.	+			
<i>Lathyrus rotundifolius</i> Willd.	+			+
<i>L. atropatanus</i> (Grossh.) Sirj. (<i>Orobus atropatanus</i> Grossh.)		+	+	
<i>Lactuca georgica</i> Grossh.	+			
<i>Lotus caucasicus</i> Kuprian. ex Juz	+			
<i>Limonium Fischeri</i> (Trautv.) Lincz.		+	+	
<i>Linum subbiflorum</i> Juz.		+	+	
<i>L. hypericifolium</i> Salisb.		+	+	
<i>Linaria zangezura</i> Groosh.	+			
<i>L. megrica</i> Tzvel. (<i>L. ordubadica</i> Tzvel.)	+			
<i>L. schelkownikovii</i> Schischk.	+			
<i>Cardaria propingua</i> Fisch. et C.A. Mey. (<i>Lepidium propinguum</i> Fisch.)	+			
<i>Medicago caucasica</i> Vass.	+			+
<i>Melica schischkinii</i> Iljinsk.		+	+	
<i>Milium transcaucasicum</i> Tzvel.		+	+	
<i>Muscari lecostomum</i> Woronow ex Gzerniak		+		
<i>Malabaila sulcata</i> Boiss.	+			
<i>Marrubium nanum</i> Knorr.		+	+	
<i>Melampurum chlorostachyum</i> Beauverd	+			
<i>M. caucasicum</i> Bunge.	+			
<i>Melilotoides biflora</i> (Griseb.) Czer. (<i>Melissitus biflorus</i> Griseb.)	+			
<i>Nepeta strictifolia</i> Pojark. (<i>N. grossheimii</i> Poyark.)		+	+	
<i>N. zangezura</i> Groosh.	+			+
<i>N. mussinii</i> Spreng. (<i>N. transcaucasica</i> Grossh.)	+			
<i>N. noraschenica</i> Grossh.		+	+	
<i>N. trautvetteri</i> Boiss. et Buhse (<i>N. velutina</i> Pojark.)	+			
<i>N. schischkinii</i> Pojark.		+		+
<i>N. betonicifolia</i> C.A. Mey.		+		+
<i>N. erivanensis</i> Pojark.	+			
<i>Neurotropis armena</i> (N. Busch) Czer. (<i>Thlaspi armena</i> N. Busch)		+	+	
<i>N. szovitsiana</i> (Boiss.) C.A. Mey. (<i>Thlaspi szovitsianum</i> Boiss.)		+	+	
<i>Noccaea tatianae</i> (Bordz.) F.K. Mey. (<i>Thlaspi tatianae</i> Bordz.)	+			+
<i>Nonnea rosea</i> (Bieb.) Link.	+			+
<i>Onobrychis transcaucasica</i> Grossh.	+			+
<i>O. hajastana</i> Groosh.	+			+
<i>O. heteropylla</i> C.A. Mey.	+			+
<i>O. radiata</i> (Desf.) Bieb.	+			
<i>O. cyri</i> Grossh.	+			
<i>Orobanche raddeana</i> G. Besk.	+			+
<i>Ornithogalum brachystachys</i> C. Koch.	+			+
<i>O. schelcovnikovii</i> Groosh.	+			
<i>O. balansae</i> Boiss. (<i>Schmalhausenii</i> Albov)	+			+
<i>O. trancaucasicum</i> Misch. ex Grossh.	+			
<i>Oxytropis karjaginii</i> Grossh.	+			+
<i>O. lupinoides</i> Groosh. ex Fed.		+	+	
<i>Onosma gracilis</i> Trautv.	+			
<i>Pimpinella aromatica</i> Bieb.		+		
<i>Populus canescens</i> (Ait.) Smith (<i>P. hibrida</i> Bieb.)	+			
<i>P. sosnovskyi</i> Grossh.	+			
<i>P. gracilis</i> Grossh.	+			
<i>Pyrus zangezura</i> Maleev	+			
<i>P. voronovii</i> Rubtz.	+			
<i>P. nutans</i> Rubtz.	+			
<i>P. medvedevii</i> Rubtz.	+			

<i>P. raddeana</i> Woronow	+			
<i>Potentilla lomakinii</i> Lomakini	+			
<i>P. conferta</i> Bunge (<i>P.agrimonioides</i> Bieb.)	+			+
<i>P. szovitsii</i> Th. Wolf	+			+
<i>Pyrethrum ordubadense</i> Manden		+	+	
<i>P. komarovii</i> Sosn.		+	+	
<i>P. punctatum</i> (Desr.)Bordz.ex Schischk.	+			
<i>Polygala hohenasperiana</i> Fisch.et C.A.Mey.	+			+
<i>Polygonum bellardii</i> All.(<i>P.tiflensis</i> Kom.)	+			
<i>Pedicularis crassirostris</i> Bunge.	+			
<i>Peltariopsis grossheimii</i> N.Busch.		+	+	
<i>Ribes biebersteinii</i> Berlex DC.		+		
<i>Rubus ibericus</i> Juz.	+			
<i>Rosa tuschetica</i> Boiss.	+			
<i>R. nizami</i> Sosn.		+	+	
<i>R. sachokiana</i> P.Jarosch.	+			
<i>R. karjaginii</i> Sosn.		+	+	
<i>R. marschalliana</i> Sosn.	+			
<i>R. zangezura</i> P.Jarosch	+			
<i>R. sosnovskyana</i> Tamamsch.	+			
<i>R. kazarjanii</i> Sosn.	+			
<i>R. hracziana</i> Tamamsch.	+			
<i>R. sosnovskiana</i> Chrshan.	+			
<i>R. brotherorum</i> Chrshan.	+			
<i>R. pulvurulenta</i> Bieb.(<i>R.azerbajdzhanica</i> Novopokr et Rzazade)		+	+	
<i>R. buschiana</i> Chrshan.	+			
<i>R. orientalis</i> Duront ex Ser (<i>R.vanheurckiana</i> Crep.)	+			
<i>Ranunculus grandiflorus</i> L. (<i>R.elegans</i> C.Koch)	+			
<i>Rhynchocorys orientalis</i> (L)Benth.	+			
<i>Salsola cana</i> C.Koch	+			
<i>S. futilis</i> Iljin		+	+	
<i>S. tomentosa</i> (Mog.) Spach, (<i>S. flavovirens</i> Iljin, <i>S. takhtadzjani</i> Iljin)		+	+	
<i>S. nitraria</i> Pall. (<i>S.macera</i> Litv.)	+			
<i>S. tamamschjanae</i> Iljin	+			+
<i>S. dulphensis</i> Grossh.		+	+	
<i>S. nodulosa</i> (Mog.)Iljin	+			+
<i>Salvia pachystachya</i> Trautv.	+			+
<i>S. limbata</i> C.A.Mey. (<i>S. prilipkoana</i> Grossh., <i>S. fominii</i> Grossh.)	+			+
<i>S. suffruticosa</i> Montbr.et Auch,ex Benth. (<i>S. alechandrii</i> Pobed)		+	+	
<i>S. reuteriana</i> Boiss. (<i>S. nachiczeanica</i> Pobed.)		+	+	
<i>S. andreji</i> Pobed.		+	+	
<i>Scilla mischtchenkoana</i> Grossh. (<i>S. zangezura</i> Grossh.)	+		+	
<i>S. sibirica</i> Haw.	+			
<i>S. armena</i> Grossh.	+			
<i>Scorzonera czerepanovii</i> R.Ram. (<i>S. lanata</i> (L)Hoffm	+			+
<i>Scrophularia atropatana</i> Groosh.		+	+	+
<i>S. nachitschevanica</i> Grossh.		+	+	
<i>S. cinerascens</i> Boiss. (<i>S. grossheimii</i> Schischk.)	+			
<i>S. thesoides</i> Boiss.et Buhse.		+	+	
<i>S. variegata</i> Bieb.-Ala q.	+			+
<i>Sedum corymbosum</i> Grossh.	+			+
<i>Silene prilipcoana</i> Schischk.		+	+	+
<i>S. depressa</i> Bieb.	+			
<i>S. caucasica</i> (Bunge)Boiss.	+			
<i>S. tajtanae</i> Schischk.	+			
<i>S. longipetala</i> Vent. (<i>S.chloropetala</i> Rupr.)	+			
<i>S. iberica</i> Bierb.	+			
<i>Smyrnium aucheri</i> Boiss.	+			+
<i>Swertia iberica</i> Fisch.et C.A.Mey.	+			

<i>Stachys fruticulosa</i> Bieb. (<i>S. grossheimii</i> Kapell.)		+	+	
<i>S. intlata</i> Benth.		+		
<i>S. fomini</i> Sosn.		+	+	
<i>Symphytum asperum</i> Lepech.	+			+
<i>S. caucasicum</i> Bieb.	+			
<i>Sameraria glastifolia</i> (Fisch. et C.A. Mey.) Boiss.		+	+	
<i>Senecio lipskyi</i> Lomak.	+			
<i>Stenoaenia macrocarpa</i> Freyn et Sint.		+	+	
<i>Stipa issaeivii</i> Musayev et Sadychov		+	+	
<i>S. karjaginii</i> Musayev et Sadychov		+	+	
<i>S. gaubae</i> Bor. (<i>S. nachezhanica</i> Musayev et Sadychov)		+	+	
<i>S. olosericea</i> Trin. et Rupr.	+			
<i>Salix aegyptiaca</i> L. (<i>Phlomoides</i> Bieb.)	+			
<i>Seseli grandivittatum</i> (Somm. et Levier.) Schischk.	+			
<i>Scutellaria karjaginii</i> Grossh.		+	+	
<i>S. rhomboidalis</i> Grossh.		+	+	
<i>S. darriensis</i> Grossh.		+	+	
<i>S. sevanensis</i> Sosn. et Grossh.	+			
<i>Saxifraga pontica</i> Albov	+			
<i>S. juniperifolia</i> Adams	+			
<i>Solidago armena</i> Kem-Nath. ex Grossh.	+			
<i>Serratula haussknechtii</i> Boiss. (<i>S. trancaucasica</i> Bornm.)	+			
<i>S. serratuloides</i> (Fisch. et C.A. Mey.) Takht.	+			
<i>Stizolophus balsamita</i> (Lam.) Cass. ex Takht.	+			
<i>Thesium szovitsii</i> A. DC.	+			+
<i>Thymus migricus</i> Klok. et Shost.	+			+
<i>Th. nummularies</i> Bieb.	+			+
<i>Th. collinus</i> Bieb.	+			
<i>Tragopogon marginatus</i> Boiss.	+			+
<i>T. nachitschevanicus</i> (Kunth) N. Pop.		+	+	
<i>T. sosnowskyi</i> Kuth.	+			
<i>Taraxacum desertorum</i> Schischk.		+	+	
<i>T. prilipkoi</i> Czer. (<i>T. praticola</i> Schischk.)	+			
<i>Tomanthea daralaghazica</i> (Fomin) Takht.	+			
<i>Trinia leiogona</i> (C.A. Mey.) B. Fedtsch.	+			+
<i>Tulipa eichleri</i> Regel		+		
<i>Trifolium fontanum</i> Bobr.	+			
<i>Vicia anatolica</i> Turrill. (<i>V. hajastana</i> Grossh.)	+			+
<i>V. ciceroidea</i> Boiss. (<i>V. rafigae</i> Tamamsch)	+			+
<i>V. grossheimii</i> Ekvitim	+			
<i>Vavilovia formosa</i> (Stev.) Fed.		+	+	
<i>Verbascum erivanicum</i> E. Wulf		+	+	
<i>V. georgicum</i> Benth.	+			
<i>V. paniculatum</i> E. Wulf		+	+	
<i>Zeravschanica pauciradiata</i> (Tamamsch.) M. Pimen		+	+	
<i>Zizirhora denticulate</i> Juz.	+			

Specially Protected Nature Areas of the Republic of Azerbaijan

The Ministry of Ecology and Natural Resources established under Decree dated May 23, 2001 and organized its countrywide activity efficiently. As evident from one fact, only total area of protected areas reached to 10.1% by increasing from 4.5% in relation to the country territory in the course of the Ministry activity.

For conformity with up-to-date requirements of protected areas system in the Republic, conservation of all necessary ecosystems and key species and creation of buffers and protective zones, departments and administrations at status of National Park have been established since 2003 for the first time in the country history through more sustainable actions within the last years. Actions carried on enhancement and expansion of Protected Areas since 2003 were continued according to “Towards effective protected areas system - A guide for action on implementation of PAs Work Programme of Convention of Biological Diversity” and presently, there exist protected areas at total 876236.1 ha, including 8 National Parks, 11 state nature reserves and 24 state nature sanctuaries in our country.

Moreover, Gobustan state nature reserve and Baku Seaside National Park (area of 80 ha) are functioning, there exist 2083 centennial trees, 37 geological and paleontological sites and 15 thousand ha endemic and valuable forest lands.

Nº	Name of the SPNA	Administrative territory	Area	Date of establishment
National Parks				
1	Shirvan NP	Garadagh district of Baku city, Salyan and Neftchala regions	54373,50	2003
2	Aghgol NP	Aghjabadi and Beylagan regions	17924,00	2003
3	Hirkan NP	Lankaran and Astara regions	40358,00	2004
4	Altiaghaj NP	Khizi and Siyazan regions	11035,00	2004
5	Absheron NP	Azizbayov district of Baku city	783,00	2005
6	Shahdag NP	Guba, Gusar, Ismayilly, Gabala, Oghuz and Shamakhy regions	115895,00	2006
7	Goygol NP	Goygol, Dashkasan and Goranboy regions	12755,00	2008
8	Zangazur NP named after Academician H.Aliyev	Nakhichevan AR	42797,4	2009
State Nature Reserves				
1	Gizilaghaj SNR	Lankaran region	88360,00	1929
2	Zagatala SNR	Zagatala and Balakan regions	47349,00	1929
3	Turyanchay SNR	Aghdash, Oghuz, Yevlakh and Gabala regions	22488,00	1958

4	Shirvan SNR	Salyan and Neftchala regions	6232,00	1969
5	Basitchay SNR	Zangilan region	107,00	1974
6	Garayazy SNR	Gazakh region	9658,00	1978
7	Ilisu SNR	Gakh region	17381,60	1987
8	Garagol SNR	Lachin region	240,00	1987
9	Eldar shamy SNR	Samukh region	1686,00	2004
10	Mud volcanoes SNR	Baku and Absheron peninsula	20000,00	2007
11	Korchay SNR	Goranboy region	4833,60	2008
	State Nature Sanctuaries			
1	Lachin SNS	Lachin region	20000,00	1961
2	Korchay SNS	Goygol and Goranboy regions	15000,00	1961
3	Bandovan SNS	Salyan region and Garadagh district	4930,00	1961
4	Shaki SNS	Shaki region	10350,00	1964
5	Gusar SNS	Gusar region	15000,00	1964
6	Shamkir SNS	Shamkir region	10000,00	1964
7	Gil island SNS	Gil island	400,00	1964
8	Garayazy-Aghstafa SNS	Aghstafa region	10000,00	1964
9	Barda SNS	Barda and Aghdam regions	7500,00	1966
10	Zuvand SNS	Lerik, Yardimly regions	15000,00	1969
11	Ordubad SNS	Ordubad region	27869,00	1969
12	Ismayilly SNS	Ismayilly and Gabala region	23438,00	1969
13	Qubadli SNS	Qubadli, Lachin region	20000,00	1969
14	Lesser Gizilaghaj SNS	Lankaran region	10700,00	1978
15	Dashaltı SNS	Shusha region	450,00	1981
16	Qızılja SNS	Gedebey region	5135,00	1984
17	Arazboyu SNS	Zangilan region	2200,00	1993
18	Gabala SNS	Gabala region	39700,00	1993
19	Gakh SNS	Gakh region	36836,00	2003
20	Hirkan SNS	Lankaran and Astara regions	1553,00	2005
21	Arazboyu SNS	Nakhichevan AR	9118,00	2005
22	Zagatala SNS	Zagatala and Balakan regions	6557,00	2008
23	Arpachay SNS	Nakhichevan AR , Sharur region	68911,00	2009
24	Rvarud SNS	Lerik region	1333,00	2009

Appendix 4 – National indicators used in the report.

Refer to the Chapter 1.

Annexes

Annex 1.1

The morphometric description of the main rivers in the Republic is given below.

River	Where the river flows into (to which bank)	Length, km	Water collecting area, km ²	Height situation, m	
				origin	outfall
1	2	3	4	5	6
Kura river	Caspian sea	1515	188000	2740	-27
Ganikh	Mingachevir reservoir	413	16920	2560	75
Gabirri	Mingachevir reservoir	389	4840	2560	51
Khram	Kura river (right)	220	8340	2422	255
Aghstafachay	Kura river (right)	133	2586	3000	210
Kurakchay	Kura river (right)	126	2080	3100	18
Araz	Kura river (right)	1072	102000	2990	-11
Arpachay	Araz (left)	126	2630	2985	780
Hakarichay	Araz (left)	128	5540	3080	268
Samur	Caspian sea	216	4430	3600	-27
Pirsaat	Caspian sea	199	2280	2400	-11
Bolgarchay	Mahmudchala lake	168	2170	1710	-17

Annex 2.1

Status of the countrywide land use

YEARS	2003	2004	2005	2006	2007	2008	Difference on 2003-2008	
Total area	8641506	8641506	8641506	8641506	8641506	8641506	+	-
Agricultural lands, including irrigated, total	4524980 1282267	4524776 1287326	4528272 1289452	4524825 1287500	4524073 1287361	4523960 1286968		1020
							4701	
Arable lands, irrigated hereof	1630813 1102045	1635420 1107734	1640964 1112595	1638301 1110068	1650153 1106065	1659672 1107371	28859 5326	
								11250
Uncropped lands, irrigated hereof	53011 20432	49893 16945	45688 14915	45788 15176	45630 15076	41761 13434		6998
Perennial arable lands, irrigated hereof	158521 113186	155752 110417	155505 109710	155070 110046	158591 114070	161549 116484	3028 3298	
Hayfield, irrigated hereof	109031 6253	109027 6304	109629 6304	109549 6302	109689 6302	109689 6302	658 49	
Pastures, irrigated hereof	2573604 40351	2574684 45926	2576486 45928	2576117 45908	2560010 45848	2551289 43377		22315
Household plots, irrigated hereof	254401 137308	255306 137459	255601 136910	256732 138281	258095 138855	258454 139157	4053 1849	

Annex 2.2

Status of the land use by the economical regions (information on December 2009)

1000 hektares

Economical regions	Overall area	Rural population (1000 persons)	Annual plants	Parennyial plants	Noncropp ed lands	Househol d plot (arable area)	Total Arable lands	Meadow and pasture areas	Total agricultur elands
Absheron	525.5	34.6	21.8	4.2	4.8	2.7	35.7	152.1	187.8
Guba-Khachmaz	801.0	316.1	128.4	31.6	2.1	11.7	170.5	276.0	446.5
Zagatala-Balakan	987.7	405.9	179.9	46.7	1.8	19.1	241.2	221.1	462.3
Shirvan	1196.4	526.1	299.3	17.8	8.7	38.2	362.3	390.1	752.4
Ganja-Gazakh	1249.4	607.2	189.6	12.9	3.2	36.6	242.0	550.2	792.2
Garabagh-Mil	886.8	548.4	266.1	25.3	2.8	15.6	314.3	256.2	570.5
Mugan-Salyan	776.8	488.7	286.7	25.0	3.9	28.4	327.8	251.5	579.3
Lankaran-Astara	493.7	459.2	66.6	10.2	2.1	25.4	92.4	105.4	197.8
Nakhchivan	536.3	271.1	27.9	2.9	7.9	12.9	54.6	116.2	170.8
Total	7453.5	3657.2	1466.3	176.6	37.3	190.6	1840.9	2318.8	4159.7
Occupied areas	1188.0	387.7	171.4	38.0	7.1	13.2	224.9	356.4	581.3
The Republic of Azerbaijan - total	8641.5	4044.9	1637.7	214.6	44.4	203.8	2065.7	2675.2	4741.0

2009

Annex 2.3

Distribution of the arable lands and average limits of the farm

Name of the economical regions	Mountainous area			Plain area			Total		
	Number of the rural families (the end of 2009)	Total arable lands (1000 ha)	Land area for per family (ha)	Number of the rural families (the end of 2009)	Total arable lands (1000 ha)	Land area for per family (ha)	Number of the rural families (the end of 2009))	Total arable lands (1000 ha)	Land area for per family (ha)
Absheron	1671	7.4	4.43	4996	28.3	5.66	6667	35.7	5.35
Guba-Khachmaz	-	-	-	64821	170.5	2.63	64821	170.5	2.63
Zagatala-Balakan	-	-	-	84736	241.2	2.85	84736	241.2	2.85
Shirvan	30216	117.1	3.87	78644	245.3	3.12	108860	362.4	3.33
Ganja-Gazakh	21872	20.0	0.91	103371	222.0	2.15	125243	242.0	1.93
Garabagh-Mil	-	-	-	124046	314.3	2.53	124046	314.3	2.53
Mughan-Salyan	-	-	-	124106	327.8	2.64	124106	327.8	2.64
Lankaran-Astara	24014	33.6	1.40	76811	58.9	0.77	100825	92.5	0.92
Nakhchivan	-	-	-	56774	54.6	0.96	56774	54.6	0.96
Total	77773	178.1	2.29	718305	1662.8	2.31	796078	1840.9	2.31
Occupied areas	77540	224.9	2.90	-	-	-	77540	224.9	2.90
The Republic of Azerbaijan - total	155313	403.0	2.59	718305	1662.8	2.31	873618	2065.8	2.36

Annex 2.4

Land use status in Nakhchivan AR

YEARS	2003	2004	2005	2006	2007	2008
Total area	536300	536300	536300	536300	536300	536300
Agriculture lands, including irrigated total	162447 43201	162447 43652	162447 43652	162423 43628	162391 43596	162382 43587
Arable lands, irrigated hereof	36321 33623	36711 34821	41326 36100	41188 35687	41257 35735	50535 39403
Noncropped, irrigated hereof	5750 3687	4992 2446	2551 1409	2975 1754	2874 1674	194 32
Perennial arable lands, irrigated hereof	706 706	732 732	490 490	549 549	549 549	549 549
Hayfield, irrigated hereof	3340 607	3336 658	3336 658	3336 658	3336 658	3336 658
Pastures, irrigated hereof	116330 4578	116676 4995	114744 4995	114375 4980	114375 4980	107768 2945
Household plots, irrigated hereof	14577 13046	14201 12684	14206 12684	14392 12690	14424 12722	14439 12731

Annex 3.1

Rare and endangered animal species included in the Red Data Book of Nakhchivan Autonomous Republic

Latin names of the species	Status	Areal
<i>Aegypius monachus</i> L.	Decreasing area, close to danger	Open landscape uplands, sparse juniper wooded rocky areas, wintering lowland zone
<i>Accipiter brevipes</i> Severtzov	Restricted area, sensitive, exotic specy	Hayfield forest of Shahbuz State Nature Reserve
<i>Allactaga williamsi</i> Thomas	Decreasing area, poorly studied biology, close to danger	Boyukduz and Julfa flats, as well as up to 2500 m height above sea level in mountainous and xerophytes/xerophilous plants covered areas in Nakhichevan AR
<i>Anser erythropus</i> Linn.	Sensitive, exotic specy	Coasts of the Caspian sea, Gizilaghaj reserve, Aghgol, Sarisu, Gushgol, Jandargol and, Araz river of Nakhichevan AR
<i>Ammoperdix griseogularis</i> (B.R.)	Restricted area, sensitive, exotic specy	Lanscapes surrounded by low-lying hills and rocky places and covered with xerophilous plants in the territory of Nakhichevan AR
<i>Aquila chrysaetos</i> Linn.	Minor numbered, endangered, restricted area, sensitive	Shahbuz, Ordubad (1200 m) and Julfa regions in Nakhichevan AR
<i>Aquila heliaca</i> Savigny	Close to endangering by continually declining abundance dynamics	Upland and foothill zones of Nakhichevan AR
<i>Aythya nyroca</i> Guld.	Decreasing area, poorly studied biology, close to danger	Caspian seacoast part of Gizilaghaj bay, water cross-sections of Araz river
<i>Barbastella leucomelas</i> Cretzchmar	Restricted area, minor numbered, sensitive, exotic specy	Kilit cave of Ordubad region of Nakhichevan AR
<i>Bucanetes githagineus</i> (Licht.)	Decreasing area, poorly studied biology, close to danger, exotic specy	Daridagh part, around Aza village of Julfa region of Nakhichevan AR
<i>Calomuscus urartensis</i> Vor. Et Kar.	Decreasing area, poorly studied biology, close to danger	Frontiers of medium mountainous zone of Nakhichevan river
<i>Capra aegagrus</i> Erxleben	Restricted area, sensitive, exotic specy	Ilanlidagh, Nehramdagh, Zangazur
<i>Circaetus gallicus</i> Gmel.	Decreasing area, minor numbered, close to danger, exotic specy	Araz sloping plain (Boyukduz and Darasham) and medium mountainous zones
<i>Circus macrourus</i> G.M.	Decreasing area, poorly studied biology, close to danger	Araz plain and grey forest soil of Nakhichevan AR
<i>Chlamydota undulata</i> Jacquin	Specy in critically limited natural condition and probably endangered	Araz valley and flat, crippled semidesert zones
<i>Chettusia gregaria</i> Pall.	Endangering specy by declining abundance	Arazside zone of Kangarli region and Alinja bank of Julfa region in Nakhichevan AR
<i>Crex crex</i> Linn.	Decreasing area, poorly studied biology, exotic specy by	Boyukduz and Julfa flats of Araz plain in Nakhichevan AR

	declining abundance, close to danger	
<i>Cygnus cygnus</i> Linn.	Decreasing area, poorly studied biology, close to danger	Araz river of Nakhichevan AR
<i>Elaphe hohenackeri</i> Strauch.	Restricted area, sensitive, exotic specy by sharply declining abundance	Bichanak village of Shahbuz region and vicinity of Yukhary Andamij and Ganza villages of Ordubad region in Nakhichevan AR
<i>Eremias strauchi</i> Kessl.	Exotic specy by continually declining abundance	Surroundings of Nakhichevan city, Daridagh and Soyudagh areas
<i>Eremophila alpestris</i> Linn.	Decreasing area, poorly studied biology, close to danger	High mountain belt of Nakhichevan AR, Arazside areas and surroundings of Nakhichevan city in winter
<i>Eumeces schneideri</i> Daud.	Decreasing area, close to danger, minor numbered, exotic specy	Semideserts and plains adjoining to Arazside part of Julfa and Ordubad regions
<i>Falco biarmicus</i> Temm.	Restricted area, sensitive, exotic specy by declining abundance	Around Kuku mountain area (Darabogaz) and rocky place in the vicinity of Gizil Gishlag of Shahbuz region in Nakhichevan AR
<i>Falco peregrinus</i> Tunstall.	Decreasing area, poorly studied biology, exotic specy by declining abundance, close to danger	Garagush mountain of Sharur region, Gilanchay and Nurgut villages of Ordubad region, around Kolany village of Shahbuz region in Nakhichevan AR
<i>Falco naumanni</i> Fleischer	Restricted area, sensitive, exotic specy by gradually declining	Tugai forests, oases and sparsely wooded open areas
<i>Felis libyca</i> Forster	Decreasing area, poorly studied biology, close to danger	Mughan and Salyan plains, Hajinohur flats and Araz river valley in Nakhichevan AR
<i>Felis manul</i> Pallas	Restricted area, sensitive, exotic specy	Validagh areas of Sadarak region adjacent to Araz river and Darasham area of Julfa region in Nakhichevan AR
<i>Felis lynx</i> Linn.	Decreasing area, poorly studied biology, close to danger	South slopes of Great Caucasus (Shaki-Zagatala, Ismayilly and Shamakhy forests) - north east utmost ends (Guba and Davachi regions), Nakhichevan AR and Lankaran region
<i>Felis silvestris</i> Schreber	Decreasing area, poorly studied biology	Areas of Great Caucasus and Little Caucasus and, Bichanak and Tillak forests of Nakhichevan AR
<i>Glareola nordmanni</i> Nordm.	Decreasing area, poorly studied biology, exotic specy by continually declining abundance, close to danger	Araz sloping plain and medium mountainy zones of Nakhichevan AR
<i>Gypaetus barbatus</i> Linn.	Minor numbered, endangering, restricted area, sensitive	Ilanlidagh, Darasham and Batabat areas in Nakhichevan AR
<i>Gyps fulvus</i> Habl.	Decreasing area, poorly studied biology, close to danger	Rocky places of medium and high mountainy zones of Nakhichevan AR
<i>Haliaeetus albicilla</i> Linn.	Decreasing area, poorly studied biology, exotic specy close to danger	Plains and, coasts of the Caspian and banks of Araz river
<i>Hyaena hyaena</i> Linn.	Specy in critically limited natural condition and probably endangered	Bottoms of Bozdagh and, Aghdam and Fizuli regions, areas of Ilanlidagh, Paradash of Julfa region and Gilanchay

		valley of Ordubad region in Nakhichevan AR
<i>Hystrix indica</i> Kerr.	Decreasing area, poorly studied biology, close to danger	Lankaran zone, Mountainous Garabagh and, areas of Kotam, Ganza, Vanand, Dirlis, Gilanchay, Bilav and Tivi villages in Nakhichevan AR
<i>Irania gutturalis</i> G.M.	Decreasing area, exotic specy close to danger	Araz valley, down to lowland belt
<i>Lacerta parva</i> Boul.	Specy in critically limited natural condition and probably endangered	Territory of Julfa region of Nakhichevan AR
<i>Lanius senator</i> Linn.	Decreasing area, poorly studied biology, close to danger	Dry climate shrublands of low-lying and foothill regions
<i>Larus ichthyaetus</i> Pall.	Decreasing area, poorly studied biology, close to danger	The Caspian sea, Mingachevir, Araz river
<i>Marmaronetta angustirostris</i> Men.	Endangering, sensitive, exotic specy	Araz river of Nakhichevan AR
<i>Mabuya aurata</i> Linneus	Decreasing area, close to danger, restricted area, exotic specy by declining abundance	Surroundings of Old Kotam, Ganza and Kilit of Ordubad region of Nakhichevan AR
<i>Miniopterus schreibersi</i> Kühl.	Decreasing area, poorly studied biology, minor numbered, exotic specy	Cavern areas covered with phryganoid vegetation of medium mountain belt
<i>Otis tarda</i> Linn.	Specy by declining abundance, close to endangering	Kura-Araz, Lankaran areas and, Boyukduz and Darasham flats of Araz sloping plain in Nakhichevan AR
<i>Ovis orientalis</i> Gmelin.	Close to endangering by continually declining abundance dynamics	Zangazur, Daralayaz and Ilanlidagh ranges of Nakhichevan AR
<i>Oxyura leucocephala</i> Scop.	Specy by continually declining abundance and needed for preferential protection	Surroundings of the Caspian coasts and water cross-section of Araz river
<i>Panthera pardus</i> Linn.	Specy in critically limited natural condition and probably endangered	Zangazur and Daralayaz ranges of Nakhichevan AR
<i>Pelobates syriacus</i> Boettger	Decreasing area, close to danger, restricted area, minor numbered, exotic specy	Surroundings of Araz river
<i>Pelecanus onocrotalis</i> L.	Disseminated in limited areas, sensitive, exotic specy	Araz river of Nakhichevan AR, vicinity of Arpachay water reservoir
<i>Pelecanus crispus</i> Bruch.	Globally protected specy	Lankaran and Kura-Araz lowlands, water sources in the Caspian coasts, Araz river and Arpachay water reservoir in Nakhichevan AR
<i>Phalacrocorax pygmaeus</i> Pall.	Endangered, sensitive, exotic specy	Araz river of Nakhichevan AR
<i>Phrynocephalus helioscopus</i> Pall.	Minor numbered, restricted area, exotic specy	Uzunoba village of Babek region, Dasta village of Ordubad region, Gulustan village of Julfa region of Nakhichevan AR, Zuvand and Absheron peninsula (Garadagh district)
<i>Phoenicopterus roseus</i> Pall.	Decreasing area, close to danger	Gizilaghaj bay, Aghgol and Araz river bank of Nakhichevan AR
<i>Phylloscorus collybita</i> Viell.	Decreasing area, poorly studied biology, close to danger	Forest and shrublands of Shahbuz and Babek regions, Nabat garden of

		Nakhichevan city in Nakhichevan AR
<i>Plecotus auritus</i> Linn.	Decreasing area, poorly studied biology, minor numbered, exotic specy disseminated in limited area	Kalaki village (1600 m above sea level) of Ordubad region, cavities and fissures on garrets, tree hollows in Nakhichevan city of Nakhichevan AR
<i>Platalea leucorodia</i> Linn.	Decreasing area, poorly studied biology, close to danger	Aghgol, reedy and bulrush areas of Araz river banks
<i>Psammophis lineolatum</i> Brandt.	Decreasing area, poorly studied biology, close to danger	Surroundings of Jamaldin village of Julfa region and Diza village of Ordubad region
<i>Pterocles alchata</i> Linn.	Decreasing area, poorly studied biology, close to danger	Semidesert and desert zones of Araz plain in Nakhichevan AR
<i>Pterocles orientalis</i> Linn.	Restricted area, close to danger, sensitive, exotic specy	Boyukduz and Julfa flats of Araz plain in Nakhichevan AR
<i>Rhinolophus euryale</i> Blasius	Restricted area, minor numbered, sensitive, exotic specy	Cavern in the vicinity of Kilit village of Ordubad region and Araz river in Nakhichevan AR
<i>Rhinolophus hipposideros</i> Bechstein	Decreasing area, poorly studied biology, close to danger	Medium and high mountain zones in the territory of Nakhichevan AR
<i>Rhinolophus mehelyi</i> Matschie	Restricted area, minor numbered, sensitive, exotic specy	Cavern in the vicinity of Maralik village of Shahbuz region in Nakhichevan AR
<i>Rhinolophus blasii</i> Peters	Decreasing area, poorly studied biology, minor numbered, close to danger	Maralik village of Shahbuz region, Sirab village of Babek region and caverns in the vicinity of Ordubad region in Nakhichevan AR
<i>Rhynchoalamus melanocephalus</i> Jan. 1993	Specy in critically limited natural condition and probably endangered	Ordubad, Kotam, around Kilit and Arazside zone in Nakhichevan AR
<i>Salmo trutta morpho fario</i> Linneus, 1758	Restricted area, minor numbered, exotic specy	Goygol, Sakkarsu, Ayrichay*, Unuschay, Gilanchay
<i>Sitta tephronata</i> Scharp.	Decreasing area, poorly studied biology, exotic specy close to danger	Slopes of rocky places and sparse shrublands of medium and high mountains
<i>Testudo graeca</i> L.	Minor numbered, restricted area, sensitive, exotic specy	Garagush mountain of Sharur region, Jin mountain of Shahbuz region, Mazra village of Ordubad region in Nakhichevan AR
<i>Tetraogallus caspicus</i> Gmel.	Restricted area, sensitive, exotic specy by declining abundance	Shahbuz, Ordubad and Julfa mountains
<i>Tichodroma muraria</i> Linn.	Restricted area, sensitive, exotic specy	Rocky places and ravines of lowland and upland zone in Azerbaijan
<i>Ursus arctos</i> Linn.	Restricted area, sensitive, exotic specy	Great Caucasus and Small Caucasus, Talish and Nakhichevan forests, bottom of Daralayaz and Zangazur ranges in Nakhichevan AR, Batabat forest of Shahbuz State Nature Reserve, zone of Khurs and Nasirvar forests
<i>Vipera xanthina</i> Gray (V.Raddei Boett)	Restricted area, sensitive, exotic specy by sharply declining abundance	Nakhichevan AR, namely areas covered with mountainous and xerophytes/xerophilous plants at 1100-2500 m height
<i>Vormela peregrina</i> Güld.,	Decreasing area, close to danger	Julfa, Babek and Ordubad regions of Nakhichevan AR

Annex 4.1

(thousand areas)

No	Name of the indicators	Quantity		
1	Overall area of the irrigated agriculture lands	1450.0		
2	Total of the drainaged area of the irrigated agricultural lands	609.7		
3	Distribution of the irrigated areas on the incline degree of the subsoil waters (metre)	Less than 1.0 m	68.7	
		1.0-1.5	171.6	
		1.5-2.0	314.5	
		2.0-3.0	358.9	
		3.0-5.0	234.9	
		More than 5.0	296.3	
4	Distribution of the irrigated agriculture lands on the mineralization degree of the subsoil waters (g/l)	Less than 1.0 m	489.6	
		1.0-3.0	506.0	
		More than 3.0 m	449.3	
5	Distribution of the irrigated agriculture lands on the mineralization degree of the irrigation waters	Less than 1.0 m	1201.0	
		1.0-2.0	243.9	
		More than 2.0 m	-	
6	Distribution of the irrigated agriculture lands on the saltiness degree (on 0-100 sm layer of earth)	Salty	757.2	
		Weak salty	387.1	
		Medium salty	185.5	
		Strong and very strong salty	115.1	
7	Distribution of the irrigated agriculture lands on the saline degree (on 0-100 sm layer of earth)	Non-saline	978.6	
		Weak saline	375.3	
		Medium and strong saline	43.2	
8	Evaluation of the land-reclamation status of the irrigated areas on the incline depth and saltiness degree of lands	Good	396.1	
		Satisfactory	663.7	
		Non-satisfactory	385.1	
		Including	According to the depth of waters	103.4
			According to the saltiness of the lands	115.1
			According to the depth of waters and the saltiness of the lands	166.6

Annex 4.2

I n f o r m a t i o n

on the amount of the mineral fertilizers used per hectares of the agricultural plant seedings

(kg affective substance is taken into consideration)

Nº	Name of the plants	2002	2003	2004	2005	2006	2007	2008
1	Gorn	86.0	95.0	65.0	72.4	80.4	83.5	91.0
2	Cotton	77.0	80.1	51.6	50.7	45.2	43.2	40.0
3	Tobacco	30.8	37.0	42.0	34.5	30.0	26.7	25.2
4	Vegetable-potato	17.5	17.9	26.0	46.8	50.3	60.0	64.7
5	Fruit	21.8	18.5	30.4	37.1	46.7	50.4	56.2
6	Fodder crops	-	-	-	-	-	-	-

Annex 4.3

I n f o r m a t i o n
 on the fertilizers used for agricultural plants

(thousand ton affective substance is taken into consideration)

Nº	Name of the plants	2002	2003	2004	2005	2006	2007	2008
1	Gorn	6.5	8.3	8.6	8.7	11.9	15.0	32.3
2	Cotton	4.6	4.0	6.4	9.2	8.9	0.8	0.9
3	Tobacco	0.06	0.05	0.1	0.2	0.2	0.2	0.1
4	Vegetable-potato	2.14	3.33	4.4	4.3	3.2	3.1	5.1
5	Fruit	1.3	1.9	1.1	1.1	1.0	1.0	2.3
6	Fodder crops	0.02	0.02	-	-	-	-	-
	Total	14.62	23.7	20.6	23.5	25.2	20.1	40.7
	Including : N	12.9	15.8	16.9	19.5	20.7	16.5	31.7
	P	1.72	1.8	1.8	2.0	2.5	2.0	4.5
	K	-	-	1.9	2.0	2.0	1.6	4.5

Annex 5.1

Information reflecting situation of forestry is given in the following table under the statistic data of 2002-2008.

Name of the actions	2002	2003	2004	2005	2006	2007	2008	Total
Renewal of the governmentally important forests, ha including: Forest plantation and sowing, ha	7750	8721	9126	9737	10140	10500	10960	66934
Forest plantation in ravines, gorges, sandy places and inarable lands of other land users, ha	3150	3701	3705	3850	3848	3853	3898	26005
214	136	159	55	76	20	349	1009	
Referring of young trees in the governmentally important forest lands to category of cultivated valuable woodlands, ha including: by forest plantation, ha	4403	3851	3844	3803	4863	4350	4232	29346
1122	1265	1349	948	700	1475	1481	8340	
Fire occurred forest lands, ha	46	9	77	21	15	88	25	281
Forest service and sanitary cutoffs, ha	5807	2836	9991	3462	3536	5477	4514	35623
Wood procurement for sale, cubic meter	64665	22064	31355	32082	31312	51599	36248	269325
Protection of forest from insects and diseases by biological method, thousand ha	-	-	10	15	7	8	-	40

Annex 6.1

Information on the setting free young fishes in the Republic of Azerbaijan

Name of the fish	2003	2004	2005	2006	2007	2008	2009
Sturgeons (million)	12,02	19,89	16,96	16,03	9,68	12,49	7,67
Salmonids (thousand)	0,073	0,078	0,113	0,095	0,118	0,174	0,180
Minnows/carps (million)	440,65	436,38	427,51	432,13	435,91	409,68	408,50
Total:	452,74	456,34	444,58	448,26	445,71	422,35	416,35

Annex 6.2

Quota for fish hunting in the Republic of Azerbaijan and its assimilation

Fish species	2003		2004		2005		2006		2007		2008		2009	
	limit	fact	limit	fact	limit	fact	limit	fact	limit	fact	limit	fact	limit	fact
Sturgeons (ton)	104,59	104,48	104	88	100	84	90	8	90	73	90	72	90	3
Kilka (thousand)	22	6,07	41,12	8,89	23,46	8,63	18,96	3,66	23	2,45	23	1,02	23	0,748

Annex 6.3

Number of hunted fishes in the Republic of Azerbaijan during 10 months in 2003-2009

(thousand ton)

Fish species	2003	2004	2005	2006	2007	2008	10 months in 2009
Sturgeon	0,10	0,088	0,084	0,008	0,073	0,072	0,003
Carp	0,211	0,21	0,219	0,238	0,328	0,324	0,206
Kilka	6,07	8,89	8,63	3,66	2,45	1,02	0,748
Shad	0,05	0,06	0,06	0,068	0,096	0,10	0,073
Total:	6,431	9,248	8,993	3,974	2,947	1,516	1,03

NOTE: Decline in fishing as compared to 2003 was possible mainly on account of sprat and sturgeons. Its reason is related to reduction as 12-16 times of number and biomass of zooplanktons which sprats feeded with and subsequently, diminishing of volume of sprat fishery due to impact of *Mnemiopsis Leidyi* being alien specy for the Caspian.

Notwithstanding national quotas were allocated by the Bioresources Commission in 2006 and 2009 no requests were addressed for industrial fishing of sturgeons by the organizations engaged in fishing and fish trade, because export quota has not been ratified by the Convention on International Trade in Endangered Species.

Annex 6.4

Information on the factual expenses, factual budget allocation and demand for budget allocation during 2003-2008 for the financing the Department of Reproduction and Protection of Aquatic Bioresources and its subordinated institutions (thousand manats)

Nº	Indicators	Unit of measure ment	2003	2004	2005	2006	2007	2008
1	Budget allocation required for the support of the institutions	Thousan d manat	641,6	627,4	668,0	1605,0	1866,0	5027,7
2	Budget allocation affirmed according to the requirement	-«-	210,9	275,0	379,1	1172,7	1683,0	1898,6
3	Factual transferred resource from the affirmed budget allocation	-«-	209,9	257,6	379,1	1125,6	1562,2	1733,2
4	Factual expences from the affirmed budget allocation	-«-	192,3	246,5	360,8	811,5	1242,6	1400,6
5	Less resource than the requirement was affirmed	-«-	430,7	352,4	288,5	432,3	183,0	3129,1
6	Less than the affirmed resource was financed	-«-	1	17	0	47	121	165
7	So the resource transferred late, it wasn't possible to use it and it was returned back to the Minstry of Finance of the Republic of Azerbaijan	«-					75	25

Annex 7.1

Density of the connection roads in the Republic area
(for the end of the year; km road for per 1000 km² area)

	2001	2004	2005	2006	2007	2008	2009
Railway - total	37,7	35,3	34,5	34,3	34,3	33,7	33,7
Transport sector	24,4	24,5	24,5	24,5	24,5	24,2	24,2
Non-transport areas	13,3	10,8	10,0	10,0	9,8	9,5	9,5
Main pipelines	50,8	48,5	52,0	47,3	53,1	61,1	61,1
Main oil-pipelines	16,2	16,2	16,2	16,2	21,9	21,4	21,4
Main gas-pipelines	34,6	32,3	35,8	31,2	31,2	39,7	39,7
Firm-coated roads - total	217,0	217,1	217,1	217,1	217,1	217,4	218,3

Annex 8.1

Species found in captivity or in *ex situ* conditions in Azerbaijan⁴⁷

Scientific name	Common name(s)	IUCN listing	CITES status	National Threat Status
Mammals				
<i>Panthera leo</i> (Linnaeus, 1758)	Lion (<i>Африка Асланы</i>)	VU C2a(i)	II	-
<i>Panthera tigris longipilis</i> (Fitzinger, 1868)	Siberian tiger, Siberian tiger (<i>Амур пиязы</i>)	EN C2a(i)	I	-
<i>Puma concolor</i> (Linnaeus, 1771)	Mountain lion, Puma (<i>Пума</i>)	NT	II	-
<i>Felis chaus</i> (Schreber, 1777)	Jungle cat (<i>Гамыш пишии</i>)	-	II	-
<i>Ursus arctos</i> (Linnaeus, 1758)	Brown bear (<i>Гонур айы</i>)	-	II	-
<i>Ursus americanus</i> (Pallas, 1780)	American black bear, black bear (<i>Гара айы</i>)	-	II	-
<i>Canis lupus</i> (Linnaeus, 1758)	Gray Wolf (<i>Боз жанаевар</i>)	-	II	-
<i>Papio hamadryas</i> (Linnaeus, 1758)	Hamadryas baboon, Sacred baboon (<i>Павиан-гамадрил</i>)	LR/nt	II	-
<i>Chlorocebus aethiops</i> (Linnaeus, 1758)	Green monkey, Vervet monkey (<i>Йашыл меймун</i>)	-	II	-
<i>Macaca mulatta</i> (Zimmermann, 1780)	Rhesus macaque, Rhesus monkey (<i>Макака резус</i>)	LR/nt	II	-
<i>Cercopithecus cephus</i> (Linnaeus, 1758)	Moustached monkey (<i>Мависифям меймун</i>)	-	II	-
<i>Capra cylindricornis</i> (Blyth, 1841)	East Caucasian tur (<i>Дагыстан түрү</i>)	VU A1d+2de, C1	-	-
<i>Gazella subgutturosa</i> (Güldenstädt, 1780)	Goitred gazelle, Sand gazelle (<i>Жейран</i>)	NT	-	Endangered
<i>Lama guanacoe</i>	Llama (<i>Лама гуанако</i>)	-	II	-
<i>Sciurus anomalus</i> (Güldenstädt, 1785)	Caucasian squirrel, Persian squirrel (<i>Гафгаз (фарс) синжабы</i>)	LR/nt	-	-
<i>Sciurus vulgaris</i> (Linnaeus, 1758)	Eurasian red squirrel, Red squirrel (<i>Ади синжаб</i>)	NT	-	-
Birds				
<i>Struthio camelus</i> (Linnaeus, 1758)	Ostrich (<i>Африка даягын</i>)	-	I	-
<i>Pelecanus crispus</i> (Linnaeus, 1758)	Dalmatian pelican (<i>Гырымляяк зуман</i>)	LR/cd	I	Rare, declining
<i>Platalea leucorodia leucorodia</i>	Spoonbill (<i>Ярсындымдик</i>)	-	II	Rare, declining.
<i>Phoenicopterus roseus</i> (Pall., 1758)	Flamingo (<i>Гызыл газ</i>)	-	II	Rare, declining
<i>Alopochen aegyptiacus</i> (Linnaeus, 1766)	<i>Нил газы</i>	-	-	-
<i>Aix galericulata</i> (Linnaeus, 1758)	Мандарин тордяк	-	-	-
<i>Branta canadensis</i> (Linnaeus, 1758)	Canada goose (<i>Канада казаркасы</i>)	-	I	-
<i>Porphyrio porphyrio</i> (Linnaeus, 1758)	Purple swamphen, purple gallinule (<i>Султан тошын</i>)	-	-	Rare species.
<i>Circus cyaneus</i> (Linnaeus, 1766)	Hen harrier (<i>Чиянлик белибальысы</i>)	-	II	-
<i>Circus aeruginosus</i>	Marsh harrier (<i>Батаглыг белибальысы</i>)	-	II	-
<i>Aythya nyroca</i> (Guldenstadt, 1770)	Ferruginous duck, Ferruginous	LR/nt	III	-

⁴⁷ Includes a number of foreign species which are of conservation importance, with nationally threatened species are identified in the final column.

	pochard, White-eyed porchard (Абъюз дальыж)			
<i>Aegypius monachus</i> (Linnaeus, 1766)	Black vulture, Cinereous Vulture (Гара гриф)	LR/nt	II	-
<i>Aquila chrysaetus</i> (Linnaeus, 1758)	Aigle royal, golden eagle (Беркут)	-	II	Rare, declining
<i>Aquila heliaca</i> (Savigny, 1809)	Spanish imperial eagle (Мязар гарталы)	VU C1	I	Rare, declining
<i>Aquila nipalensis</i> (Hodgson, 1833)	Чоң гарталы	-	II	-
<i>Gyps fulvus</i> (Hablizl, 1783)	Griffon vulture (Аьбаши кяркяс)	-	II	-
<i>Gypaetus barbatus</i> (Linnaeus, 1758)	Lammergeier, bearded vulture (Төлдүзүтириян)	-	II	Endangered
<i>Falco peregrinus</i> (Tunstall, 1771)	Peregrine falcon (Ади шащин (сансан))	-	I	Rare, declining
<i>Buteo buteo</i> (Linnaeus, 1758)	Buzzard (Ади сар)	-	II	-
<i>Neophron percnopterus</i> (Linnaeus, 1758)	Egyptian vulture (Лешілдян гартал)	-	II	-
<i>Ara ararauna</i> (Linnaeus, 1758)	Ara (Ара түтүгүшүү)		II	-
<i>Amazona albifrons</i> (Sparrman, 1788)	Айбаш амазон	-		-
<i>Psittacula eupatria</i> (Linnaeus, 1766)	Бюйүкхалтый түтүгүшүү	-	II	-
<i>Psittacula krameri</i> (Scopoli, 1769)	Rose-ringed parakeet (Кичик халтый түтүгүшүү)	-	III	-
<i>Poicephalus senegalus</i> (Linnaeus, 1766)	Сенегал түтүгүшүү	-	II	-
<i>Eos histrio</i> (Muller, 1776)	Red and blue lory (Эюй-гырмызы лори түтүгүшүү)	EN A2cd, B1+2abcde	II	-
<i>Psittacus erithacus</i> Linnaeus, 1758	Бако түтүгүшүүсү	-	II	-
<i>Psephotus haematonotus</i> (Gould, 1838)	Охуян түтүгүшүү	-	II	-
<i>Chrysolophus pictus</i> (Linnaeus, 1758)	Гызыл гырьовул	-	-	-
<i>Chrysolophus amherstiae</i> (Leadbeater, 1829)	Алмас гырьовулу	-	-	-
<i>Lophura swinhonis</i> (Gould, 1863)	Swinhoe's Pheasant (Тайван гырьовулу (Свайно))	LR/nt	I	-
<i>Lophura leucomelana</i> (Latham, 1790)	Непал гырьовулу	-	-	-
<i>Bubo bubo</i> (Linnaeus, 1758)	Eagle owl (Ири йапалаб)	-	II	-
Reptiles and amphibians				
<i>Python molurus bivittatus</i> (Kuhl 1820)	Asian rock python, Burmese python (Түндөплянэн питон)	LR/nt	I	-
<i>Eunectes notaeus</i> (Cope 1862)	Yellow anaconda (Парағвай анакондасы)	-	II	-
<i>Boa constrictor</i> (Linnaeus, 1758)	Boa constrictor (Імператор удавы)	-	II	-
<i>Varanus niloticus</i> (Fitzinger, 1826)	Nile monitor (Нил вараны)	-	II	-
<i>Testudo graeca ibera</i> (Pallas, 1814)	Common tortoise, Greek Tortoise (Аралык дәниси тысбабасы)	VU A1cd	I	Declining range and population
<i>Emys orbicularis</i> (Blanford, 1876)	European pond turtle (Батаглыг тысбабасы)	-	-	-
<i>Caiman crocodilus</i> (Conant & Collins, 1991)	Common caiman (Тимсацвари кайман)	-	II	-

Annex 9.1

Money spent in the frame of the nature protection

(thousand manat)

№	Directions of the expenses	Years						
		2002	2003	2004	2005	2006	2007	2008
1.	Current expenses for the environment protection measures including	11648.6	15192.0	21110.5	21395.8	26036.8	36007.8	61382.5
	• For the protection and rational utilization of the water stocks	9817.1	10957.8	17590.3	17899.3	21024.6	28603.3	37732.6
	• For the protection of atmosphere air	1421.2	2196.2	2591.0	2100.3	2866.4	2562.1	2607.7
	• For the protection against waste matters of the manufacture and consumption	346.4	818.7	383.4	971.2	1336.9	3698.9	11474.0
	• For the restoration of the soil	63.9	1219.3	545.8	425.0	808.9	1143.5	9568.2
2.	Expenses for the capital repairs of the main production funds on the environment protection	1158.8	1743.2	1809.3	1860.8	1790.4	2978.1	5482.1
3.	Expenses for the support of reserves, protection and rehabilitation of wild animals	321.3	434.8	398.4	1026.0	1544.4	2461.4	2882.5
4.	Operation expenses for forestry	444.0	367.7	2834.8	3710.8	4329.1	7275.0	7969.0
5.	Investment on the main capital directed to the rational utilization of the natural resources and environment protection including	2404.9	2965.1	1911.3	2912.3	8879.4	55504.6	97885.5
	• On the protection and rational utilization of the water stocks	944.7	1949.8	1706.5	1309.8	6838.1	18762.8	78830.2
	• On the protection of atmosphere air	1426.1	879.1	204.8	1503.9	1601.9	1091.8	929.6
	• On the protection and rational utilization of the soils	34.1	136.2		98.6	439.4	35650.0	18125.7
	• Investment to the other measures							
	Sum of expenses for all nature protection measures	16986.1	22230.1	28064.3	30905.7	42580.1	104226.9	175601.6

2009

Annex 9.2

Environmental NGO's in Azerbaijan

English Name	Contact person	Phone /Fax	E-mail	Address
Alive Nature Azerbaijan Flora and Fauna Founders Club	Aynur Surkhayeva	69504, 722771		Sumgayit, 23, 17th District, apt. 34
Ana Kur International Ecological Society	Israil Aliyev	567901		Ganja, 273, Ataturk Avenue
Association for Control of the Human and Animal's Protozoons	Hamida Gayibova, Mehdi Aliyev	935773	gamida_gaib@hotmail.com	Baki, 27, Azerbaijan av., apt.22
Azerbaijan Center for Protection of Birds	Elchin Sultanov	927052, 3161651	sultanov@azeurotel.com	Baki, 370073, passage 1128, mehelle 504
Azerbaijan Demographers Association (ADA)	Niyazi Mursagulov	711909	mursakulovnn@aznet.org, mursakulov@hotmail.com	Baki, 63 a , M.Hadi, apt. 97
Azerbaijan Ecological Union	Manaf Suleymanov	396123		Baki, 28a, Inshaatchilar av., apt. 43
Azerbaijan Green Movement	Farida Huseynova, Khalid Aliyev	3299391, 958939	Guseynovafk@aznet.org	Baki, 370001, 47/17, Istiglaliyyet str. Branches in Mingechevir and Sumgayit.
Azerbaijan National Committee on International Hydrologist Program	Magbet Mamedov, Farda Imanov	474068, 390501, 673156	farda@azerin.com	Baki, 370148, 23 Khalilov academician str., Baki State University
Azerbaijan Society of Study of Local Lore	Aydin Eyvazov, Seyran Veliyev	920882, 987903, 987903		Baki, 27 U.Hajibeyov str.
Azerbaijan Society of Zoologists	Musa Musayev, Barat Akhmedov, Tahir Kerimov	397371, 397359, 917783	zoology@deacs.az	Baki, 370073, 1128 block, pass 504
Azerbaijan Society for Protection of Animals	Azer Garayev, Gunduz Rahimov	940304, (850) 125089	aspa@azintex.com	Baki, 370014, 53, Fizuly str., apt. 96; Branch in Kazakhstan
Caucasus Int'l Center of Study of Local Lore & Ecotourism	Elchin Orujev	712468, 3271273	cavcin@azdata.net	Baki, 370123, 26, R.Mamedov, apt.154
Cultural Ecological Center Goy Gurshagy	Ismayil Sadikhly	42294		Sheki 20, 5 Sary Torpag str., pereulok 4
Dalga Charitable Society	Seyidzadeh M., Ahmedov I.	766365		Baki, 95, Babek av., apt. 54. Branch in Mingechevir
Eco-TES	Chingiz Nazarov	61598	ekotes@mail.ru	Mingechevir, 1, Y. Mansurov str., apt. 16
Ecolex - Azerbaijan Environmental Law Center	Samir Isayev, Sevil Isayeva	683359, 3121439, 683359	Ecolex@azdata.net	Baki, 4th district, 29a, Javadkhan str., apt. 99
Ecological Biophysics	Ralfrid Hasanov	398608		Baki, 40, Patamdar road (2, Metbutat av.), Botany Institute
International Youth Ecological Center	Valida Khanbabayeva, Ali Azimov	776184, 204537	azimovar@aznet.org	Baki, 370001, 47, Istiglaliyat str., apt. 17
Ecological Fund	Elshad Mamedov	(22) 573578, 575660	azti@ganca.net	Ganja, 103, 28 May str.
Ecological Problems Research Center	Kamran Mahmudov	760042	ngo@isar-az.org	Baki, 36, Ganja av., apt. 35
Ecology and Health	Gulnara Agarahimova	33827, 34461		Khachmaz, 74, Narimanov str.
Ecology Teachers Charitable Society	Suveyrat Hasanova, Elmira Gabulova	710609		Baki, 22b, Zikh road, apt. 129
Ecopark Organization	Hikmet Salahov, Arif Islamzade		sum@sec.sumgait.az	Sumgayit, 373200, 16, Nizamy str.

Ecores Information Analytic Environmental Agency	Rafiq Verdiyev	958368, 951223, 983181, 929961	ecores@iatp.baku.az	Baki 370002, 157 Sh. Azizbekov str., apt. 23
ECOS - Ecological Stability	Ayten Poladova	951247, 316589	fidan8@azintex.com	Baki, 370014, 54, Bul-Bul Avenue
Ecosaf	Rasim Aliyev	237778, 552783, (855) 7781923	rasim-aliyev@yahoo.com	Baki, 14, A.Manafov str., apt.36
Ecosphere Social Ecological Center	Firuza Sultanzade, Zuleykhə Aliyeva	924348, 3320034	ecosphera@azeurotel.com	Baki, 3, Lermontov str., apt. 61
Ekoil - Scientific Ecological Society	Muslim Gurbanov	941214	mgurbanov@hotmail.com	Baki, 370014, 31a, H. Javid av.
Elsevenler Society	Chingiz Verdiyev	32145		Ganja, 80, Ozan str.
Feval Association of Specialists on Emergency Situations and Security of Human Life Activity	Habib Ojagov, Gayibeli Hajimetov	390775, 395452	Fovgal@azeronlin.e.com	Baki, 370073, 5, Ayna Sultanova
For Clean Caspian Sea	Yegana Mehdi	758946	Yeganam@yahoo.com	Baki, 21, Hojaly str., apt.6
Public Ecological Foundation named after Gasan Aliyev	Garib Mamedov	392261		Baki 370073, 31 G. Javid av.
Golden Beehive Beekeepers Society	Yevdokiya Khanbeyova, Kh. Aliyev, G. Huseynzade	924686, 3468917	goldenhive@hotmail.com	Baki, 370004, 15, 1st Yasr poverot, apt. 2
Gyulyum	Irada Guliyeva	975291, 902292	21century@azdata.net	Baki, 2 bulvar, 5b Mamedyarov str., apt.18
Healthy Society Group	Aydin Samedov	614540		Baki, 3a S.Akhundov str., apt. 7
Human and Environment	Ismayil Ismayilov	973867	ismayilov@baknet.az	Baki, 370001, 29/3, Mukhtarov str.
Independent Ecology & Economics Organization	Tural Jamalov, Asif Makhmudov	267057, 268578	max-asif@usa.net	Baki, Bakikhanov settlement., bloc # 4083, 2, apt.27
Intellect Regional Humanitarian Ecological Education Center	Tahir Novruzov, Zahid Abbasov	25773, 25165		Shamkir, 8 M. Sabir str.
Kur-Khazar Charity Society	T. Mehdiyeva, B. Mikayilov	663156, 981179, 907227		Baki, 38, Gadirbeyova str. Branches in Neftchala, Ganja, Salyan
Lapirchy	Alkhan Garayev	973103		Shamakhy region, Galaybugurd village school
Mother nature Natural Hygiene Center	Arshad Azimov	52137, 3168197		Guba, 2a, Fatalykhан str., apt 39
National Center of Environmental Forecasting	Telman Zeynalov	945342		Baki, 13, Mirza Aga Aliyev str., apt. 14
Nature and Society	Sammadin Hajaliyev	52232		Guba, 21, Fataly khan str.
Our House Caucasus International Children Ecological Union	Firuza Amirova, Rufat Alekperov	406330, 955994, (855) 7826165, 922327	ourhome@azdata.net; www.azer.web.com/ourhome/	Baki 370025, 45/57, Nobel av. Branches in Ali-Bayramli and Nakhichevan.
Protection of the Natural Resources Society	Reyhan Aslanova	660		Khachmaz, Yalama village
Rostok (Sprout)	Garib Akhmedov	315575		Baki, 4 microrayon, 13, Jabiyev str., apt. 6
Ruzgar Ecological Social Union	Islam Mustafayev	769801, 394113	IMustafaev@iatp.baku.az	Baki, 370119, 124/128, G.Garayev str.
Azerbaijan Society for Protection of Nature	Sabir Israfilov, Chingiz Mageramov, Samir Isayev	697357, (850) 3396998	isabir@azdata.net	Baki, 7 M/district, 5, S.Sani Akhundov str., 5. Branches in 36 regions of Azerbaijan.
Society for Protection of Farmers Rights	Solmaz Asadova, Eyyaz Javadov, Hadija Eldarova	(172) 71292, 33025		Khachmaz, Resource Center, Gimil Gimlag village

Chinar Society for Protection of Flora and Fauna	Vugar Mehdiyev	714022		Baki, 36 Abilov str., apt.1
Sorge Children Care Charity Society	Tamara Dadashova, Ayyun Shahbazova, Valida Aliyeva	312201, 943810, 300034, (850) 3137299	azsorge@bakinter.net	Baki, 79, Zardabi str.
South Eco-SOS Society for Nature Protection	Elvin Sadigov	(171) 47907, (850) 3642899	el_len_eco@yahoo.com	Lenkoran, 90, Nizami str.
TETA Hazri Public Association for Development and Research	Lydiya Gulizadeh	680351, 3362648	azgeog@geo.ab.az	Baki, 3 microrayon, 28, Javadkhan str., apt. 37
World is our home Peace and Travelling Center	Haji Hajiyev, Orkhan Eyyubov	931438	far@monitor.baku.az	Baki, 3, R.Behbutov str.
Yashil Dalga Youth Ecological Center	Salman Suleymanov	235121		Baki, B. Chobanzadeh, 41-2
Yashil Dunya (Green World)	Elmar Babayev, Ilgar Zeynalov	319128, 2131652, 3208683	L-bey@excite.com	Baki, 68 A. Maharramov Str., apt. 102
Young Agrobusiness Association	Azer Humbetov	67652, 57838		Ganja, 15, Ganja str.
International Youth Environmental Center	Vafa Jafarova, Rasim Ashumov	776184, 204537, 677791		370001, Baki, 31 Istiglaliyyet str., 5-th floor
Human and Peace	Irada Mikayilova	51450, (850) 3281381		Guba city, 68, Sulh Avenue
Ozone Social Ecological Public Union	Azad Allahverdiyev	(850) 3350174 .		Guba region, Hajigayib village
Damiragach Public Ecological Union	Sabir Suleymanov, Novruz Gulyiyev	42445		Lenkoran, 63, Koroglu Street
Mammalogists of Azerbaijan	I. Rakhatulina, E. Askerov	953312	zoology@dcacs.ab.az	Baki, 127, S. Askerova Street
Development of Mountain Regions of Azerbaijan	Jahangir Najafov, Dilara Veliyeva	948654, 978775, 3219880, 958662	adria@yahoo.com	Baki, 56, J. Mamedguluzade Street, apt. 9
Public Union For the Sake of Health Environment	Rahim Kalantarov, Vugar Aliyev, Enver Rustamov	54264		Lenkoran, 31, Mir Mustafa-han Street, apt. 6
Scientific Research Institute on Prognosis and Studying of Earthquakes	Elchin Khalilov, Abbas Guvalov	981415, 938400	enitech@yahoo.com	Baki, Nasimi district, 18, Mardanov gardashlary Street
Public Union of Information and Technical Support to the Development of Entrepreneurship	Anar Garibov, Fahraddin Ibrahimov	931153	sitiyar@hotmail.com	Baki, 16/7, U. Hajibeyov Street
Public Union of Creative Intelligentsia Seyyah RITM	Gurban Dostalizade, Rafail Hasanov	399838		Baki, N. Narimanov Street, house 2, tupic 1
Public Union of Assistance to the Development of Entrepreneurship Eko-Ay	Ilgar Namazov	(22) 562346, 564259, 561677, (22) 532346	ilgarn@mail.ru	Ganja, 90/81, S.I.Khatai Avenue
Public Union for Protection of Nature Dalga	Natig Hatamov	(154) 55537, (850) 3455842		Imishli region, 25, Fizuli Street
Public Union Health Environment	Zemfira Sadikhova	624880		Baki, 33/40 Ataturk Avenue
Sheki branch of the Union of Afghanistan Veterans of The Republic of Azerbaijan	Nazim Yusifov, Vugar Ilyasov	43894, 48891		Sheki city, 175, M.E.Rasulzade Street
Nature and Person	Kamil Ilyasov	54105, (850) 3146358		Guba, 2a, Vagif Street
Shafag Ecoturism Union	Ali Dovlatov	40731		Lenkoran, 48, Sattarhan Street
Objective Public Organization of Artists	Heydar Gasimov, Nazim Gubadov	(850) 3284457	obyektiv@yahoo.com	Lenkoran, 3, Tofik Ismayilov Street, Floor 4

Dirchelish	Eynulla Kheyryullayev	51450		Guba, 68 Suh Avenue
Caspian Children Ecological Club	Elnara Asadullayeva	766306, 388580		Baki, 6, Ahmed Javad Street, apt. 58
Union of Women-Journalist Ecologists	Gulnaz Bagvanova	396072		Baki, 87a, Javid Avenue, apt. 740
Hayajan Nature Protection and Rehabilitation Organization	Tahir Aydinov	924591	zootair@aku-az.net	Baki, 39, Bakhanov Str.
Organization of Protection of Environment "Soil"	Hikmat Mamedov	(171) 53104	hikmat-bodybuilder@hotmail.com	Lenkoran city, 18, M.E. Rasulzade Street
Social Ecological Association Green Way	Vadim Garayev, N. Mustafayev, R. Ahmedov	936111, (850) 3126905		Baki, 130, M. Alizade Str.
Ganja Agrobusiness Association	Amin Babayev, Vugar Babayev, Vugar Agayev	569400	gaba@ganca.net	Ganja, 24, Ganja Street