MINISTRY OF ECOLOGY AND NATURAL RESURCES
REPUBLIC OF AZERBAIJAN

NATIONAL CASPIAN ACTION PLAN
OF THE REPUBLIC OF AZERBAIJAN

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Список сокращений

MENR	Ministry of Ecology and Natural Resources
MES	Ministry of Emergency Situations
MOA	Ministry of Agriculture
CEP	Caspian Environmental Porgramme
SAP	Strategic Action Plan
NCAP	National Caspian Action Plan
TDA	Transboundary Diagnostic Analysis
SPACS	Specially Protected areas of the Caspian Sea
GDP	Gross Domestic Product
SOFA	State Oil Fund of Azerbaijan
IAEA	International Atomic Energy Agency
POP	Persistent Organic Pollutant
UNO	United Nations Organization
EIA	Environmental Impact Assessment
NGO	Non-Government Organizations

1. Introduction

The Caspian Sea plays an indispensable role in the everyday life of people inhabiting its coasts. The largest enclosed water body in the world, the ecosystem of the Caspian Sea significantly affects the formation of the surrounding area's ecosystems. At present there is a considerable inconsistency between the carrying capacity of the sea and intensiveness of its pollution. Therefore, the assessment of a state of the environment of the sea, identifying the nature of direct and indirect adverse effects on the ecosystem, the study of the ecosystem's response to these effects and ascertaining the level of inconsistency between the carrying capacity of the sea and the intensiveness of these effects are crucial for further sustainable and rational use of its resources. Since all the area of Azerbaijan belongs within the Caspian Sea basin, every kind of activities in the country aimed at the protection of the environment and ensuring sustainable development, irrespective of the target of the intervention and its area of application, is, in the long run, intended for the resolution of the Caspian Sea environmental problems.

Due to a rapid growth of oil prices in recent years the potential for the development of the Caspian Sea has faced drastic changes. Additional capabilities for the enhancement of environment protection have emerged.

The Government of Azerbaijan implements fundamentals of the national environmental safety in the political and legal area, enhances its environmental management system taking account of its commitments assumed under international conventions and agreements.

The policy of the government is aimed at the use and restocking of natural resources, ensuring the protection of biodiversity, application of economic incentives for environmental management and environment protection, undertaking actions intended for ensuring the environmental balance and rehabilitation of deteriorated natural ecosystems throughout the country including the Azerbaijan sector of the Caspian Sea.

2. Goals and objectives

NCAP is a national document because all the issues raised herein encompass all areas of activities in the country and effects of a chain of causes make a considerable impact on social and economic fields.

The main goal of NCAP is to promote the protection and rational use of natural resource of the Caspian Sea, to provide conditions for a sustainable social and economic development of the Republic of Azerbaijan.

This document contains results of the data analysis made for the identification of key environmental and social-economic effects on the Azerbaijan sector of the Caspian Sea the final product of which is the development of the National Caspian Action Plan.

Objectives of NCAP include the identification of types and characteristics of impacts made on on the ecosystem of the Caspian Sea within the national territory, indicating their sources and causes (direct and initial), an analysis and identification of potential preventive, mitigating and recovery actions.

The ultimate goal of this NCAP document is the improvement of environmental conditions in the Azerbaijan sector of the Caspian Sea and its coastal area, the alleviation of its adverse impacts on human health and preservation of life supporting functions of hydro- and biosphere, active participation of Azerbaijan in regional and international environment protection activities.

NCAP is tailored to the needs of those making decisions in the Government, ministries and institutions using natural resources, carrying out control on a state of the environment as well as those responsible for financial, legal, scientific and informational support of theses activities.

As a guidelines NCAP contains clear goals and a list of actions and this programme will be submitted to the Government for approval.

3. Legal and social-economic background

Legal background. The Republic of Azerbaijan is an independent, democratic, secular, unitary republic. The existing Constitution was adopted in 1995 by a referendum. The State governance is implemented based on the power distribution principle: legislative power is carried out by one house parliament Milli Majlis; executive power is carried out by the President and President's executive body Cabinet of Ministers headed by Prime Minister and judicial power is carried out by independent courts of the Republic of Azerbaijan: Constitutional, Supreme and Supreme Economic. The Republic of Azerbaijan consists of 65 rural administrative regions and 11 settlements with a status of a city in which town and rural municipalities operate.

The Constitution empowers the central bodies of power with exclusive responsibilities for foreign and defense policy, establishing fundamentals of the legislation and fulfillment of international obligations. Authorities are also responsible for policies on economy, finance, energy, transport, communication, public health and environment protection.

The existing legislation intended for ensuring environment protection within the territory of the Republic of Azerbaijan is based on principles and guarantees arising out of the Constitution of the Republic of Azerbaijan, Constitutional Law on the Fundamentals of Economic Independence of 25 May 1991 and Constitutional Act on State Independence of 18 October 1991.

One of the main laws governing the use and protection of the environment is the Law of the Republic of Azerbaijan on Environment Protection (1999). This Law proclaims main principles of environment protection, responsibilities and rights of the state, public institutions and citizens in the area of environment protection. Main goals and objectives of the state environmental impact assessment and public environmental impact assessment are given in this Law.

Environmental and radioactive safety is governed and ensured by the Law of the Republic of Azerbaijan on Environmental Safety (1999) and the Law of the Republic of Azerbaijan on Radioactive Safety (1997). Sanitary epidemiological public safety is ensured by the Law of the Republic of Azerbaijan on Sanitary Epidemiological Safety (1994). Geological and oil exploration activities are regulated by the Law of the Republic of Azerbaijan on Subsoil (1998) и Law of the Republic of Azerbaijan on Oil and Gas. These laws set responsibilities of users, principles of state stocktaking of a state of subsoil, the use and processing of raw material resources, as well as settling disputes and responsibilities of parties for the violation of the legislation in these fields. A number of legislative acts have been specially developed to cover issues of waste disposal and landfilling. These are the Law of the Republic of Azerbaijan on Radioactive Wastes (1994) and the Law of the Republic of Azerbaijan on Industrial and Municipal Wastes (1998).

Every kind of activities within the country area which is likely to cause damage to the environment shall be preceded by the assessment of possible adverse impacts on the environment (development of EIA documentation). The main document relating to the development of EAI documentation is Regulations on the Procedures of Environmental Impact Assessment (EIA) in Azerbaijan (1996) which was developed in conformity with international standards.

Workplace safety requirements, reproduction and use of the animal kingdom's specimens, including prohibitions and restrictions in the use of its resources, regulation of animal's number, settling disputes and responsibilities for the violation of the legislation in this field are governed by the Law of the Republic of Azerbaijan on the Animal Kingdom and Biodiversity (1998), the Law of the Republic of Azerbaijan on Specially Protected Nature Areas and Monuments, Regulations of the Republic of Azerbaijan on State Nature and Biosphere Reserves and National Parks (2001).

Activities relating to soil, water and forest resources are regulated by the Land Code (1999), Forest Code and Water Code (1997).

In general, issues of legal and economic regulation of environment protection are addressed in a number of regulatory legal documentation (over 100).

Azerbaijan by adopting and ratifying international environmental conventions (over 18) strengthens its participation in international agreements aimed at promoting environment protection, public health and cultural heritage.

Social economic background. Azerbaijan is the most populated country in the South Caucasus. The number of its population in 2006 accounted for 8347 thousand and an average density equated to 96,4 people per square km. The urban population makes up 51,5% and the rural one is 48,5% (TABLE 1).

Number of population for the beginning of the year, in thousand people

TABLE 1

YEAR	*1990*	*1995*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Number of population in total	7131,9	7643,5	8081,0	8141,4	8202,5	8265,7	8343,3	8436,4	8532,7
Percentage of the total number of population:									
Urban areas	53,9	52,4	50,8	50,7	50,7	51,5	51,5	51,6	51,5
Rural areas	46,1	47,6	49,2	49,3	49,3	48,5	48,5	48,4	48,5
Percentage of the totals number of population:									
Men	48,8	49,1	48,9	49,0	49,1	49,1	49,2	49,2	48,8
Women	51,2	50,9	51,1	51,0	50,9	50,9	50,8	50,8	51,2

Men make up 49,2% and women constitute 50,8% of the total number of the population. The most densely populated area in the country is the Absheron peninsula with the capital city of Baku (1855,3 thousand people). The industrial centers and cities are Ganja in the western part of the country (304,5 thousand people) and Sumgayit on the coast of the Caspian Sea (292,5 thousand people).

In comparison with 1990 natural increase of the population in 2003 (surplus of births over deaths to infants) fell from 19,8 up to 8 individuals and in2005 accounted for 10 individuals (TABLE 2).

Density and natural increase of the population

TABLE 2

Годы	*1990*	*1995*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*
Density of the population (number of people per 1 км^2)	83,4	89,2	93,3	94,0	94,7	95,5	96,4	98,5

Natural increase (per 1000 populations)	19,8	12,2	8,9	8,1	8,0	8,0	10,0	11,6

The ethnical composition in the country changed for the past 10 years as form 1989. In 1989 the Azeri constituted 80% while in 1999 they accounted for 90,6% of the population. The populatioj of the country is also represented by Lezgines (2,2%), Russians (1,8%), Armenians (1,5%) and other minorities.

The official language in the country is the Azeri language and the alphabet is Latin.

After the collapse of the Soviet Union, Azerbaijan similar to other state members of the Union underwent an economic crisis. Contrary to other state of the region, Azerbaijan faced the most difficult situation. The military aggression by Armenia, the occupation of 20% of the country's area (Mountainous Karabakh and 7 adjoining administrative regions) and an influx of over one million refugees and internally displaced people, including 200 thousand people from Armenia caused irreversible damage to the economy and environment of the country. This resulted in a drastic decline in the living standard of the population. In 1995 the actual GDP rate (in prices of 1990) accounted for 41,8% in comparison with 1990. in 1995 over 10% of the population were refugees and internally displaced people and poverty rate constituted 61% of the total number of the population.

Macroeconomic indicators by years

TABLE 3

Года	*1995*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*
GDP (billion manats)	10669,0	23590,5	26578,0	30312,3	35732,5	41872,5	59378,0	18100,0
GDP (million US dollars)	2415,2	5272,6	5707,8	6236,1	7276,3	8521,8	12553,0	20764,0
GDP per capita Thous. manats US dollars	1410,3 319,3	2975,4 665,0	3325,9 714,3	3764,6 774,5	4403,7 896,7	5114,8 1041,0	7178,5 1517,6	2160,0 2400,8
Increase in GDP (increase from the previous year, %)	-11,8	11,1	9,9	10,6	11,2	10,2	26,4	26,3
Inflation rate, %	411,8	1,8	1,5	2,8	2,2	6,7	9,6	9,0
Number of officially registered unemployed	28314	43729	48446	50963	54365	55945	56343	60800
Average monthly salary, in manats	62467	221606	259991	315407	386974	497081	589500	155,5
Average yearly US dollar exchange rate to manta	4417,5	4474,2	4656,4	4860,4	4910,8	4913,6	4730,2	0,8717

As form 1995 as a result of purposeful measures the economic decline was halted and a political and economic situation in the country got stabilized.

Substantial changes in the social and economic development of Azerbaijan are primarily linked to oil and gas exploration activities in the Caspian Sea. An intensive development of offshore oil extraction, the discovery and launch of new oilfields in the Azerbaijan sector of the Caspian Sea contributed to the attractiveness of Azerbaijan for foreign investors. While in 2005 4,5 billion US dollars were invested i9n the economy of Azerbaijan, by the end of 2006 this figure constituted 6 billion US dollars of which 2 billon US dollars are domestic investments. An increasing influx of

investment has had a positive impact on the macroeconomic situation of the country as a whole and on the improvement the living standards of the population.

Over the past 50 years GDP of Azerbaijan has been increasingly growing. Compared to the previous year, just in 2005 this increase accounted for 39%. The same trend took place in 2006 as well (GDP increase was 36,3%). In the course of 2006 year the production output of Azerbaijan accounted for $1,32 billion or was 41,1% higher than in the previous year, while 64% of the output was made up by the extracting industry and 30,7% by the processing one. Over 2006 GDP per capita increased by 34,7% and constituted $ 2400.

The variation of GDP per capita rate is one of the main indicators reflecting the trend of growth in human development index. According to a classification system used by UNDP, based on the results of 2003 (with GDP per capita equating to $879,7) Azerbaijan was included in the list of countries with an average index of human development (0,500-0,799). Over the period 2000 to 2003, this indicator increased from 0,746 to 0,767. Taking into account that GDP per capita rate increased by $80 over the past two years, the rank of the country on this index has considerably improved.

Despite the windfall of oil revenue, its share in the overall revenues into the state budget fell from 52% in 2000 to 34% in 2005. At the same time the share of crude oil and oil products in the overall revenues from export remained considerably high in 2005 (over 76%).

In 2006 the income of the population constituted $1,07 billion which was 19,6% higher than in the previous year. Income per capita constituted $652 (growth rate accounted for 18,3%). Increase in the amount of bank savings of the population in comparison with the previous year constituted 36,8% and accounted for $660,2 million by the end of 2006 which is an evidence of the improvement of public living standards.

The growth of income share of the state budget contributed to increase in average monthly salary of employees engaged in different sectors of economy. While in 1999 the average monthly salssry in Azerbaijan was less than $44, by the end of 2004 it increased up to $98. In 2006 this figure equated to $180,0 which is 24,4% higher than in 2005.

According to the State Statistics Committee the highest salary is paid to specialists engaged in the extracting industry, construction and financial sectors, in the area of consumption services and lease. Notably, in 2006 an average monthly salary in the industrial sector in Azerbaijan was $262, the salary of employees in the extracting sector was $636, including citizens of Azerbaijan with a salary of $358. An average monthly salary in the oil sector constituted $611 in 2006 while the salary of citizens of Azerbaijan equated to $376. This figure for employees of the processing sector was $138 and $423 for the construction sector.

The most important issue in the area of social and economic development of the country remains to be combating poverty. There are territorial differentiations in the distribution of poverty. The farther away from Baku, the more acute the problem is. Statistical data by the World Bank show that for the past ten years the share of the population living in poverty decreased from 68,1% in 1996 to 49% in 2003. According to State Statistics Committee by the end of 2006 this figure fell up to 29%.

Along with positive changes in the social sphere there are still challenges that emerged as a result of the military aggression by Armenia and a subsequent occupation of 20% of the territory of Azerbaijan. A large number of refugees and internally displaced persons (about 1 million) from the Mountainous Karabakh and Armenia prompts the annual allocation of enormous funds for

their livelihood. Suffice to state that a greater part of funds accrued in the Oil State Fund of Azerbaijan is allocated for the needs of refugees. Despite this, the level of poverty among refugees is twice as much as an average level of poverty in the country and constitutes 63%. All this has an impact on average indicators of a state of public health in the country. It should be pointed out that in recent years the level of poverty has decreased and constituted 29%.

As a result of the privatization of state property and measures taken by the government towards the development of private sector the share of private sector in the country's economy has remarkably increased. Subsequently, the share of private sector in GDP increased up to 73,5% in 2004.

The completion of construction of Baku-Tbilisi-Ceyhan (BTC) oil pipeline in 2005 has become the main factor in further development of the country. An intensive increase in GDP as from 2005 is linked to a drastic rise of production in the oil sector.

The share of agriculture in GDP of the country constituted 33% over the period from 1990 to 1995 and it equated to 18-22% over the period from 2000 to 2006. This was conditioned by a drastic increase in production in the oil sector.

4. Institutional background

Because of its geostrategic position the Caspian sea plays a n important geopolitical role for Azerbaijan. Contemporary priorities of the national policy are identified with economic benefits provided by the development of onshore and offshore oil and gas extraction.

The policy of the government is aimed at the achievement of agreements on the legal status of the Caspian sea based on consensus, settlement of issues on fish hunting and environment protection, expediting agreement on the use and conservation of bioresources of the Caspian Sea, development of uniform environmental standards on the use of Caspian sea bottom, prevention and emergency response to oil spills and other disasters, introduction of zero waste technologies in the offshore area.

One of the main directions in the policy is the enhancement of a state environmental management system and provision of conditions for transition to sustainable development. In order to achieve the objectives set serious changes have been made to the environmental management structure. By Decree of the President of the Republic of Azerbaijan of 23 May 2001 State Committees for Ecology, Geology, Hydrometeorology, 'Azerbalig' State Fishery Corporation and 'Azerbmesha' Production Association were all terminated. Presently, functions of development and implementation of a management policy in the area of study, reproduction, use and protection of natural resources and ensuring environmental safety охраны have been assigned to the Ministry of Ecology and Natural Resources (MENR) whose main duties are:

- Implementation of the state environmental policy;
- Recommendations on environmental actions and measures;
- Carrying out control over compliance with standards and requirements stipulated in the environmental legislation;
- Carrying out control over a state and use of natural resources;
- Issuing permits for activities and release of pollutants;
- Implementation of state policy in the area of mineral resources;
- Coordination and implementation of actions on a complex study of subsoil;
- Ensuring state control over ore and non-ore mineral resources (excluding hydro carbonates) and ground waters;

- Issuing permits for geological explorations, extraction of ground waters, construction materials, precious and semi-precious stones;
- Carrying out environmental monitoring;
- Restocking of fish resources and control over compliance with the fishery legislation;
- Rehabilitation of forest resources, control over compliance with the forestry legislation.

Presently, the following bodies are involved into the state management of the environment and natural resources:

Amelioration and Water Resources Management Stock Society;

- carries out the regulation and complex use of water resources.

Committee of Land and Cartography;

- implements state policy on land use,
- ensures rational and effective use of state owned land,
- conducts land cadastre and monitoring.

Ministry of Health (sanitary epidemiological service);

- controls the quality of the environment in human settlements and food products,
- responsible for public health.

Ministry on Emergency Situations;

- responsible for the establishment of an early warning system and mitigation of the impact of emergency situations on humans and country as a whole,
  controls safety in a workplace and safety of mining activities.

State Oil Company;

- carries out oil and gas exploration,
- conducts field environmental monitoring.

Ministry of Economic Development;

- implements state economic policy in the area of natural resources and environment protection,
- coordinates activities of the above mentioned institutions in this area.

5. Transboundary challenges

5.1. Decline in stocks of commercially valuable fish species

Information and source of data: Assessment of fish stock by Caspian Regional Thematic Center on Fisheries and Bioresources in 2000, Preliminary TDA, TACIS, 2000 and the catch structure of fish of commercial significance point to decline in the catch level of certain species as well as total catch as is seen in tables of total catch of fish in the Caspian Sea basin below excluding the Islamic Republic of Iran and catch of fish in Azerbaijan over the period 1991-2001 годы.

Fish catch in the Caspian Sea basin (excluding IRI) (thousand tons)

Dynamics of fish catch in Azerbaijan over the period from 1991to 2006 (thousand tons)

TABLE 4

Годы	Acipense riformes	Herrings	Kilka	Large bony fish	Small bony fish	Mullet	Caspian roach	Total
1991	0.09	0.15	36.52	0.11	0.02	0.03	0.05	36.97
1992	0.09	0.26	28.85	0.13	0.01	0.02	0.03	29.52
1993	0.24	0.15	21.06	0.10	0.04	0.03	0.16	21.78
1994	0.05	0.21	18.32	0.44	0.06	0.02	0.06	19.36
1995	0.04	0.07	9.85	0.04	0.04	0.01	0.02	10.07
1996	0.05	0.07	6.44	0.01	0.03	0.01	0.02	6.63
1997	0.02	0.04	5.17	0.003	0.02	0.01	0.01	5.27
1998	0.08	0.08	8.90	0.002	0.01	0.003	0.01	9.08
1999	0.07	0.06	20.46	0.002	0.01	0.002	0.08	20.68

2000	0.08	0.02	10.8	0.03	-	0.08	0.12	11.13
2001	0.06	0.05	10.4	0.03	-	0.07	0.07	10.68
2002	0,076	0,024	10,95	0,116	0,001	0,003	0,019	11,189
2003	0,10	0,048	6,07	0,175	0,001	0,009	0,026	6,429
2004	0,088	0,063	8,89	0,16	0,001	0,014	0,035	9,251
2005	0,085	0,060	8,63	0,18	0,002	0,015	0,033	9,005
2006	0,009	0,068	3,66	0,183	0,002	0,021	0,032	3,915

Main impacts on the environment and their social economic repercussions: Environmental effects causing decline in fish catches are likely to include the instability of delta and demersal ecosystems of the inflowing rivers as well as pelagic ecosystems of the Middle and Southern Caspian. Other possible effects may include decline in seal stock (in case such fish resources as kilka are exhausted).

Social economic effects of increasingly decreasing fish catches are overarching. Local fishermen and communities faced unfavorable effects as a result of decline in fish catch. Subsequently, this brought on the loss of jobs and the rise in the level of poverty among coastal communities. Risks increased and conditions for the procurement of new and repairs of old fish catch vessels worsened.

***Causes of the problem*:**
Justification of the problem: drastic decline in the catch of different fish species including Acipenseriformes, Caspian roach, herrings, mullet, salmons, etc..

Root causes:
Natural - a) Global climate change and consequential desertification processes; b) long lasting fluctuations of the sea level and pollution from inundations; c) eruptions from submarine mud volcanoes.
Human made- a) pollution of the sea from the release of municipal and industrial effluents; b) разработка недр c) putting dams on rivers; d) oil and oil products spills as a result of accidents (oil extraction, transportation); e) amendments to fishing regulations (in 60s) when catch of some species was prohibited at sea; f) poaching.

Chain of causes analysis: the chain of causes analysis revealed some main causes of decline in fish catch: as a result of natural and human made impacts the total stock of biomass in the sea has drastically decreased, a lack of relevant regulations on issues of artificial reproduction of fish stock by rearing fingerlings, regulations and establishing catch quotas. Poor economic conditions and high cost of resources encourage illegal catch (poaching).

EQOs and targets:

Target - 1. Sustainable use of commercially significant fish resources.

Azerbaijan as other littoral states ratified the Framework Convention on the Caspian marine Environment Protection. At a proposal by Ministry of Ecology and Natural Resources in 2005 the Cabinet of Ministers took a decision on raising:

- fees for the use of sturgeon species by 18-30 times;
- fines for illegal fish catch by 1,8-2,5 times.

Target - 2 – Restocking commercially valuable anadromous (sturgeon, inconnu, herring) fish species.

Currently, sturgeon brood stock numbers about 1000 specimens. Activities are being carried out on the protection, restocking and management of natural spawning grounds of sturgeon and other commercially significant anadromous fish species.

With a view to restocking of sturgeon fish and other commercially significant fish species resources the existing hatcheries including three sturgeon hatcheries were reconstructed and modernized as from 2002. In 2003 a new sturgeon hatchery with a capacity of 15 million fingerlings per year was constructed and launched in the Neftchala region.

In 2005 456,5 million fingerlings of commercially significant fish species were reared by hatcheries and released into the Caspian Sea, the Kura river and other impoundments, including 17,36 million sturgeon fingerlings.

Regional cooperation is carried out within the frameworks of the Commission on Aquatic Bioresources of the Caspian Sea.

Target - 3. Promotion of alternative income sources for fishing communities for sustaining their livelihood under various pilot projects to make them less dependent form the practice of unstable fishing

Great attention is given in Azerbaijan to the development of tourism infrastructure, particularly in the coastal area of the Caspian Sea. It is envisioned to expand a network of tourism infrastructure comprising cafes and restaurants, motels, etc.

State Programme of the Development of Tourism in the Republic of Azerbaijan over the period from 2000 to 2005. was recently adopted. Presently, a new programme on the development of tourism has been adopted which gives particular attention to ecotourism in the coastal zone of the Caspian Sea.

***Actions at the national level*:** In order to enhance institutional capacity of environmental management Department of Reproduction and Protection Aquatic Bioresources has been established within the Ministry of Ecology and Natural Resources.

Three existing sturgeon hatcheries have been reconstructed and modernized as a result of which production output of these hatcheries increased by 1,5-1,7 times.

A new modern sturgeon hatchery with a capacity of 15 million fingerlings per year has been launched (for $7 million of a World Bank credit and $1 million of investment by the state).

The level of artificial fish reproduction is being increased every year. In 2005 456,5 million fingerlings of commercially significant fish species were reared by hatcheries and released into the Caspian Sea, the Kura river and other impoundments, including 17,36 million sturgeon fingerlings.

Regular scientific surveys on the study of a state of the Caspian Sea bioresources, particularly of commercial significance, and feeding grounds are conducted.

Activities on the dredging of the Kura river mouth have been carried out to prevent risk from inundations of riparian areas and this resulted in a remarkable increase in the migration of anadromous and catadromous fish species to natural spawning grounds. Besides, feasibility

studies have been carried out under the support of the World Bank for the development t of a project on the Rehabilitation and Protection of the Kura River Delta proposed as part of the priority investment portfolio. Activities have been carried out in four directions: social economic studies, survey of spawning grounds, hydrological survey and studies of ecotourism prospects. At present financial resources are being sought for the development of the project.

5.2. Deterioration of coastal landscapes and degradation of coastal habitats

Information and sources of data: The coastal ecosystem is subjected to a number of natural and human made impacts. Natural; impacts include fluctuations of the sea level and climate change. Human made factors include poor planning and management of the coastal zone, improper use of water resources, poor agricultural practice, urbanization, industrial activities, soil contamination and other factors.

A survey conducted by TACIS demonstrates that the coastal area of the Caspian Sea is subjected to degradation. The magnitude of desertification encompass 18% of the territory (15610 km2) of which the area subjected to the degradations of vegetation cover constitutes 7990 km2, to water and wind erosion – 3170 km2, inundated and salinized – 3270 km2, technogenically desertificated - 1180 km2. The actual value of damage caused to the country as a result of the sea level rise is estimated as 1078 billion manats (agriculture - 684.2 billion manats, buildings and facilities- 394.6 billion mantas in prices of 1996).

Main impacts on the environment and their social economic repercussions: Desertification and deterioration of coastal habitats adversely affects coastal ecosystems. Both terrestrial and aquatic organisms are affected by adverse effects. Vegetation systems are either destroyed or replaced by vegetation of a lower category. Consequently, migratory species abandon such areas.Migratory birds loose valuable habitats and have to look for alternative habitats.

As a result of desertification part of the communities had to flee from areas in the Caspian Sea region affected by desertification as environmental refugees. These lands are lost for agriculture and settlement. Salination of ground waters poses a risk to human health because of a shortage of alternative sources of drinking water.

***Causes of the problem*:**
Root causes:
Natural - a) Global climate change and consequential desertification processes; b) long lasting fluctuations of the sea level and pollution from inundations;

Human made - a) pollution of coastal areas with municipal and industrial wastes; b) subsoil exploration; c) blocking of rivers by dams; d) oil and oil products spills as a result of disasters (oil extraction, transportation); e) uncontrolled urbanization; f) intensive agricultural encroachment.

Chain of causes analysis: Main root causes of soil contamination include poor technology and insufficient financing. Root causes of inundations include inadequate compliance with the requirements of city building, lack of a proper regulatory mechanism, poor economic conditions. Main root causes of desertification include increase in the number of population, inadequate control, lack of public awareness and poor economic conditions.

Actions at the national level: There is no special legislative act governing coastal areas including measures on combating desertification. Main document in this area is the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, Paris, 17 June 1994, which was ratified by the Law of 24

April 1998. It should be mentioned at the same time that in general the environmental legislation envisions the protection of coastal areas in terms of industrial activities. Notably, by Decision of Cabinet of Ministers of 28 September 1998 Rules of Identifying Construction Sites, Their Environmental Impact Assessment and Launch of Enterprises, Facilities and Other Objects Affecting a State of Water was approved. By the Law of 20 June 2003 an amendment has been made to Article 46 of the Land Code pursuant to which a coastal strip of 80 m to 130 m wide belongs to the state owned land. Land areas within a costal strip of 80 m to 130 m wide shall remain as the state property and shall not be transferred to other parties and can be used and leased based on a decision of the Cabinet of Ministers only for state related purposes. On 23 October 2003 the Cabinet of Ministers approved a geographical outline of this strip. The width of coastal strip is measured from the line of contact of the land with the sea which was the case by the time the Law on amendments took effect.

In addition, a number of measures including the protection of the coastal area from pollution and degradation have been approved at a legislative level. As mentioned above on 18 February 2003 two national programmes on Environmentally Sustainable Social Economic Development in the Republic of Azerbaijan and on the Rehabilitation and Expansion of Forests were approved by the President of the Republic of Azerbaijan. These programmes envision the disposal of wastes dumped in limestone and sand quarries in the Absheron peninsula and the coastal zone of the Caspian Sea, reclamation of contaminated areas, afforestation in various regions of Azerbaijan including the coastal zone of the Caspian Sea.

5.3. Threats to biodiversity including introductory and alien species

Information and sources of data: Azerbaijan is a party to the Convention on Biodiversity. There is a great concern in Azerbaijan about the loss of biodiversity of the Caspian Sea (species, gene pool and habitats). An obvious threat of loss of some of the commercially significant fish species (including Acipenseriformes) increases this concern. Taking account of the larger share of endemic organisms in the Caspian Sea the loss of biodiversity poses concern in terms of industrial, fishery and other types of activities carried out in the country.

As a result of a number of scientific studies conducted in Azerbaijan endangered species have been given due attention. This is reflected by a list of rare and endangered species in the Red Data Book of Azerbaijan, however issues of biodiversity were not sufficiently addressed in this book. There is an obvious scarcity of information on this particular issue. Damage to biodiversity is obvious, however quantitative data are not sufficient for the assessment of biodiversity loss in the Caspian Sea.

Main impacts on the environment and their social economic repercussions: Environmental impacts on the biodiversity loss may include instability of ecosystems, loss of species, loss of habitats for migratory species (e.g. birds, fish), rapid increase in the number of introductory and alien species an other problems.

Social economic impacts may be disastrous, particularly, if commercially significant fish catches decline, fishermen loose their jobs, the sea becomes less productive, natural environment degrades and thereby affecting the aesthetic value of the region (e.g. from the viewpoint of tourism), introductory species pose social and economic tensions..

***Causes of the problem*:**
Root causes:

Natural - a) Global climate change and consequential desertification processes; b) long lasting fluctuations of the sea level and pollution from inundations;

Human made - a) pollution of coastal areas with municipal and industrial wastes; b) subsoil exploration; c) blocking of rivers by dams; d) oil and oil products spills as a result of disasters (oil extraction, transportation); e) encroachment of human settlements; f) intensive agricultural encroachment; g) poaching; h) forest logging and collection of wild grown fruits and medicinal herbs; i) recreational pressure.

Chain of causes analysis: Main causes are social economic pressure including urbanization, development of industry and agriculture, loss of biodiversity (root causes include irrational use of resources, introduction of alien species and urbanization / industrial development).

Sectors and stakeholders: Decline in biodiversity is identified as a priority issue at the national level due to efforts of MENR and scientific institutions, NGOs and fishermen. Stakeholders include coastal communities, fishermen, MENR, MOA and NGOs.

EQOs and targets:

Target - 1 – enhancement of regional interaction for the achievement of a maximum benefit for biodiversity in the region

Ministry of Ecology and Natural Resources of the Republic of Azerbaijan currently considers the issue of cooperative arrangements on the protection of the unique biodiversity in the transboundary zone.

Azerbaijan ratified UN Convention to Combat Desertification on 24 April 1998 года. As part of the implementation of the Convention, a GEF project on Building Capacity on Joint and Sustainable Management of Land Resources has been launched since 2005. In the course of the project implementation actions on identifying areas affected by degradation in the coastal zone and causes of degradation have been taken.

Target -2 – Ensuring conservation of all significant species and their rehabilitation to a robust state

Considerable work has been accomplished on expanding the area of the existing specially protected nature areas and establishing new ones the overall area of which has increased from 4 to 8% of the country territory over the past 4 years.

First 6 national parks have been established of which three, Absheron, Shirvan and Hirkan National Parks with a total area of over 76 thousand ha are located in the coastal zone.

Protection regime has been strengthened and relevant infrastructure has been set up in the specially protected areas including those located in the coastal zone (Hirkan, Shirvan and Absheron National Parks, Gizil Agaj Nature Reserve). A Center on the Rehabilitation of Wildlife has been established in Altiagaj National Park. A project on the establishment of Samur-Yalama National Park on the coast of the Caspian Sea supported by the Government of Germany is now underway. This Park besides the land area will encompass 10 thousand ha of the sea.

A project on the establishment of the Shahdag National Park is being implemnted under the support of the World Bank. Following the establishment of Samur-Yalama and Shahdag National Parks the overall area of specially protected sites will constitute over 12% of the country territory.

Target - 3: Establishing control over introductory and alien species and management of risks posed by introductory and alien species

Surveys on the stock assessment of sturgeon and kilka fish and the study of impacts by Mnemiopsis on the ecosystem of the Caspian Sea have been conducted by Azerbaijan since 2002 with the participation of experts from Russian federation and Kazakhstan.

In 2005 a regional monitoring of Mnemiopis and Beroe was conducted in the middle and southern Caspian under CEP. To this end monitoring equipment worth of $5000 was procured under the support of CEP.

Target - 4: Covering all major coastal habitats by the regional system of specially protected nature areas

At present 4 specially protected areas are in operation in the coastal zone of the Caspian Sea – Hirkan, Shirvan and Absheron Nationalparks and Gizil Agaj Nature Reserve. These specially protected nature areas cover almost all coastal and marine habitats.

Actions at the national level: the Government of Azerbaijan undertake regular measures on the control of introductory and alien species and prevention of possible adverse effects on natural landscapes and ecosystems as well as for the conservation and sustainable use of Caspian Sea biodiversity. The development and implementation of complex measures were aimed at the elimination of root causes and providing optimal conditions for an effective use of natural resources well-balanced with public needs as well as ensuring the required level of reproduction and protection of the natural resources potential.

The main objective of these actions is the provision of conditions for restructuring and alleviating human made impacts on the environment up to an environmentally acceptable level, maintenance of life supporting functions of the biosphere for the protection and reproduction of natural resources. Below are the accomplishments in this field.

Enormous work has been done for expanding the area of the existing specially protected nature areas and establishing new ones for the conservation of habitats of endangered species of flora and fauna (wetland birds, Caspian seal, gulls, gazelles) and the most valuable landscape complexes as well as migratory routs of birds. As a result the total area of specially protected nature areas increased from 4 to 8% of the country territory. Six national parks have been established of which three, Absheron, Shirvan and Hirkan National Parks with a total area of over 76 thousand ha are located in the coastal zone.

Appropriate infrastructure meeting contemporary needs has been set up in specially protected nature areas.

With a view to improving conditions of wetlands in the Shirvan National Park a canal feeding the Flamingo Lake was cleaned up and a watching mooring was constructed.

Regular monitoring for gathering quantitative and qualitative data on zooplankton, biomass and Mnemiopsis is conducted.

5.4. Deterioration of the environment

Information and sources of data: The deterioration of the environment include the worsening of the air, water and sediment quality, destruction of ecosystems as a result of human activities, loss of the esthetic value, loss of commercially significant species and related problems. There are great concerns that the environment is likely to deteriorate further because of the dependence of the economy on onshore and offshore oil and gas extraction.

The evidence of environmental deterioration is provided by data on the level of air pollution (see Section 3.2.9.1.), pollution of ground and surface waters (see Section 3.2.9.3.), contamination of soil (see Section 3.2.9.2.), depletion of forests, etc the burden of which piled up over the soviet rule as a result of industrial and agricultural production. However, due to a slump in production the level of pollution remarkably decreased over the past ten years and the existing unfavorable conditions are rather linked to the past than to the present. Such natural factors as the rise of the sea level from 1978 to 1998 increased the level of pollution as a consequence of the inundation of contaminated land areas. A recent sampling of sediment and water conducted by international organizations, international oil and gas companies and CEP (particularly sediment) showed that a greater part of sediment (see Section 3.2.13.) and marine water (see Section 3.2.11.) contain a high level of heavy metals, hydro carbonates and other chemicals. Tests on detecting of heavy metals are complicated by natural high concentrations of some other heavy metals (Cu, Cd, Cr, As, etc.) resulting from geological conditions of the coastal zone. Tissues samples of some organisms (seals, bony fish, sturgeons) as well as samples of sediment demonstrate high levels of pollutants (organic chlorine, DDT, etc.). In general, there are no signs of large-scale eutrophication at sea, although some deltas and lagoons are partially affected by eutrophication. (see Section 3.2.12.). the level of radioactivity of sediment is low, however cumulative radioactivity is the case in scale inside oil and gas pipes.

Main impacts on the environment and their social economic repercussions: Factors causing the deterioration of the environment are different. There is a potential risk to human health and biodiversity. Pollution can result in the instability of ecosystems enabling new ecosystems to develop building upon old ecosystems. Rare and endangered species can become extinct.

The health of the population can deteriorate as a result of industrial pollution both following a contact with unclean water (e.g. micro-biological pollution of recreational impoundments and fish catch regions) and through consumption of fish, drinking water and swimming in the sea. Air quality can also make an adverse impact on the public health. Water pollution and soil contamination adversely affects the harvest of agricultural plants and aggravates poverty.

Causes of the problem:
Root Causes:
Natural - a) Global climate change and consequential desertification processes; b) long lasting fluctuations of the sea level and pollution from inundations;

Human made - a) pollution of air, soil, sea, ground and surface waters as a result of economic activities; b) encroachment of human settlements; c) intensive agricultural encroachment; d) forest logging and collection of wild grown fruits and medicinal herbs; i) recreational pressure.

Chain of causes analysis revealed some root causes of an overall deterioration in a state of the environment including social economic conditions (transitional economy), inadequate compliance with the legislation, insufficient involvement of NGOs in the EIA process, poor market driving forces, poverty and national budget deficit.

EQOs and targets:

Target – 1: Enhancing enforcement in the area of environmental protection and management in the littoral state

Environmental enforcement is the responsibility of Environment Protection Department, a structural unit of the Ministry of Ecology and Natural Resources. A division of control over the Caspian Sea environment has been established within the Department.

In order to enhance environmental enforcement in the area of environmental protection and management the Ministry of Ecology and Natural Resources developed and submitted to the Government a draft proposal on amendments to the Law on Environment Protection. In addition, a draft resolution of the Cabinet of Ministers on increasing charges for the use of natural resources and environmental pollutiona has been prepared in order to toughen measures against adverse impacts on the environment..

Target - 2: Implementation of a regionally agreed programme on monitoring of water quality

The monitoring of water quality is conducted by the Caspian Complex Environmental Monitoring Department of MENR.

In order to enhance a system of monitoring of the transboundary Kura and Araz rivers two new laboratories have been set up and fitted up with equipment for the amount of $240 000.

A project on the assessment of volumes of substances polluting the Kura river was implemented under CEP in 2005. Monitoring of the level of persistent organic compounds in the Kura-Araz river basin and the Caspian Sea was conducted under the above project.

As part of the regional monitoring programme under CEP equipment for the amount of $10 000 have been procured and now sampling is conducted in 7 agreed spots with subsequent testing of the samples taken.

In 2005 an all-Caspian scientific monitoring survey was conducted under CEP. Samples of water and sediment in 16 spots have been tested in a certified laboratory.

Target 3: -Development of a regional strategy on pollution reduction

A relevant project has been launched under CEP to make comprehensive assessment of surface (spot and non-spot) sources of pollution in the coastal area of the Caspian catchment area.

Another monitoring has been conducted under the support of n for the assessment of radioactive background in the Caspian coastal area of Azerbaijan and samples were taken to test them for radionuclides, heavy metals and POPs. Joint surveys on the Kura and Araz rivers (2005) and in the Azerbaijan sector of the Caspian Sea (2006) have been carried out by experts of MENR, Azerbaijan National Academy of Sciences and IAEA.

The Ministry of Ecology and Natural Resources has started activities on the construction of 12 wastewater treatment facilities along the coastline of the Caspian Sea.

Target 4: Development and initial implementation of a regional action plan on contaminated areas

The pending Monitoring of Water Quality in the Caspian Sea and Action Plan for Heavily Contaminated Areas project under the support of TACIS envisions the development and implementation of a Regional Water Monitoring Programme (RWMP), deployment of equipment (procurement of the equipment will be made under a separate contract) to support RWMP and introduction of procedures governing quality issues in regional laboratories, development of Regional Action Plan on Pollution. The project will promote participation in the all-Caspian monitoring of water quality and pollution reduction at the national level as well as providing technical assistance in the implementation of a regionally enhanced and agreed RWMP.

A new structural unit under the State Oil Company of the Republic of Azerbaijan was established for management and coordination of clean-up of oil contaminated areas. A system of monitoring control on the pollution of the environment has been established and its operation ensured.

Work on the survey of lakes of the Absheron peninsula has been carried out. These lakes are adversely affected as a result of contamination by oil residues and alternation of hydrological regime on the Absheron peninsula caused by an intensive oil extraction. Environmental maps and reports as well as concrete actions on the reclamation of contaminated lands of the Absheron peninsula have been developed.

Target - 5: Promoting the development of agriculture without adverse effect on the Caspian Sea environment

Activities on mitigating harmful effects of persistent organic pollutants that had been used in agriculture since long are carried out in Azerbaijan.

Under the support of CEP a pilot project on the Clean-up of Chemicals Storage Base in Salyan Region and Burial of POPs is being implemented. The objective of this project is to alleviate impact on the environment, the water basin of the Kura river and the Caspian Sea, protect the community from effects of pesticides and raising public awareness. As part of the project the territory of the storage base will be cleaned up. DDT and pesticides will be removed from the site and buried in a landfill. The project will be concluded by monitoring and results will be compared.

Azerbaijan ratified Stockholm Convention on Persistent Organic Pollutants (POPs) in 2003. Based on a memorandum between the Republic of Azerbaijan and UNIDO Azerbaijan started the implementation of the National Action Plan. As from 2005 the first phase of the project 'Establishment of Organizational Mechanism and Organization of the Process' was implemented. In the course of implementation of the second phase a preliminary inventory of POPs has been carried out in Azerbaijan.

Target - 6: Prevention of accident and emergency response

Ministry of Emergency Situations has been established in Azerbaijan. In accordance with its statute approved by the order of the President of 2006 the Ministry empowered with a wide range authority is responsible for the protection of the public and areas from natural technogenic emergency situations, prevention of emergency situations and elimination of their effects. Caspian Emergency Rescue Service is incorporated in the structure of the Ministry. Pursuant to the Order of the President of 28 February 2006 docks and vessels owned by Caspian Basin Specialized Emergency Rescue Open Stock Company are transferred to the Ministry. Until then the elimination of emergency situations was the responsibility of Caspian Basin Emergency Rescue Department which was established in 1959.

For the purpose of institutional enhancement of environmental management, Center of Emergency Response has been established within the Ministry of Ecology and Natural Resources.

Under the support of the Federal Ministry of the Environment, Nature and Nuclear Safety of Germany a project on Development and Implementation of Measures on Prevention of Accidents in the Kura River Basin has been implemented (a grant of 400000 Euro allocated for the three countries). Within the frameworks of the project the inventory of hazardous industrial enterprises located in the Kura river basin has been carried out and equipment intended for a system interactive exchange of information and notification about industrial accidents has been procured.

Actions at the national level: the Caspian region is an important source of resources and industrial base for Azerbaijan. Main industrial spots in the coastal area that are likely to have a considerable impact on the natural environment of the Caspian Sea are as follows:

- Onshore and offshore oil extracting and refinery enterprises;
- Vessels of 'Khazardanizneftdonanma';
- Vessels and vessel wharfs of 'Khazardanizgamichiliyi';
- International marine trade port;
- Sewerage system of 'Azersu' SC

Monitoring of pollution in the Azerbaijan sector of the Caspian Sea and coastal zone is carried out by Caspian Complex Environmental Monitoring of Ministry of Ecology and Natural Resources. Control over compliance with environmental legislation is implemented by Environment Protection Department of Ministry of Ecology and Natural Resources.

In order to increase the quality of monitoring of the Caspian Sea technical capacity of Caspian Complex Environmental Monitoring Department has been strengthened. To this end 6 surveillance vessels and scientific research vessel Alif Hajiyev were transferred to the Department. The laboratory of the Caspian Complex Environmental Monitoring Department is fitted with modern devices and equipment. In addition as part of TACIS project devices and equipment worth of 85 000 Euro provide as grant were procured in 2004 and in 2006 devices and equipment worth of 10 000 Euro were acquired under CEP.

Regular monitoring accompanied with physical and chemical, ecotoxicological and microbiological analyses of water and soil samples are carried out by Caspian Complex Environmental Monitoring Department in the coastal area of the Caspian Sea and at enterprises located at sea. Hot spots and main pollutants have been identified.

Annually, staff of the department take part in more than 10 marine surveys mainly organized by Ministry of Ecology and Natural Resources as well as by SOCAR and international institutions.

Monitoring has been conducted under the support of IAEA for the assessment of radioactive background in the Caspian coastal area of Azerbaijan and samples were taken to test them for radionuclides, heavy metals and POPs. Joint surveys on the Kura and Araz rivers (2005) and in the Azerbaijan sector of the Caspian Sea (2006) have been carried out by experts of MENR, Azerbaijan National Academy of Sciences and IAEA.

Ion 2004-2005 two new analytical laboratories in Kazakh and Beilagan regions were fitted with modern equipment (240USD have been invested by the state) for the enhancement of a system of monitoring of the transboundary Kura and Araz rivers that have a considerable impact on the Caspian environment. A project on the assessment of volumes of substances polluting the Kura river was implemented under CEP in 2005. Monitoring of the level of persistent organic

compounds in the Kura-Araz river basin and the Caspian Sea was conducted under the above project.

Within the frameworks of the project on Multifunctional Survey of the Caspian Sea Ecosystem implemented under the support of NATO Environment for Peace Programme (a grant for a total amount of 300 000 Euro was allocated under the programme) in October 2006 drifters, devices for measuring water currents and transfer of data on hydrometeorological parameters in a real time digital format were deployed into the Azerbaijan sector of the Caspian Sea. At present, based on continues surveillance velocity and direction of currents, surface and deep water temperatures as well as pressure are gauged. It should be mentioned that such experiments are conducted for the first time in the Caspian sea.

Activities are carried on the clean-up of the Baku Bay from metal wastes. One of the significant actions is the removal of 16 sank vessels with a total weight of 900 tons from the Baku Bay.

Work on the reconstruction of a part of the sewerage system and pump stations in Baku estimated by 500000 USD has been carried out. One of the direct effluent outlets into the sea has been redirected through the city central sewerage system towards the city wastewater treatment facility.

The construction of a biological wastewater treatment facility on Zhiloy island had been and wastewater treatment facility in Sumgayit has been substantially renovated. 900000 USD and 200000 USD have been allocated respectively for these purposes.

In partnership with the Government of France the reconstruction and enlargement of the largest in Baku Hovsani wastewater treatment facility is getting started.

National Oil Spill Plan has been developed under the support of European Bank for Reconstruction and Development. The grant in the amount of 220 000 Euro has been allocated for these purposes. The document is now undergoing a procedure of agreeing at national level.

A strategy of hazardous waste management in Azerbaijan has been developed (for a grant of $750 000). In order to minimize adverse effects of toxic wastes of chemical industry on the Caspian a modern hazardous wastes landfill have been constructed nearby Sumgayit and asphalted access road of 7 km length has been laid. The initial removal and disposal of 40 000 m^3 of mercury contaminated soil has been carried out (for $4 million credit of the World Bank and $1 million of investment by the state).

5.5. Damage of the coastal infrastructure

Information and sources of data: The fluctuations of the sea level cause a great damage to coastal infrastructure. The damage is caused both as a result of multiyear fluctuations and inundations. Rigs, docks, recreational facilities are faced with a great impact. Rising of the sea level inundates extensive areas. Wind and storm also cause extensive inundations or impact the coastal zone, particularly in plain areas of the Caspian coast where the cause of inundations is not only the direction and strength of wind but also a minor inclination of the coast. A lack of planning at all levels resulted in construction without taking account of sea level fluctuations. Desertification may bring urbanization nearer to the sea thereby increasing pressure on coastal infrastructure.

There are extensive data on losses of property and infrastructure as a result of a rise in the sea level from 1978 to 1998. According to a recent survey damage estimated at 394.6 billion mantas in prices of 1996 was caused to housing and infrastructure of the country as a result of a rise in the

sea level. A decline in the sea level will also cause damage since this will decrease the natural depth of the sea and a need will arise in dredging the sea bottom.

Main impacts on the environment and their social economic repercussions: Environmental effects of this problem include the alteration of landscape, change in the level and salinity of ground water, loss of coastal habitats which usually move with change in the sea level (e.g., reed beds, coastal wetlands) as a result of rivalry with needs of infrastructure, disruption of natural coastal processes (coastal movement of sand, coastal erosion) resulting from human response to the sea level fluctuations, threat to coastal infrastructure, and, as a whole, insufficient care about natural ecosystems which bring about their loss or destruction.

Social economic effects produced by the destruction of coastal infrastructure include loss of livelihood, reallocation of regional budgets with a view to the recovery of infrastructure based on other social programmes, increase in poverty, loss of jobs and migration of the community from coastal areas.

***Causes of the problem*:**
Root causes:
Natural - a) multiyear fluctuations and inundations
Human made - a) insufficient knowledge of trends of long-term fluctuations of the sea level; b) a lack of a regional mechanism of early warning of communities about storms; c) lack of complex planning and coastal zone management; d) poor public awareness and participation.
Chain of causes analysis: Main root causes include the neglect of the laws of nature, disregard of knowledge about sea level fluctuations; a lack of a service of centralized early warning about storms; a lack of complex planning and coastal zone management (legislative base, infrastructure, interagency coordination) and poor public awareness and participation.

EQOs and targets:

Target 1: Sustainable use and coastal zone management through complex coastal zone management

By Decree of the President of the Republic of Azerbaijan of 28 September 2006 on the approval of Complex plan of measures covering the period of 2006-2010 on the improvement of a state of the environment in the Republic of Azerbaijan it is envisioned to implement actions on the improvement of the environment and restoration of swampy areas as well as the establishment of infrastructure for the development of ecotourism in the coastal zone.

A Programme on the Development of Ecotourism in the Republic of Azerbaijan over the Period of 2002-2005 was adopted. At present, a new state programme has been adopted in the area of tourism in which particular attention is given the development of ecotourism in the coastal zone of the Caspian Sea.

Target 2: Combating desertification and loss of forests

National Programme on Rehabilitation and development of Forests in the Republic of Azerbaijan which was adopted in 2003 is being successfully implemented.

It is envisioned by the Programme to plant forests in an area of 45 000 ha and carry out reforestation in an area of 25 000 ha with a view to preventing degradation processes and combating desertification..

In accordance with the Porgramme annually afforestation and reforestation is carried out in an area of about 9 000 ha. In recent four years afforestation and reforestation was carried out in an area of 8 000 ha of the coastal area of the Caspian Sea..

Actions at the national level: The Complex Plan of measures over the period of 2006 to 2010, approved by Decree of the President of the Republic of Azerbaijan of 28 September 2006 also addresses the following measures on the development of the coastal zone:

- inventory of oil contaminated areas in the zone of oil and gas extracting enterprises, sites contaminated by industrial wastes and development of a large scale environmental map of the Absheron peninsula;
- decommissioning of equipment, engineering facilities, communications and buildings in the Bibi-Heybat Oilfield and environmental recovery of the territory by means of reclamation;
- development of an action plan on the relocation of environmentally unfriendly facilities form the coastal zone of the bay outside the city boundaries;
- implementation of the programme on the environmental recovery of recreational facilities located on the Absheron peninsula;

A survey of lakes in the Absheron peninsula aimed at a subsequent development of complex actions on their clean-up and amelioration of the coastline has been conducted.

A project on the clean-up of oil contaminated areas (for a $5 million credit of the World Bank and $1 million of investment by the state) will be finished soon. The main objective of the project is to identify environmentally and economically most acceptable methodologies of clean-up in areas with different degrees of contamination.

Video shooting of the coast of the Caspian Sea was conducted during which particular focus was made on the status of use of resources in the coastal zone and the level of environmental tension.

Under the support of the Federal Ministry of the Environment, Nature and Nuclear Safety of Germany a project on Development and Implementation of Measures on Prevention of Accidnets in the Kura River Basin has been implemented (a grant of 400000 Euro allocated for the three countries). Within the frameworks of the project the inventory of hazardous industrial enterprises located in the Kura river basin has been carried out and equipment intended for a system interactive exchange of information and notification about industrial accidents has been procured.

With a view to the reduction of tree logging by coastal communities and respective pressure on forests in 2005 two gas pipelines to supply gas to coastal districts of Lerik and Yardmli were constructed at the expense of the state budget. In human settlements remote from gas pipelines pilot facilities for sourcing biogas supplemented by solar batteries have been installed.

With a view to preventing further degradation and desertification of the coastal zone in recent four years afforestation and reforestation activities were carried out in an area of over 8 000 ha of the coastal zone.

A project on Promoting Mitigation of Climate Change in North-East of Azerbaijan and Supply of Alternative Fuelwood to Communities has been implemented in the coastal zone (for a grant of $37,5 thousand allocated by Canadian International Developmet Agency (CIDA)).

A project on the establishment of Samur-Yalama National Park on the coast of the Caspian Sea supported by the Government of Germany is now underway. This Park besides the land area will encompass 10 thousand ha of the sea.

A project on the establishment of the Shahdag National Park is being implemnted under the support of the World Bank. Following the establishment of Samur-Yalama and Shahdag National Parks the overall area of specially protected sites will constitute over 12% of the country territory.

6. National challenges (with examples)

6.1. Organization of collection and disposal of solid wastes

Municipal wastes: Throughout a long period of the improper management of municipal and industrial wastes serious environmental problems have emerged in the country. Improper collection, segregation, delayed transportation and disposal of wastes have resulted in the pollution of the environment and brought on real risks to human safety.

However, in recent time the state of affairs in industrial waste management in large industrial cities of Azerbaijan including the Absheron peninsula, particularly Baku have slightly improved. Special waste bins were placed in public waste disposal areas and necessary infrastructure for the transportation of wastes has been established.

In accordance with the legislation the state control over waste management activities is implemented by the Ministry of Ecology and Natural Resources. Waste management, i.e. collection, segregation, transportation and disposal is carried out by private companies and joint ventures based on an agreement with city executive power bodies and municipalities.

Main portion of municipal wastes generated in Baku city is transported to and disposed of at Balakhani dumping site for municipal wastes. The landfill has been in use since 1963. The total amount of wastes disposed of at Balakhani landfill per month constitute 230643,2 m^3. However, the situation is that wastes are disposed of at the landfill without prior segregation. Municipal wastes following their transportation to the landfill are dumped and graded by special heavy plants and some part of wastes is covered with soil. Since the whole landfill surface is not covered with soil wastes in uncovered areas are transferred by the wind for long distances. The landfill does not have special lining to prevent the permeation of leachate into ground water.

There are also another three landfills within the area of Baku with the same shortcomings;

Municipal waste landfills within the area of Baku

TABLE 5

Landfills	In use since	Total area, ha	Area occupied by wastes		Waste disposed per week, m^3	Waste disposed per month, m^3
			ra	%		
Balakhani	1963	200,0	27,0	13,5	23958,7	230643,2
Azizbekov district	1980	5,0	1,75	35,0	1064,9	4792,3
Surakhani district	1994	21,0	5,0	24,3	3816,1	17172,7
Gardagh district	1994	25,0	3,0	12,0	1138,3	5122,7

The note: *now the district Surakhani landfill is closed*

Hazardous wastes: The production of caustic soda and chlorine based on mercury technology serious environmental problems emerged in Sumgayit and in the Absheron peninsula. Presently, obsolete and technologically outdated mercury methodology of chlorine production contributes to the pollution of the environment.

Ministry of Ecology and natural Resources has launched a work on the removal and burial of these wastes. To date 40 000 tons of mercury wastes have been buried in the hazardous wastes landfill which operates under the umbrella of the Ministry of Ecolgy and Natural Resources.

Throughout years, as a result of iodine-bromine production in the Surakhani region radioactive wastes have piled up in the amount of 45 000 tons.

At present a project on detecting and subsequent burial of radioactive wastes in the Absheron peninsula is implemented within the frameworks of cooperation between Azerbaijan and International Atomic Energy Agency (IAEA).

Drill cuttings in the amount of 125998 tons generated as a result of oil extraction and refinery have to date been kept on sites of oil enterprises.

There are five landfills in Azerbaijan for the disposal of hazardous wastes. They are as follows:

- 'Akhtarma' landfill is owned by SOCAR. It has been in operation since 1985. this landfill is designed for drill cuttings generated as a result of oil and gas fields exploration. At present, 20% of the landfill are occupied by wastes. The landfill is composed of 6 sections.

- 'Saranja' landfill belongs to BP. It is intended for the removal and temporary disposal of hazardous wastes. The landfill has been in operation since 2004. at present 150 types of hazardous wastea are stored in the landfill. However, no treatment of wastes is carried out in the landfill.

- 'Jangi' landfill which has been in use since 1988 is intended for the burial of used and spoiled pesticides and agrochemicals. There 183 sections in the landfill with a total area of 1,5 ha. 60% of the landfill is occupied by wastes. Most of the sections are empty and their concrete cover have been destroyed.

- Hazardous wastes landfill with a total capacity of 250 000 m^3 was constructed under a credit of the World Bank and has been in operation since 2004. Mercury wastes in the amount of 40 000 m^3 removed from Synthetic Detergents Plant have been buried in the landfill. The landfill operates under the umbrella of the Ministry of Ecology and Natural Resources and meets international.

- Landfill for the disposal of radioactive wastes belongs to Ministry of Emergency Situations (MES) and has been in use since 1964. The total area of the landfill constitutes 6,0 ha. The landfill is composed of 6 bunkers, 9 of which are completely full and the remaining one is partially full. In recent time the landfill has been reconstructed and now meets the required standards.

Industrial wastes resulting from hydrocarbonates production: In the recent decade, with growth in the production volume and as a result of unsustainable use of natural resources, an adverse impact on the environment has increased. The sources of contamination are mainly oil and oil products, chemical industry wastes, municipal and construction wastes, wastes form metallurgical and energy industries, residues of chemical compounds used in agriculture and exhaust gas emission from vehicles.

At present, major industrial enterprises use 30-40% of their total operation capacity and therefore, the level of industrial wastes has declined. However, due to obsolete technologies these industrial enterprises continue to remain main sources of environmental pollution with solid municipal wastes. The industrial sector is characterized by stockpiled solid wastes.

Work on hazardous wastes management in compliance with environmental standards has been initiated since 2003-2004. Statistical data show that since then the volume of stockpiled hazardous industrial wastes has declined from 26,9 thousand tons to 11,2 thousand tons.

Hazardous industrial wastes are disposed of in the following facilities:

- Throughout 2002 to 2003 19229 tons of drill cuttings were transported by BP to Garadagh Cement JSC 12000 tons of which were used in production. 4000 tons of the remainder 7229 tons were delivered to 'Sarancha' landfill. Presently, the landfill contains 3229 tons of drill cuttings. Besides, various types of hazardous wastes (luminescent lamps, containers for chemicals, accumulators) in the amount of 3331 tons are buried in the landfill.

- 14275 tons in 2004, 14352 tons in 2005 and 16000 tons of drill cuttings in 2006 were treated at 'Saranja' by BP based on thermodesorption technology. At present, 10 tons of these drill cuttings are processed through bioremediation at 'Sarancha' and more than 28 000 tons are kept as dried up residue with the area of the landfill.

- Presently, about 180-200 thousand barrels of produced water is generated at Sangachal terminal of BP. Part of the produced water (120-350 m^3 daily) is delivered for disposal to Garadagh Cement Plant, while the remainder is temporarily stored at the Terminal's in special tanks.

- At 'Akhtarma' landfill of SOCAR 19891,5 tons of hazardous wastes (drill cuttings) are stored. Taking account of moisture level (35%) in drill cuttings the amount of wastes is estimated as 12929,5 tons.

- About 80-85% of produced water generated at oil and gas extracting sites of SOCAR are injected in the aquifer following mechanical treatment.

- National Center for Hazardous Wastes Management which was constructed to international standards under the World Bank's Urgent Environmental Investments Project has been in operation since 2004 года. The capacity of the landfill is 250 000 m^3. In 2004 over 40 000 m^3 of mercury contaminated soil removed from Detergents Plant in Sumgayit were buried in the landfill..

6.2. Deterioration of public health

One of the main criteria for identifying environmental priorities is the impact on human health as a result of environmental degradation. In recent years the level of industrial pollution of air, soil and water has significantly reduced although the emission of exhaust gases has increased, a system of municipal wastewater treatment has worsened, the quality of drinking water in some regions has declined and public medical service fell short of standards. Al this inevitably has affected human health. A lot of facts of health deterioration caused by environmental degradation have been recorded ranging from a simple impact to chronicle diseases and even mortality. The assessment of the impact of environmental pollution on human health (made based on the methodology of extrapolation of data in USA and Europe) demonstrates that annual impact of pollution on public

health (2 million people) in Baku and Sumgayit might be the cause for various nosological forms of disease among which the most spread are diseases of breathing organs, digestive tract, cardio-vascular system, skin and under skin fibers, neural network and sense organs as well as infectious and parasitical diseases. It should be pointed out that a direct connection of diseases with the Caspian Sea environment is very weak.

As evidence, data on mortality, life expectancy at birth, etc. (Table 2.3.1.1) which show that over the past 5 years there have been some progress in the above mentioned figures.

The chain of causes analysis shows that the root causes lie in a poor economic situation, low livelihood of the population and as a consequence, poor living standards, a shortage of quality drinking water, a lack of labour market and outdated traditions and culture. Such natural processes as climate change and encroachment of saline water resulting from the rise in the level of ground water (multiyear fluctuations and inundations) also contribute to the deterioration of living standards of the population.

The parties that consider this issue as a priority are healthcare institutions, international corporations, and industrial enterprises. The main government bodies dealing with this issue are municipalities and regional executive authorities, MENR, international organizations, Minstry of Agriculture and to a lesser degree, Ministry of Ministry of Energy and Fuel. The following groups were affected: coastal communities, healthcare institutions, NGOs and MENR.

Environmental effects of public health deterioration are negligible.

Social economic conditions can be painful, including high mortality rate, susceptibility to diseases which subsequently result in increase in social expenditures on public health, loss of economic labor base, loss of labor output among local communities, unfavorable conditions for ecotourism development, etc.

7. Public participation and information dissemination tools

In present conditions one of the main components of environmental management is public participation.

There is a favorable background for that of both an institutional and legislative nature as well as a well developed network of NGOs, transparency and access to information and participation in decision making.

The existing system of environmental management in the country has undergone substantial changes in recent years. Inspection functions of the Ministry of Ecology were reduced and instead, new sectors on public environmental awareness raising were established.

In order to raise public environmental awareness and awareness of the most acute social and economic problems in coastal regions of Lankaran, Salyan, Khachmas, groups composed of local communities have been established.

Nowadays, environmental challenges are topical as never before in the country. It is obvious from a number of high level meetings held in recent time including a meeting with the President of the state devoted to environmental challenges and the issues of the Caspian Sea, in particular.

Ministry of Ecology and Natural Resources keeps in close contact with city, local and regional government bodies directly or through its regional departments for attending to environmental

issues. Joint events are held with local and regional government bodies at which environmental issues are discussed with public participation.

Every year during the last week of October the Sea Day is celebrated. Broad layer of the population take part in events that are held in commemoration of this day. Throughout the week the following works are carried out: organization of lectures in middle schools and other educational institutions, conducting public monitoring in coastal areas with the participation of pupils, NGOs, citizens, organization of clean up activities in coastal areas with the participation of the public, holding round tables with the participation of students and lecturers of higher educational institutions, NGOs and other stakeholders. All these events had a good media coverage.

The legal basis for public participation in decision making on environmental matters including the Caspian Sea is provided by the Law on Environment Protection, the Law on Hydrometeorological Activities, Закон «О гидрометеорологической деятельности», Aarhus Convention on Access to Information and Public Participation in Decision Making on Environmental Matters which Azerbaijan joined to on 9 November 1999 and a number of solutions by the Cabinet of Ministers. These issues were addressed in the Regulation on the Process of Environmental Impact Assessment (EIA) in Azerbaijan.

The status of the above mentioned laws has remained unchanged. At the same time new legislative acts came into effect. On 12 March 2002 the Law on Access to Environmental Information was adopted. In furtherance of this law some new resolutions by Cabinet of Ministers regulating public access to environmental information have been adopted which proved to be the main impetus in promoting their participation in issues of protection of the Caspian sea environment. The laws declare the right to have access to environmental information, however, the rules of procedure on how this information can be obtained have not been identified The Rules of Procedure on Concluding Agreement with Person Seeking Environmental Information were approved by the resolution No.60 of 13 May 2003 by Cabinet of Ministers of the Republic of Azerbaijan. Another resolution No. 88 of 7 July 2003 approves the Rules of Procedure on Determining a Financial Source of Making Available Environmental Information and the Amount of the Fee. In accordance with these documents, an individual seeking information should conclude an agreement with a body providing information. Whether information (depending on its type) is chargeable or free, the total fee for information and a method payment are all indicated in an agreement. The amount of the fee for information on the environment is fixed by a relevant unit of the institution providing the information. The fee determined for the provision of information should not exceed the costs incurred while preparing, searching, copying this information, etc.

The procedure of receiving payment for the use of geological information on subsoil and the amount of the fee is regulated by another resolution of the Cabinet of Ministers No. 164 of 15 October 1999, and rates and rules of payments for the use of data on hydrometeorology and monitoring of the natural environment are governed by the resolution of the Cabinet of Ministers No. 115 of 9 July 1999.

It should be mentioned that in accordance with the Law on Access to Environmental Information the Cabinet of Ministers approved on 15 February 2003 a resolution on the Classification of restrictions on access to environmental information and Classification of state bodies to which requests concerning restrictions on access to environmental information are to be submitted.

In this resolution, in our opinion, an inappropriate attempt to classify into categories information which is subject to restriction has been made. This is information on the environment access to which is restricted concerning:

- the implementation of activities by state bodies or municipalities;
- activities of legal entities and individuals;
- ensuring protection of the environment.

The legislation of Azerbaijan requires obligatory public participation in the process of environmental impact assessment, development of information database, ensuring its transparency and access of the public to it. The Ministry of Ecology and Natural Resources holds regular consultations with NGOs during which important environmental issues are discussed including the Caspian sea environmental management issues.