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Caspian Environment Programme, Phase 2

Socio-Economic Situation Related to Desertification

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Chapter 1. General Overview of the Caspian Coastal Zone

1.1. Objectives and Approach

The works in CEP Phase 2 had been focused on the interrelation between the socio-economic situation and desertification in the coastal region of all five littoral states. Special objectives were to analyse:

How the environmental situation affects the life of the rural population.

How the rural population perceives environmental changes, especially desertification.

What the regional distribution of socio-economic features is and how they are related to the existing environmental conditions.

What recommendations can be made for governments and donor organisations to improve the situation.

In order to answer these questions the CRTC Combating Desertification applied the following twin-tracked approach:

1. The analysis of available socio-economic data as from:

National Statistical Analysis provided by all five countries (CRTC CD)

Socio-Economic Studies for all countries (PCU CEP)

UNDP National Human Development Reports for all five countries.

2. Case studies on the social situation of the rural population were undertaken in all desertification Hot Spots. To gain in-depth understanding of ecological and socio-economic situation national experts from all five Caspian countries were invited to carry out qualitative research in areas seriously confronted with desertification (hotspots) of their respective countries. The results were presented in:

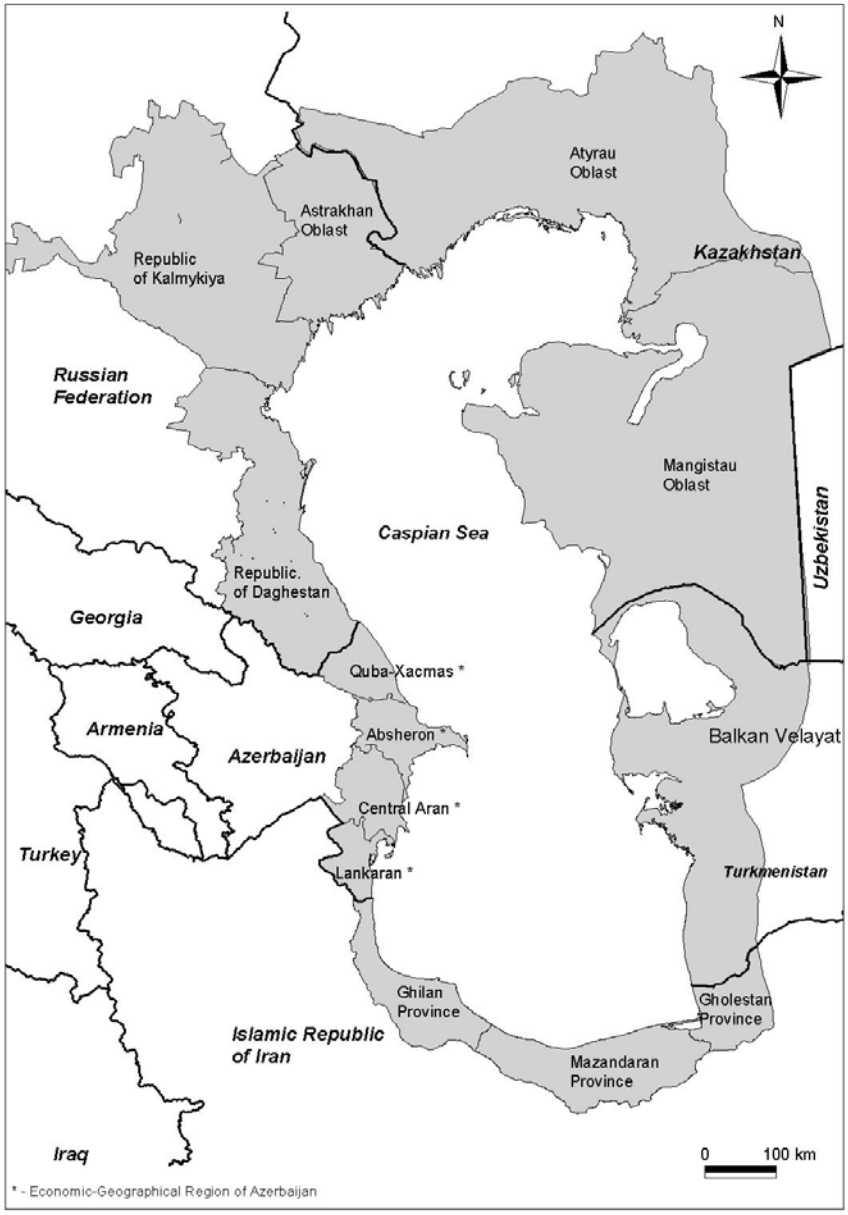
Participatory Rural Appraisal (PRA) Reports (CRTC CD)

1.2. Area of Investigations

For this study the Caspian coastal region has been defined as the nine provinces in all five countries bordering the sea. However, in Azerbaijan there is no official administrative category between the national level and the district level. Thus, commonly used economic geographical zones were chosen as equivalent.

More detailed statistical analysis was only made for those districts within a province directly located at the coast (compare tables for each country).[1] The following map illustrates the coastal zone of the Caspian Sea investigated by this report:

Administrative Division of the Caspian Sea Coastal Zone



The Caspian coastal region comprises the following provincial units in the five countries:

Iran: Provinces of Gholestan, Mazandaran, Ghilan

[1] All five countries for demography provided requested statistical information. Many socio-economic data were not available or were not provided at district level.

Azerbaijan: Economic geographical zones of Lankaran, Central Aran, Absheron, Quba-Xacmas

Russian Federation: Republic of Daghestan, Republic of Kalmykiya, Astrakhan Oblast

Kazakhstan: Atyrau Oblast, Mangistau Oblast

- Turkmenistan: Balkan Velayat.

1.3. Socio-Economic Development in the Caspian Region

When looking at the socio-economic situation of the Caspian Region a general distinction has to be made between the four NIS (Newly Independent States) with their common heritage of the Soviet system on the one side and the Islamic Republic of Iran on the other side. The socio-economic situation around the Caspian Sea has become critical for the majority of the population. Unemployment and poverty are widespread phenomena existing in all five countries around the Caspian Sea.

The four NIS countries are in a transition period towards a market economy. After the dissolution of the Soviet Union the political and economic situation in the four former Soviet states changed profoundly. In Soviet times the Caspian countries were interlinked by an intensive mutual exchange of information, goods and people. However, with independence most of these relations had been cut off. Existing markets and supply relations were interrupted. Many industries had to close or continue to produce at a low level. In the early nineties the GDP fell sharply in all countries compared to its 1990 level (with the exception of Turkmenistan). Since then these countries have introduced new regulatory frameworks, more or less privatised their economies and their banking system, built international trade relations and opened their markets for foreign investments. In this respect Kazakhstan seems to have achieved the most stable macro-economic situation, while reform orientation in Turkmenistan is very low and the economy is still largely in government hands. Poverty and socio-economic instability is not so much an issue in Iran as in the four NIS countries, however income levels are also low and were declining due to high population growth with the consequence of high un- or underemployment.

The Iranian coast with about 6.5 million inhabitants has a high population density. The area is sub-tropical and represents the most fertile region of Iran, accounting for almost all the national tea and rice production. In addition, all the country's commercial timber originates here and fishing from the Caspian Sea represents 25% of the national fish catch. The Caspian coast is Iran's most attractive tourist destination to be reached in six hours from the capital.

Within the Caspian NIS, the features of Azerbaijan and the Russian Federation on the western and north-western coastline with moderate continental climate also show significant population numbers. Azerbaijan depends highly on the mineral and aquatic resources of the Caspian Sea, where about 40% of the population including the capital Baku are situated on the coast (3.1 million).

The Russian coastal region comprises the two Autonomous Republics of Daghestan (2.1 million inhabitants) and Kalmykiya (0.31 million inhabitants) and the province (oblast) of

Astrakhan located in the Volga delta (1 million inhabitants). About a third of these 3.5 million people live near the coast. The biggest cities are Astrakhan (484,000 inhabitants) and Makhachkala (344,000 inhabitants), which are both important harbours and industrial centres. Baku (2 million inhabitants) and Sumgayit (283,000 inhabitants) on Absheron peninsula in Azerbaijan and these two Russian cities are the biggest settlements along the whole Caspian coast. Kalmykiya is a province of predominantly rural character depending highly on animal husbandry, mainly sheep breeding.

The coastal zones of Kazakhstan and Turkmenistan have totally different features: the northeastern and eastern coast of the Caspian is desert or semi-desert,able to support only limited population numbers. The coastal population of these two countries amounts to 1.2 million. The three major cities here are Atyrau (142,000 inhabitants) in the north, Aktau (145,000 inhabitants) on the east coast in Kazakhstan and the town of Turkmenbashi (72,800 inhabitants) in the southeast of the Caspian.

The total area of the Caspian Region thus comprises 681,883 km^2 with a total population of about 15 million. However, 62% of this area lies in Kazakhstan and Turkmenistan with arid and sparsely populated lands. Considering only those districts of the provinces that border the sea the area reduces to 476,000 km^2 with 11.5 million inhabitants.[2]

Islam is the common religion in all Caspian countries, even in the coastal zone of the Russian Rederation the Islam is dominating as Dhagestan, where most of the population of the Russian coast is living, is a muslim country. In Kalmykiya half of the population is of Mongolian descent and of the Buddhist faith. Apart from Iran, religion still has a very limited influence on public and private life. Most people of the Caspian speak a form of Turkish language. Azeri, Kazakh and Turkmen language are related and many people along the Iranian coast are either Azeri in the west or Turkmen in the east or do understand Azerian language. On the other hand in the four NIS countries Russian is still widely used and is the common language of understanding each other. However, the proportions of the Russian population in the three other NIS countries have become very small and even in the Russian coastal zone Russians are a minority.

The economies of all five riparian countries depend highly on their oil and gas resources. The countries with the largest populations, Russia and Iran, do not draw their incomes from hydrocarbons from the Caspian zone (Russia to a very small extent), while the three smaller economies Azerbaijan, Kazakhstan and Turkmenistan gain most of their external revenues from their Caspian resources. Despite its economic importance for all riparian countries, the capital intensive oil and gas industries have only very limited labour requirements. Presentation of the following chapters on the different nations is not made alphabetically as is usual within the CEP, rather the countries and their administrative units are referred to geographically, starting from Iran in the south in a clockwise direction ending in Turkmenistan.

[2] In Iran and Kazakhstan no differentiation was made and all districts were included in the Caspian Zone of Direct Social and Economic Impact

Chapter 2. Nature and Environment of the Caspian Coastal Zone

2.1. Natural Features

2.1.1. Humid Coastal Strip and Foothills of Azerbaijan and Islamic Republic of Iran

The long coastal strip from Astara (Azerbaijan) to the eastern Mazandaran province (Islamic Republic of Iran) receives a much higher precipitation than all the other Caspian coastal regions. On the southern side of the Caucasus Mountains cyclones move from the Atlantic Ocean eastward. On the northern slope of the Iranian Elburs Mountains, moisture condensation leads to higher rainfall. The Elburs Mountains are covered with rich forests, although the southern extensions of the mountains are drier. Many streams flow down to the coastal plains of the Caspian Sea and support intensive irrigation agriculture. In areas of the foothills, tea has been cultivated for many years.

2.1.2. Semi-Dry Coastal Strip and Foothills of the Republic of Daghestan and Azerbaijan

South of Makhachkala the landscape is characterised by the Caucasus Mountains and their foothills. Due to the position in the lea of the Caucasus, this area is quite dry. However, rivers having their sources in the forest-covered mountains provide sufficient water for the coastal zone, which is often only some km wide. Almost all settlements, agricultural production, transportation lines and other facilities are located along this narrow coastal strip. Here land use is very intensive, especially in the areas of Makhachkala, Derbent, Sumgayit and Baku. The Absheron peninsula has been dominated by the exploitation of oil and gas deposits for over a century.

2.1.3. Semi-Arid Step and Volga Delta on the Caspian Coast of the Russian Federation

Far Eastern Kazakh areas and the entire Russian Federation coast of the Caspian Sea belong to the step zone. Under previous natural conditions vegetation has covered all the land. The Kalmykiyan and Daghestan coastal plains consist of alluvial, mainly marine sediment. The northern parts are named ”Black Lands” according to the colour of the soils. During the last decades inappropriate grazing practices have led to severe degradation of this land.

The period of heavy flooding 1979-1995 dramatically affected the coastal areas.Without an appropriate defensive dam system, the exceptionally high flood of March 1995 and the previous flood of 1.7 m magnitude and one month duration damaged many houses, industries, infrastructure and agricultural areas particularly in the Lagansk district.

The Volga delta itself has different natural features. A large flow of freshwater from the Volga River causes a high groundwater table on the lower Volga terraces. Excellent soils provide a

good agricultural basis. In this respect the natural conditions of the Astrakhan oblast are more favourable than the areas of the northern Caspian region, which are mostly dry. The water and land use of the Terek River delta north of Makhachkala in Daghestan is similar.

2.1.4. Arid Desert Regions of Turkmenistan and Kazakhstan

The eastern coastal region of the Caspian Sea receives less than 200 mm rainfall per year. In Kazakhstan, the provinces Atyrau and Mangistau Oblast and in Turkmenistan the province Balkan Velayat are parts of the Kara Kum Desert, which extends over a large area of Central Asia. The hydrological situation is characterised by the absence of persistent rivers. The only river permanently flowing into the Caspian is the Ural River (northern Kazakhstan, Atyrau Oblast). Emba (Atyrau Oblast, Kazakhstan) and Atrek River (southern Turkmenistan, border to Islamic Republic of Iran) do not flow permanently into the Caspian Sea.[3] Due to this climatic-hydrological situation there are no appreciable ground water layers outside the alluvial plains of the Ural River, which can provide a sufficient volume of freshwater. Some small water lenses exist, but are often far from the coast. The region as a whole is characterised by desert soils and desert vegetation. Depending on the sediments, different types of desert such as sand desert, clay desert, rock desert, gypsum desert are common.

From Turkmenbashi (Turkmenistan) up to Fort Shevchenko (northern Mangistau Oblast) mainly primary rocks stretch directly to the coast. South of Turkmenbashi up to northeastern Iran marine sediments form the coastal plains. Here the saltwater influence from the Caspian Sea is predominant. Saltwater lagoons and solonchaks are widely spread in the coastal zone of the Esenguli Etrab This area was also greatly affected by the flood period of the Caspian Sea 1979-1995.

In comparison to the Mangistau Oblast and Balkan Velayat, the northwestern Atyrau Oblast is less arid. Here water provision is much better because of the permanent flow of the Ural River.

2.2. Desertification and Degradation of Natural Resources

2.2.1. Desertification

Desertification processes – defined as degradation of soil and vegetation under human activity in arid, semi-arid and sub-humid climates - have been observed all around the Caspian Sea. Due to the higher sensitivity of the arid ecosystems these desertification processes are more widespread in the eastern coastal zones. Areas especially prone to desertification are found around:

Water wells, which have attracted high concentrations of livestock

Mining industries

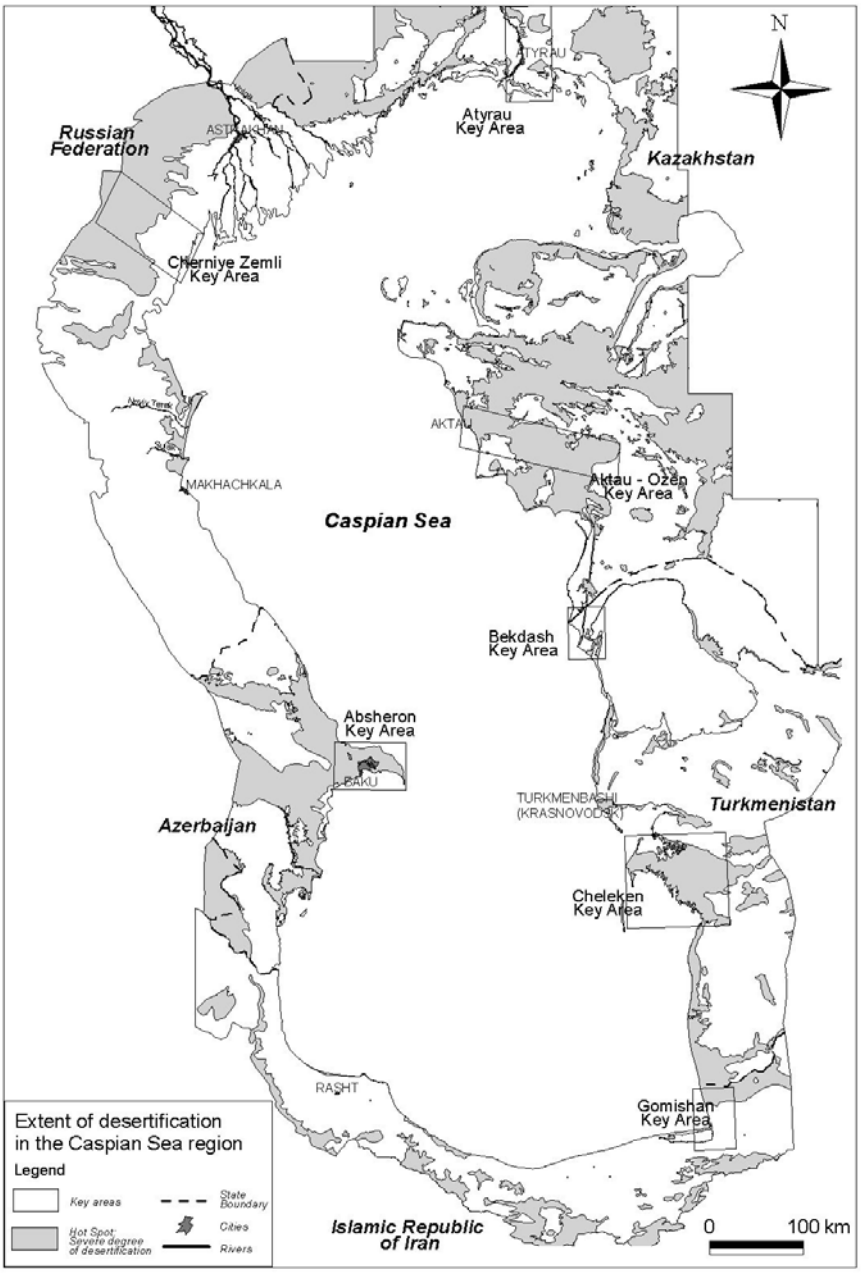
[3] For the last decade waters from the Atrek River only once in 1997 reached the sea.

On-shore oil and gas production facilities

Residential areas

Pipelines for oil, gas, and water, corridors for roads, railways and communication lines throughout the whole area.

Extent of desertification in the Caspian Sea region



The process of salinisation was accelerated on land areas, which have become closer to the coastline after a rise in sea level (particularly around the Kazakhstan Bay). With regard to the natural deserts, the degree of desertification in desertified areas in the Caspian region can be classified as follows:

Group 1: Highest coverage of areas with deserts and desertification processes

Southern part of Balkan Velayat, Turkmenistan

Mangistau Oblast, Turkmenistan

Absheron Peninsula and up to Derbent (north) and up to Kura delta (south), Azerbaijan

Atyrau Oblast except Ural and Emba River valley, Kazakhstan

Group 2: Medium coverage of areas with deserts and desertification processes

Northern part of Balkan Velayat, Turkmenistan

North-eastern Iranian Gholestan province, Islamic Republic of Iran

Foothill areas (e.g. Gholestan and Mazandaran provinces)

Astrakhan Oblast (except Volga delta), Kalmykiyan and Daghestan Republic

Emba River valley, Kazakhstan

Group 3: Slight coverage of areas with deserts and desertification processes

Volga River valley in Astrakhan Oblast (Russian Federation)

- Ural River valley in Atyrau Oblast (Kazakhstan)
- Southern Azerbaijan and western Iranian coastal zone;
- Northern Azerbaijan coastal strip.

2.2.2. Degradation of Water Resources

Fresh water resources in the Caspian coastal zone have been degraded by the intrusion of seawater, and the overuse and pollution of groundwater of the mostly small alluvial plains around the Caspian Sea. Pollution sources are:

Toxic substances discharged from industry, untreated municipal wastewater, wastewater from agriculture

Nutrients discharged from agriculture, wastewater from municipal and industrial sources

Radionuclides discharged from some industrial sources as the jodium-sodium factories around the Caspian Sea

Oil spills discharged from off-shore and on-shore drilling, from tanker transport, from refineries

The biggest polluters are large industrial plants located mainly on the western side of the Caspian Sea in Absheron Peninsula and Baku, Azerbaijan, Makhachkala and Astrakhan, Russian Federation. On the eastern side highly polluted areas are located in Atyrau and Aktau and Turkmenbashi and Khazar (former Cheleken).

2.2.3. Degradation of Land Resources

Corresponding to the climatic pattern the agricultural potential is in general concentrated in the western part of the Caspian Sea. Mainly due to the high humidity, most fertile soils are located on the alluvial fans of rivers flowing from the Iranian mountains, and in the deltas of the Volga, Terek, Ural and Kura rivers.

Deforestation is another important aspect of land degradation. In Iran the high pressure on land, and in Azerbaijan and Daghestan the impoverishment of the population led to increased wood cutting in the mountain areas.

2.2.4. Degradation of Air Quality

Up to now we do not have any air pollution measurements in the cities around the Caspian Sea. However, air quality is of much less concern than the water issues. There are several industrial locations around the Caspian Sea - in Baku, Sumgayit, Makhachkala, Astrakhan, Atyrau, Aktau, Turkmenbashi and Cheleken. Since the collapse of the Soviet Union, some of those factories do not function permanently or have been completely closed down. It is therefore likely that environmental threats due to air pollution in those regions have decreased, whereas oil and gas industries have been developed and give rise to new emission sources. Many deposits on-shore and offshore are exploited by burning excess gas, and new refining capacities have been installed.

Chapter 3. The Coastal Zone of the Islamic Republic of Iran

3.1. Administration and Demography

The Iranian coastal region includes the three provinces Gholestan, Mazandaran, Ghilan (from east to west) with a total population of 6.425 million in 1999, which is 10% of the country's total population. The region is clearly set apart from the Iranian plateau by the Elbrus and Taurus mountains. Mountains, foothills and plains cover approximately 53%, 34% and 13% of the region. Forests (in the mountains) cover One third of the area and half of the area by pastures (foothills and mountains). The climate is subtropical with annual rainfalls from 600 mm in the east to 2000 mm in the west. The area of the coastal region totals 59,473 km^2, which means a population density of 105 inhabitants/km^2 on average, however most of the area is mountainous and about 90% of the population are located in the plain areas covering one third of the territory. The population density is thus very high in the coastal plains and increases from east to west.

The coastal zone has 88 townships and 6,735 rural settlements; the degree of urbanisation is approximately 47% on average, and increases from east to west. Population growth in the region has been about 2% in the last 3 decades (compared to nearly 2.7% on the national level)[4] and has now declined to about 1.2% (which is about national average). The census of 1996 registered a migration loss in the region.[5] The urbanisation process has accelerated in the past decades; from 1966-1996 the urban population has grown nearly four- fold, compared with a less than double increase of the total population.

According to the 1996/97 census, average family sizes in Ghilan province were 4.6 for rural areas and 4.2 for urban areas, the respective figures for the other two provinces were 4.6 and 5.1, and nationwide 4.8 and 5.4. This is in line with the lower demographic growth in the region compared to the national average. In general, family sizes are now shrinking. No statistical data on ethnic composition is available.

[4] In the first years after the revolution average birth rate in the country reached 3.2% or in terms of fertility 6.4 children per woman

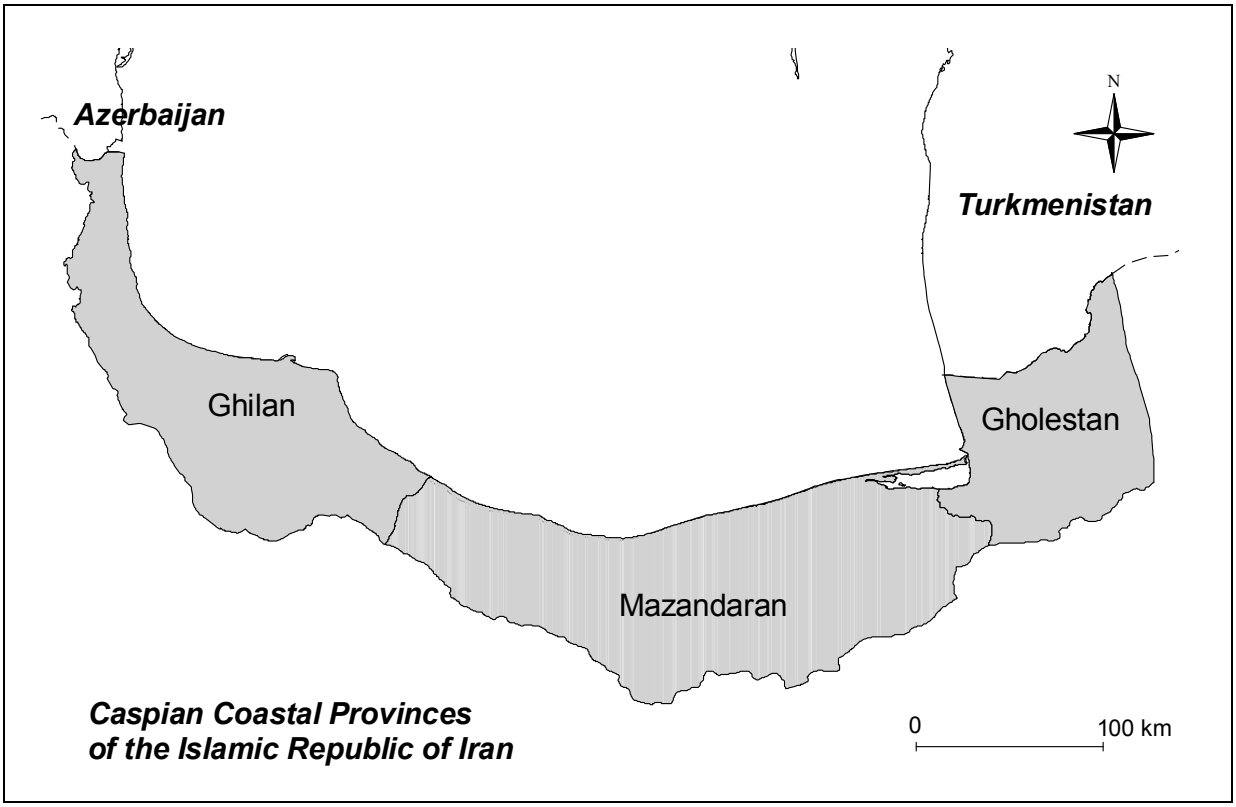
[5] In Mazandaran and Ghilan out-mitgration was higher than in-migration by 20,000 people or a little less than 1%, for Gholestan no data were reported

Administrative Units of the Islamic Republic of Iran

Administrative Units	Area km^2	Population 1999	Population Density In-habitants/km^2	Natural Population Growth 1999	Urbanisation Degree (%)
Gholestan Province	20,893	1,490,339	70	1.4	41.3
- Turkmen	1,902	111,392	59		
- Kordkoy	815	67,051	82		
- Gonbad	6,856	411,522	60		
- Gorgan	2,848	421,770	148		
- Aliabad	1,163	117,287	101		
- Minodashd	6,486	251,561	39		
- Bandargaz	240	45,705	191		
Mazandaran Province	23,833	2,602,008	109	1.2	45.9
- Tonekabon	1,958	174,030	89		
- Sari	3,674	422,461	115		
- Ramsar	730	64,440	88		
-Noshahr	1,718	105,892	125		
- Noor	2,675	94,768	35		
- Neka	1,407	98,827	70		
- Mahmoodabad	274	83,436	304		
- Ghaemshar	453	260,447	725		
- Behshahr	1,825	176,731	97		
- Babolsar	346	155,265	449		
- Babol	1,431	421,068	294		
- Amol	3,210	297,735	93		
- Jooybar	298	68,817			
- Savadkkooh	2,078	69,222	33		
- Chaloos	1.682	108,861			
Ghilan Province	14,711	2,333,137	152		50.9
-Talesh	2,216	163,287	70		
- Somesara	633	140,013	216		
- Shaft	681	70,472	103		
- Rasht	1,427	759,016	501		
- Langarood	441	140,759	309		
- Lahijan	584	155,729	261		
- Fooman	937	105,339	110		
- Bandar Anzali	309	122,088	388		
- Astara	334	66,616	189		

Administrative Units	Area km^2	Population 1999	Population Density In-habitants/km^2	Natural Population Growth 1999	Urbanisation Degree (%)
- Astaneh	427	118,132	268		
- Amlash	470	52,570	108		
- Syahkal	1,049	51,675	49		
- Rezvanshar	804	60,408	72		
- Roodbar	2,574	118,338	44		
- Roodsar	1,340	156,442	113		
- Masal	486	50,348	101		
Coastal Zone	59,473	6,425,484	105		54.7
Country	1,600,000	63,000,000	39		

Demographic and Administrative Profile of the Coastal Zone of Iran



Total Area of IR Iran	Coastal length	Total area	Life expectancy
1,600,000 km^2	738 km	59,473 km^2	71.1 years
Total population	**All Caspian population**	**Population growth 1966-1996**	**Population growth 1986-1996**
63 million inhabitants	6.4 million inhabitants	1.9%	1.3%

Gholestan Province		Mazandaran Province		Ghilan Province	
Area	**Population**	**Area**	**Population**	**Area**	**Population**
20,893 km^2	1.490 million inhabitants	23,833 km^2	2.602 million inhabitants	14,711 km^2	2.333 million inhabitants
Major Ethnic groups	**Population density**	**Major Ethnic groups**	**Population density**	**Major Ethnic groups**	**Population density**
Farsi, Turkmen	68 inh/km^2	Farsi, Azeri	109 inh/km^2	Azeri, Farsi	152 inh/km^2

3.2. Economy

The Iranian economy has been characterised by rapid population growth combined with increasing unemployment, chronic high inflation and dependence on the petroleum revenues in the last decades. From 1976 to 1996 the population grew from 34 million to 60 million and stands now at about 63 million. This also led to a substantial increase of unemployment. The official unemployment rate currently is 15.1%. Financed by the revenues from the petroleum sales the government has developed a large administrative apparatus, which accounts for about 30% of the total employment in Iran.

The Caspian region is an area where rural characteristics still prevail, without very large urban centres. Agriculture is the most important economic activity. On the humid western shores of Ghilan and Mazandaran the cropped areas are mostly irrigated rice fields. In the drier eastern province of Gholestan, wheat (37%) and barley (23%) are cultivated, both irrigated and rainfed over roughly equal areas.[6] Perennial crops like tea, citrus, nuts, fruits, tobacco and vegetables are of utmost importance in the region and contribute to a large extent to the nutrition of the population[7]. About 93%, 100% and 30% of the Iranian production of rice, tea and olives is cultivated in the Caspian region, respectively. The region in also famous for its citrus fruits and Gholestan is one of the main producers of wheat in the country.

Animal husbandry provides a very important additional income for farmers. In the eastern part of the region it is the main source of income, particularly from sheep, for many peasants. The total number of sheep and goats in the Caspian zone of Iran is 6.8 million head and exceeds that of human beings. There are also about 2.1 million cattle. More recently, industrial poultry production has developed.

[6] In Ghilan of the total cultivated area of 297,000 ha 77% or 230,000 ha were rice fields (1998), in Mazandaran province rice still makes up 50% of the total cropped area (455 000 ha), cultivated area in Gholestan is 599,000 ha

[7] In Ghilan another 93,000 ha and in Mazandaran 105,000 ha are covered by perennial crops and orchards (no data for Gholestan).

Fisheries also play an important role and employ about 12,000 fishermen and 3,000 people in fish processing industries. Fish catches from the Caspian have continuously risen to about 100,000 t/year of which 85% are kilka (anchovy) used mainly as animal fodder. Fishing accounts for 25% of the country's total fish production. The great majority of the fishermen is organised in fishing co-operatives (10,000fishermen, 800 boats). Also inland aquaculture is important in rural areas and plays a significant role in food supply.

Forest products from the Caspian region are of the highest importance as this is the only large forest area with commercial value in the whole country. About 1.89 million ha of forests (68% commercial forests) produce over 1.3 million m^3 of timber per year.

The industrialisation process has been accelerating in the recent past. Industrial activities in the region are mainly concentrated on agro-industry, timber and handicrafts and include wood and paper industries, silk processing, rice threshing, tea drying, production of vegetable oil, olive oil, tobacco processing, fish processing, textile industries and others. Food, textile and timber industries employ the highest share of workers. Most workers are employed in small and medium enterprises. Mining also represents an important activity employing about 8,200 workers in 266 mines. The major mineral materials include coal, rock, limestone, decorative stone, shell, copper, silica, sand and gravel.

The Caspian coastal zone is most attractive for domestic tourism. However, employment in this sector is low as most tourist visits are organised in private houses (90%) and only 70 hotels with an accommodation capacity of 5000 persons/per day are registered here.

Socio-Economic Structure of the Coastal Zone of the Islamic Republic of Iran

GDP per capita	Agricultural share in GDP in %	Industrial sector share in %	Service sector share in %
1,630 US $/a	33.7	21.7	40.6
HDI (1996)	**Total population**	**Population coastal region**	**Total area**
0.758	63 million inhabitants	6.425 million inhabitants	1,600,000 km2

Gholestan Province		Mazandaran Province		Ghilan Province	
HDI	0.724	HDI	0.724	HDI	0.759
Population	**Area**	**Population**	**Area**	**Population**	**Area**
1,490,000 inhabitants	20,893 km2	2,602,000 inhabitants	23,833 km2	2,333,000 inhabitants	14,711 km2
Population below poverty	**Unemployment rate in %**	**Population below poverty**	**Unemployment rate in %**	**Population below poverty**	**Unemployment rate in %**
16.6%	9.7	16.6%	9.7	17.4%	13.7
Cropped areas	**From this irrigated areas**	**Cropped areas**	**From this irrigated areas**	**Cropped areas**	**From this irrigated areas**
599,551 ha (28.7%)		455,056 ha (19.1%)		296,795 ha (20.2%)	242,589 ha
Pastures	**Forest Lands**	**Pastures**	**Forest Lands**	**Pastures**	**Forest Lands**
40%	421,373 ha (20.1%)			224.512 ha (15.3%)	567,524 ha (38.5%)
Cattle	**Sheep/goats**	**Cattle**	**Sheep/goats**	**Cattle**	**Sheep/goats**
299,000	2,698,000	1,005,000	2,502,000	800,000	1,576,000

3.3. Social Situation

The 1996/97 census estimates the total population at 6 million. From an active working population of 1.83 million only 11% (204,000) are officially unemployed[8]. From the employed population of 1.63 million 39% are engaged in the service sector, 38% in the agricultural sector and 22% in the industrial and handicraft sector. This shows the continuing importance of the agricultural activities in the Caspian region, as at that time the national average was only 25%. However, there is clear evidence that the agricultural sector cannot absorb the growing work-force any further and that field plot sizes, due to the traditional inheritance system, are becoming smaller and smaller. Data presented for Ghilan province show that in 1986 the agriculture sector employed 51% of the work-force compared to 39.5% ten years later. It is likely that this process will continue.

[8] National unemployment rate in the same census 1996/97 was 9.1% and in 1999/2000 was 15.1%

Despite this demographic development Iran has a remarkable record in the field of human development. Government policy has concentrated on literacy promotion and health improvement. The human development index in Iran rose in the period 1988 to 1997 from 0.642 to 0.758. Average life expectancy in Iran increased from 61.6 to 69.5 years and adult literacy from 57.1 to 74.5%. Health indicators like the under-five mortality rate (85.3 to 37.3) have clearly improved with the exception of tuberculosis cases due to the high air pollution in the urban centres. Only 6% of the national population have no access to safe water, as opposed to 14% in 1988. However, the population below the national income poverty line remained at about 18% in this period.

Annual per capita income in the Caspian region was 7,500,000 Rials for the rural areas in the census 1996/97 (about 1,700 $ at that time), which corresponded to the national average. Annual urban income in the region was about 10 million Rials, which was 16% below the country's average for urban regions. Family sizes are 4.5 persons on average, of whom 1.3 receive an income.

With 0.759 in 1996 the HDI index for Ghilan province was about the national average. The HDI index for Mazandaran[9] was 0.724, which is higher than the median of all 26 provinces. Regarding the average life expectancy Ghilan (70.3) is above the average (69.5) and Mazandaran (67.4) below.

3.4. Environment

The Caspian Sea region is climatically the most favourable in Iran and of unique environmental and economic importance for the country. At a national level, rapid population growth poses the biggest problem with continuously negative consequences for the social and environmental standards. Very intensive agricultural use has led to an eutrophication of soils and groundwater and is also polluting the dense net of water streams, because drainage canals and surface runoff waters transport high contents of fertilizers and also pesticides. Another source for contamination and eutrophication are untreated wastewaters from settlements and industries. Polluted waters finally discharge into the Caspian Sea.

The southern slopes and foothills of the mountains stretching along the coast are still covered widely with a thick oak forest. Increasing population and also animal numbers have forced local governments to allow considerable deforestation in favour of agricultural development. There is already clear evidence that forest areas in the Caspian area are continuously shrinking. One immediate impact has been the increasing erosion of fertile brown soils on the slopes in all three provinces.

Increasing air pollution from vehicles, high volumes of untreated urban and industrial wastewater, and unsatisfactory waste management is said to have negative impact on the health of the rural population

[9] In 1996 the Mazandaran province was not divided into Mazandaran and Gholestan, statistical data referring to that census are thus only available for both districts together.

3.5. Socio-Economic Conclusions

Population concentrations in the Caspian regions are higher than in other rural areas of Iran. The average for the entire territory of all three provinces is 105 inhabitants/km^2. However, as settlements are located mostly in the plain areas with good land resources, here the densities are much higher (about triple) and increase to the west with more favourable agro-climatological conditions. Favourable climatic conditions allow for sufficient water supply with good quality, as intakes are mostly located in the upper river courses.

Major problems and trends are:

- Remarkable progress in the field of human development with higher literacy, increasing live expectancy and better health. However, about one fifth of the population still lives below the national income poverty line.
- Rapid population growth leads to increasing unemployment with the risk of increasing social tensions. Neither the industrialisation process accelerating in the recent past nor agriculture or the growing tourist sector can absorb the increasing working force.
- Increasing pressure on natural resources through growing settlements and accelerated deforestation of mountain areas for agricultural extension, leads to acceleration of erosion, to pollution of water streams and groundwater and to eutrophication of soils.
- Accelerating urbanisation process causes higher air pollution and an increasing risk of respiratory diseases.

Chapter 4. The Coastal Zone of Azerbaijan

4.1. Administration and Demography

Administratively Azerbaijan is divided into 65 districts and 11 towns. An intermediate provincial level of administration does not exist. This immediate coastal zone has an area of only 14,480 km^2 (16.7%) and 3.1 million people, which represents about 40% of the country's population. However, these official figures do not include the 900,000 refugees from Berg-Karabach. The following table shows only the immediate coastal zone consisting of 10 districts and 3 town districts located on the coast.

Administrative Units of Coastal Zone of Azerbaijan

Administrative Units	Area in km2	Population 1999	Population Density Inhabitants/km2	Natural Population Growth (%) 1998-99	Urbanisation Degree (%)
Astara	620	85,400	138	1.32	22
Lankaran	1,540	191,100	127	0.81	41
Massali	790	175,500	222	1.05	82
Salian	1,790	112,000	63	0.96	35
Neftchala	1,450	71,500	49	0.91	45
Ali-Bairamly	30	70,000	2,333	0.69	100
Absheron	1,360	82,900	61	0.11	44
Xizi	1,850	12,800	7	0.69	47
Baku	2,130	1,769,300	820	0.61	100
Sumgayit	80	283,000	3,410	0.77	100
Devichi	1,090	46,300	43	0.98	72
Siyazan	700	33,800	48	0.11	66
Xacmas	1,050	145,400	139	0.97	35
Total Coastal Zone	14,480	3,106,000	214	0.92	81
Country	86,600	8,000,000	92	0.90	51

The coastal zone together with some adjacent non-coastal districts is grouped into four economic-geographical regions from south to north: Lankaran, Central Aran, Absheron, Quba-Xacmas (see table 3-2). This coastal region with about 4 million people living on 28,410 km^2 comprises 13 towns, 84 urban-type larger settlements and 666 villages. The area is highly urbanised (more than 80% of the coastal population lives in cities), because the capital Baku, the country's second largest city Sumgayit and Ali-Bairamly (located at the Kura river and not on the coast) are included, accounting together for more than two-thirds of the region's population.

Area	**Coastal length**	**Coastal area**	**Coastal districts**	**Major ethnic groups**
86,600 km2	517 km	28,410 km2	14,480 km2	Azeri, Russian, Lezghin, Turk
Total population	**Population growth**	**Coastal population**	**Coastal districts population**	**Life expectancy**
8.0 million inhabitants	1.3% 1989 -1999	4.0 million inhabitants	3.1 million inhabitants	71.6 years

Natural population growth declined after 1989 to an average of 0.92% in 1999. Baku having the lowest birth rates (1.18%) and Astara in the south the highest (1.93%), mortality rates are all close to the average of 0.55%. Twenty years ago the Astara-Lankaran district was known to have the second highest birth rate in the whole Soviet Union (3.42%), only exceeded by the former Soviet Republic of Tajikistan (3.65%). Life expectancy at birth is high – both for men and women – and has recently increased to an average of 71.6 in 1999.

More than 90% of the population are Azeri; the rest is divided between Russians, Lezghins, Turks, Talyshs and other ethnic groups.

Demographic and Administrative Profile of the Coastal Zone of Azerbaijan

Lankaran Economic Region

Area	Population	Population density
6,070 km^2	730,000 inh.	120 inh/km^2

Districts: Lankaran, Jalilabad, Astara, Yardymly, Massali, Lerik

Central Aran Economic Region

Area	Population	Population density
8.740 km^2	605.000 inh.	69 inh/km^2

Districts: Salyan, Ajigabul, Neftchala, Sabirabad, Ali-Bairamly, Saatly, Bilasuvar

Absheron Economic Region

Area	Population	Population density
6,640 km^2	2,100,000 inh.	322 inh/km^2

Absheron, Sumgayit, Baku, Xizi

Quba-Xacmas Economic Region

Area	Population	Population density
6,960 km^2	442,000 inh.	64 inh/km^2

Districts: Siyazan, Xacmas, Gusar, Quba

4.2. Economy

Azerbaijan's economy had to confront one of the sharpest declines in production after independence; GDP fell in 1993 to 50% of the 1990 value. The situation has been very much aggravated by the military conflict with Armenia since 1988, as a result of which more than 900,000 refugees from Berg-Karabach had to be sheltered in the rest of the country. Since 1996 there has been an economic revival resulting in an increase in salaries and per capita income. The country has now achieved a certain macroeconomic stability: real GDP growth rates were 10% in 1998, and 7,4% in 1999, inflation is low and under control, and the trade deficit is reducing year by year. Yet, Azerbaijan's economy still heavily depends on the fuel and energy sector, rendering it very vulnerable to external shocks. The coastal area is the most developed in the country; the biggest cities, nearly all industries and also the best agricultural areas (particularly in the south) are located near the coast..

Economic-Geographical Regions in the Coastal Zone of Azerbaijan

Region Issue	Lankaran	Central Aran	Absheron	Quba-Xacmas
Coastal district	Astara, Lankaran, Massali	Salyan, Neftchala, Ali-Bairamly	Absheron, Xizi, Baku, and Sumgayit	Xacmas, Decevi, Siyazan
Non-coastal districts	Jalilabad, Yardymly, Lerik	Haciqabul, Sabirabad, Sayatly, Bilasuvar	Maraza, Samaxi	Quasar, Quba
Geographical profile	Subtropical coastal lowlands and Talysh mountains	Lowlands of the lower Kura river stretch	Lowlands on peninsula	Northern coastal stretch and foothills of high Caucasian mountains
Economic profile	Intensive irrigated agriculture and important agro-industry: tea, rice, vegetables, citrus fruit, grain, vines. Fisheries and fish processing. Wood industry.	Irrigation agriculture: grain, cotton, and vegetables. 35% of onshore oil and gas production, 25% of national power production in Ali-Bairamly, 850 MW Power Station , fish-processing, sturgeon breeding	60% of national GDP. Most of national industrial development, 80 % of poultry farming, dairy husbandry, transport network.	Agriculture is dominant (75%): livestock, poultry, grain, vines, fruit, and vegetables. Tourism, fishing, agro-industry.

4.3. Social Situation

Most of the employment[10] is generated in the service sector (58.2%), followed by the agricultural sector (30.8%) and only 11% of total employment is in industry and construction. The latter displays features of industrial breakdown, which could not be compensated for by the development of the labour intensive oil industry, which accounts for 61% of the value of industrial output. Another 21% of the industrial output comes from the electricity sector, thus the energy sector share in the industrial GDP is 82%, also indicating the sharp decline in the other industrial sectors. State employment makes up 36% of total employment. The level of unemployment is estimated as high as 25% by independent sources, although the registered unemployment rate was only 1.2% in 1999. The problem of unemployment seems to be particularly serious among young people.

The majority of the people still have to support themselves on incomes far below those in soviet times. According to World Bank expert's estimates about 70% of the population live below the poverty line (UNDP Azerbaijan HDR 2000). Those people are engaged in subsistence economy and many depend on small orchards to produce their own food. Per capita income of the GDP is one of the lowest in the NIS and by far the lowest among the 5 littoral states (610 US$ in 2000 according to WB data). Average monthly salaries in the country in 1999 were only 203,000 Manat (46 US $) and even in Baku they were not higher than 296,000 Manat on

[10] The following description does only refer to the national level; data on district level were not available. However national situation is fully applicable for the coastal zone.

average (67 US$). The monthly minimum per capita consumption budget is estimated to be 350,000 Manat, thus the current monthly average wage does not provide for even a basic living standard. People have to spend 72% of their incomes just on food, which illustrates the high level of impoverishment in the population. Poverty is extremely high among the refugees.[11]

The critical socio-economic situation reflects also on the level of education. Although 97% of the adults are literate, school and university enrolment figures have steadily declined. School enrolment for the age 6-23 went down from 68.5% in 1998 to 61.3% in 1999 and enrolment for higher education from 148 students per 10 000 in 1990 to 112 in 1999.

Also the health sector faces a critical situation: public health expenditure has fallen to 1.1% of the GDP (3.3 % 1993). Rural areas suffer most from declining standards of health care. Because of the high cost, many people tend to access health care only in an emergency. Salaries of medical staff are much lower than the above described national average (about 11 US $). Alcoholism, environmental contamination, poor diets, and psychological stress pose serious health risks and today cardiovascular diseases are the main causes of mortality. However, despite these facts life expectancy at birth has been increasing for both men and women to a quite high average of 71.6 years in 1999.[12]

The human development index has risen, helped by the increase in the GDP index, from its lowest value 0.692 in 1995 to 0.719 in 1999.

4.4. Environment

Azerbaijan, including the coastal zone, has very diverse natural resources. Clearly, the country's environmental situation is reflected by its economic state. Many of the environmental flaws were inherited from the former Soviet Union. Industrial decline, however, has resulted in much lower pollution loads released to the Caspian Sea or to the atmosphere from untreated emissions.

On the Absheron peninsula and along the southern coast oil spills and wastewater effluents have affected large areas since oil exploration started a hundred years ago, with impacts on the upper groundwater layers. Soils and almost all vegetation around Baku have been heavily degraded over the last decades; hence large areas here are sedimented with wastes and pollutants, preventing any further land use.

Another serious environmental problem is the massive deforestation[13], caused by the fact that supply of electricity and gas is no longer secure, except in the urban centres. Although 90% of e villages are connected to the power and gas supply grids, some small towns and country areas are not, resulting in the use of forest and bush as an alternative energy source. Firewood remains also the main source of energy for most of the refugees. Extensive use of wood for construction and furniture making and grazing of cattle and sheep in the woodlands of the Caucasus foothills near to the coastline affects the regeneration of forests. Deforestation is

[11] From UNDP National Human Development Report 2000
[12] Other important health indicators like infant mortality or under five mortality rate were not deployed in the Azerbaijan Human Development Report 2000
[13] Only 11% of the country is under forest cover and most of the forests in the occupied territory have been destroyed.

leading to increased erosion and reduction of water-regulation capacities, thus to increasing land degradation. Very large parts of the agricultural lands suffer from degradation in the form of salinisation and erosion[14].

Water shortages and problems with drinking water quality are the major environmental problem. Irrigated agriculture is the main consumer of water and water losses are high (about 50%) due to poor maintenance of the systems. A considerable number of irrigation canals were also destroyed by the flooding of the Caspian Sea in the early nineties. Water saving technologies and re-use of water are poorly deployed in the country. Many parts of the coastal zone, especially around the Kura river mouth, were affected by the rise in sea level from 1979 till 1995.

Contamination of main rivers is another big concern, in particular with regard to the Kura River, which is the main source of drinking water for the middle and southern coastal zone. A large part of the pollution of the Kura originates from industries and mines in Armenia and Georgia. Groundwater sources in the coastal zone have been mineralised by intrusion of the rising seawaters; water in the wells has risen to 5-7 m from 2-3 m depths. It is believed that 50% of the population receive poor drinking water quality.

4.5. Socio-Economic Conclusions

The largest town of Azerbaijan and of the entire Caspian is Baku. This coastal city is the economic and administrative centre of Azerbaijan. Especially after 1990 many international organisations including oil companies established their regional headquarters here. This has had considerable effect on the city's economy. Compared to the pre-independence situation, industrial production and labour market declined sharply. The situation in the coastal zone of Azerbaijan remains quite desperate particularly outside Baku and more drastically in the rural areas. Average incomes are the lowest for all Caspian countries, although, natural conditions and climate are quite favourable and the agricultural potential is very good.

The recent oil boom has not yet brought any better public services to the people. Reforms are underway and in recent years the country seems to be on the right path, however, it is doubtful that oil revenues will be appropriately allocated to improve the public services and the living conditions of the poor. Furthermore the situation is aggravated by a large number of refugees.

Major problems and trends for the rural coastal areas of Azerbaijan are:

- Very high level of unemployment mainly due to the sharp decline of industrial production after independence and the lack of alternative income possibilities;
- The vulnerable economy depends extremely on the oil and energy production, however, this sector provides jobs and benefits only for a very limited number of better-off people.
- Per capita income is by far the lowest among the five Caspian states. Most people have incomes far below those during the Soviet period. A vast majority of the population lives below the poverty line and extreme poverty is felt in the villages;

[14] It is reported, that about 45% of the agricultural lands of Azerbaijan are already subject to erosion, 50% of the fields are salinated.

- Public services are reduced or no longer reliable. Provision with energy and gas is not secured and the water supply is often of unsafe quality. School and university enrolment is steadily declining.
- The oil industry severely contaminated the Absheron peninsula, destroyed most of the vegetation and soil cover and thus reduced the agricultural surface.
- Near the Kura River the coast was hit by the sea level rising. Many settlements especially in the lower Kura were flooded and many families lost their houses, fields and orchards and finally migrated to other parts of the country (mainly to Baku)
- Destroyed or poorly maintained irrigation systems, notably in the Kura-Aras River lowland and around Baku, have reduced the area under cultivation considerably. Large parts of the agricultural land suffer from degradation in the form of salinisation and erosion. Also massive deforestation is reducing the water-regulation capacity.
- Drinking water wells are often mineralised by seawater and contaminated by oil or wastewater effluents which have spoiled many parts of the coastal zone.

Chapter 5. The Coastal Zone of the Russian Federation

5.1. Administration and Demography

The demographic composition of Russia's coastal zone is the most heterogeneous of all the Caspian Sea. It comprises two Autonomous Republics (Daghestan and Kalmykiya) and the province of Astrakhan in the Volga delta. The Republic of Daghestan has the longest coastline (414km out of 747 km) and most of the population of the coastal zone (2.14 million or 61% of the 3.5 million inhabitants of the three administrative areas live in this republic). Taking only the immediate coastal districts into consideration, Daghestan's share is much higher (950,000 of the 1.12 million inhabitants or 82%). In the sparsely populated area of Kalmykiya only the district Lagan shares a coastline (108 km) with a population of just 22,100. The oblast of Astrakhan has a total population of slightly over one million. It consists of 11 districts of which 4 are considered in the immediate coastal zone (188,000). Thus also the highest population density is in the Daghestan coastal zone with an average of 66 inhabitants/km^2, while it is only 26 inhabitants/km^2 and 4 inhabitants/km^2 in the coastal areas of Astrakhan Oblast and Kalmykiyan Republic respectively.

Administrative Units of the Coastal Zone of the Russian Federation

Administrative Units	Area in km2	Population 2000	Population Density Inh/km2	Natural Population Growth (%)	Urbanisation Degree (%)
Republic of Daghestan	50,300	2,142,700	42.5	1.05	40.2
- Magaramkent	700	47,500	68.6	0.92	0
- Derbent	600	171,233	270.5	0.98	65.7
- Kayakent	600	42,085	64.0	0.97	0
- Karabudahkent	1,400	53,848	38.3	0.98	7.3
- Makhachkala		344,200			100
- Buinak	2,500	109,603	43.2	1.08	51.1
- Kumtorkalin	400	17,416	44.2	1.04	0
- Babayurtov	1,000	36,202	34.6	1.12	0
- Kyzlyar	2,300	100,214	44.2	1.04	47.1
- Tarimov	2,300	34,342	14.6	0.97	0
Total Daghestan coast	14,400	956,643	66.4		68.1
Republic of Kalmykiya	76,100	315,700	4.14	0.04	40.8
- Lagan	4,710	22,100	4.7	-0.23	79.5
- Astrakhan Oblast	44,100	1,024,100	23.2	- 0.46	66.2
- Liman	2,100	36,500	17.3	-0.36	
- Ikryan	900	50,900	56.5	-0.63	
- Kamyzyak	2,100	51,100	24.3	-0.51	
- Volodar	2,100	49,500	23.5	- 0.03	
Total Astrakhan coast	7,200	188,000	26.1		
Total Russian Federation Coast	26,310	1,166,743	44.3		
Country	17,075,000	145,600,000	8.5	- 0.66	73

The Republic of Daghestan has a total area of 50,300 km^2 spanning the Bolshoy mountains of the northeastern high Caucasian range, the foothills of the Caucusus and the plains of the Caspian lowland in the north of the republic. The population is ethnically extremely heterogeneous and more than 40 different languages are spoken here. The most important ethnic groups are Avars (27.5%), Dargins (15.6%), Kumyks (12.9%), Lezgis (11.3%), Russians (9.2%), Laks (5.1%), Tabasarans (4.3%), Azeris (4.2%) and many very small ethnic tribes (e.g. Nogais, Rutuls, Aguls, Tsachurs) plus some Chechens, Armenians, Ukrainians, Tartars, Tats etc.

The majority of the Daghestan population lives in the middle and southern part of the coastal zone from Makhachkala to the Azeri border (90% of the 956,000 coastal population), where the population density reaches 100 per km^2 and the urbanisation degree is 68% on average. However, the population share of the urban areas has decreased in the past decade, because of lower urban fertility rates and out migration to the rural areas because of the high unemployment in the cities. The Daghestan coastal zone comprises 9 districts including the capital town of Makhachkala (of total 41 districts and 10 towns in the republic). Population dynamic has slowed down in the past decade; from 1989-1999 birth rates have fallen by 1% (from 2.74% to 1.79%) and average life expectancy from 73 to 70 years. However, these

demographic indicators are still among the highest in the study area and the population has grown by more than 20% in this period.

The Republic of Kalmykiya covers a bigger area than Daghestan, but has a population of just 316,000 living in the northwestern part of the Caspian lowland within a semi-desert zone (total territory is 76,100 km^2). The republic has 13 districts; only the Lagan district shares the Caspian coast with just 22,100 inhabitants on an area of 4,710 km^2.

Birth rates have fallen from 2.2% (1989), to 1.2% (1997) to currently 1.1% (2000), while death rates rose slightly to 1.06% (2000). Due to out migration between 1989 and 2000 the population number has fallen about 5% from 333,000 to 316,000. In the Lagan district the demographic situation is more negative as the population loss was 6.5%. Here also the natural demographic trend is negative as the death rate (1.23%) exceeds the birth rate (1.0%).

The Astrakhan Oblast includes 11 administrative districts (of which 4 are at the coast) and 136 rural districts. The centre is the city of Astrakhan with 512,000 inhabitants; there are three other towns and 15 industrial communities.

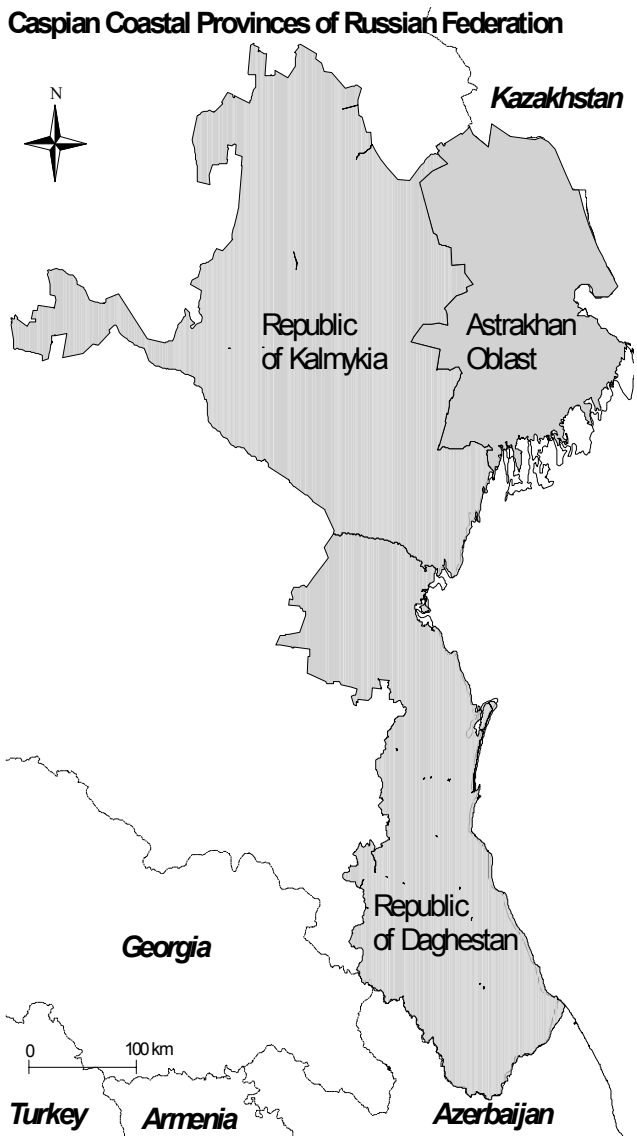
The negative natural demographic situation prevails also in the Astrakhan oblast (birth rate 0.9%, death rate 1.36%). However, population has increased by 26,000 since 1989 due to migration influx from the Caucasus. In 2000 1.24 million people lived in this oblast, which has an extensive territory of 44,100 km^2 and therefore only a moderate population density of 23/km^2. Urbanisation rate of the oblast is 66% and half of its population is concentrated in the city of Astrakhan. Average life expectancy for the year 2000 was 65 years, which is lower than the national level (66.7).

Demographic Profile of the Russian Federation and the Caspian Costal Zone

Area	**Coastal length**	**All Caspian area**	**Caspian districts**
17,100,000 km^2	747 km	170,500 km^2	31,100 km^2
Total population	**Life expectancy**	**All Caspian population**	**Caspian region population**
145.6 million inhabitants	66.7 years	3.5 million inhabitants	1.2 million inhabitants

However, average birth rates on a national level were lower and death rates higher, resulting in the most negative demographic situation in the whole NIS (-0.66% natural growth, which translates to a loss of nearly 1 million people per year). Fertility rate in Russia has decreased during the whole 20th century to a rate of 1.17 childbirth per woman, which is among the lowest in the world. On the other hand the death rate in Russia has also risen and with 15.3 death per 1000 (or 1.53%) is the highest in the NIS. The most affected group is Russian men, whose average life expectancy has decreased to below 60 years.

Demographic Profile of the Administrative Units of the Coastal Zone of the Russian Federation



Republic of Daghestan

Area	Coastal district area	Major ethnic groups
50,300 km^2	14,400 km^2	Avar, Azeri, Russians
Population	**Population growth**	**Population density**
2.143 million inhabitants	2.0%	43 inh/km^2
Districts:	Karabudahkent	Kumtorkalin
Magaramkent	Makhachkala	Babayurtov
Derbent	Buinak	Kyzlyar
Kayakent		Tarimov

Republic of Kalmykiya

Total Area	Coastal area	Major ethnic groups
76,100 km^2	4,700 km^2	Kalmykh, Russian, Kazakh, Tatar
Population	**Population growth**	**Population density**
0,316 million inhabitants	-0.3%	4.2 inh/km2
District: Lagan		

Astrakhan Oblast

Total Area	Coastal area	Major ethnic groups
44,100 km^2	14,000 km^2	Russian, Kazakh, Tartar
Population	**Population growth**	**Population density**
1,024 million inhabitants	-0.1%	23 inh/km^2
Districts:	Kamyzyak	
Liman	Volodar	
Ikryanin		

5.2. Economy

Russia is one of the countries, where the collapse of the old system and the industrial output were felt very deep[15] and socio-economic transition problems are among the harshest in the NIS. However, the recent political and economic stabilisation generated a growth rate over 8%[16] in 2000. The liberalisation of markets and the newly adopted very liberal tax regulations (just 13% income tax and 20% profit tax) are believed to be helping to overcome the problems of tax evasion, huge capital flight (estimated as over 20 billion US$ per year) and the colossal shadow economy. The social security system remains crude and corruption widespread. The banking system is regarded as inappropriate, the business environment as fundamentally unfavourable and the public administration as very weak. As a result the creation of new firms, growth of small and medium enterprises and direct foreign investment has remained low.[17] The Caspian Coastal zone incorporates three federal entities (out of 79 in the Russian Federation). In a regionalisation attempt in the year 2000 the Astrakhan oblast was included in the Volga Federal Region and Kalmykiya and Daghestan in the South Federal Region. Different from the other countries the sub-regions of the Russian coastal zone are very heterogeneous in all aspects. Thus the analysis will display them one by one. The table below shows the key features.

Socio-Economic Situation in the Coastal Zone of Russian Federation

Region Criteria	Republic of Daghestan	Republic of Kalmykiya	Astrakhan Oblast
Area in km^2	50,300	76,100	44,100
Population (number inhabitants)	2,143,000	316,000	1,024.000
HDI	0.729	0.714	0.740
Average income in US $	53	93	64
Unemployment rate in %	30.0	30,6	15.8
Population below poverty in %	58.1	60.1	34.4
GDP Agriculture in %		60	
GDP Industry in %	17		53
Industrial employment in %	25		20
Agricultural employment in %	40	19	50
Service sector employment in %	50		30
Cropped areas in ha	307,285	275,900	105,900
Irrigated lands in ha	385,000	44,700	98,500
Pastures in ha	2,900,000	5,400,000	3,000,000
Forests lands in ha	531,000	135,800	156,810
Head of cattle	676,000	122,000	157,000
Head of sheep / goats	2,296,000	634,000	453,000

[15] The fall in GDP went to 58% in 1996 compared to its 1990 value, which is better than the average among the NIS
16 Largely fueled by risen oil prices and a strongly undervalued currency after the financial crisis of 1998

[17] Taken from a keynote speech by Johannes F. Linn, Vice President Europe and Central Asia Region in the World Bank at the 6th Berlin Financing Conference; July 21-22, 2001).

Region Criteria	Republic of Daghestan	Republic of Kalmykiya	Astrakhan Oblast
Economic Profile	Oil and gas, hydropower, food industry, livestock, viticulture, horticulture, Fisheries, tourism	Sheep, cattle, wool/meat, oil and gas	Oil and gas, food industry, machinery industry, ship building, marine transport, fruits, fisheries, livestock

In the Republic of Daghestan agriculture is the dominating sector in the economy with a 40% share of the gross production of the republic, with the major incomes derived from livestock breeding: fine-fleeced sheep, granger cattle and also horses are famous here. In the past decade numbers of sheep went down from 3.4 million in 1989 to 2.3 million head in 2000 (-32%) and cattle from 750,000 to 676,000 head (-10%). Cropped area decreased by 120,000 ha to 307,000 ha (-28%) The large state enterprises declined, while the new established private farms could increase their stocks and agricultural outputs. Currently there are more than 18,000 farms registered, with viticulture and horticulture as the main crops.

Industry (25% of GDP) is still mainly based on food processing, of which is located on the coast. The production of wine and spirits is very famous here, but this industry has lost most of their markets and is in deep crisis. The wine production fell from 380,000 tons in 1984 to 67,000 t in 1997. However, production of cognac and champagne has started to rise.

The same is true for the other industries. Particularly the industry for supply of intermediate products for the defence industry came to a complete halt. Also the fisheries sector experienced considerable losses, fish catches went down to 16% of the 1990 value and fisheries sector was affected by equipment losses in the flooding period of the sea.

The military conflict in neighbouring Chechnya had negative effects on Daghestan's economy. The decrease in light industry (-95%) was balanced by the energy sector, where production of electricity, oil, gas condensate and natural gas increased from a share of 4.4 to 42.5% from 1991-97; thus the total decline of industrial GDP in this period was only 20%.

Daghestan has become a border position and trade with Azerbaijan is now an important economic factor. Average incomes in Daghestan for 1998 (RR 1478) were only half of the Russian average. Sanitary and epidemiological conditions are of great concern here, e.g. the figures for typhoid infections are 15 times the national average. Poor drinking water quality seems to be the main reason for this. The level of gas supply in Daghestan is the lowest of the three coastal regions in Russia, connection to the national grid is only 46%, and the power supply less safe. Timber as an alternative energy source is therefore tapped as well and deforestation is again a big concern, though probably less so than in Azerbaijan.

The Republic of Kalmykiya is a rural province, 60% of its GDP in 1997 was derived from agriculture and here predominantly from animal husbandry. More than half of the territory is grassland. This sector had undergone a severe crisis. The number of sheep went down from 3.28 million in 1989 to 0.63 million in 2000 (-81%) and cattle from 349,000 to 122,000 head (-65%). The main reasons are desertification processes causing severe decline of pasture

quality[18] and the lower demand for wool and meat. The resettlement of the Kalmykiyan population (which was deported) by Stalin in 1943, since 1958 has also increased pressure on the lands. Abandonment of seasonal grazing patterns of herds is regarded as one of the main factors for desertification. Today the degraded Black Lands (Cerniye Zemli) have been largely abandoned by its population. Oil and gas reserves are considerable, but not yet explored fully. In 1997 331,000 t of oil (from 17,500 t in 1991) and 200 million m^3 of gas were produced in the Kalmykiyan Republic. Manufacturing industry is mainly located along the coast in the Lagan district.

The Lagan district was declared a zone of environmental disaster due to flooding from the Caspian Sea. The flood hit houses, industries, irrigated land and infrastructure. The decline of industry, fisheries and agriculture has been extreme and the coastal zone district of Lagan is one with a deep socio-economic crisis with the lowest incomes and highest unemployment in the whole republic.

The Astrakhan oblast is dominated by industrial activities. Half of the GDP, but only 20% of the employment, is generated in this sector. Decline in industrial output was observed as elsewhere in Russia (50% from 1991-97); ship building lost most of its markets, although the food industry remained relatively stable. Today the fuel industry represents one third of total GDP (Astrakhan gas and chemical complex), so together with the electric power industry (20%), the energy sector generates half of the industrial output and has induced substantial growth rates since 1998. The fisheries sector has dropped its output drastically and the existing fishing fleet seems to be obsolete in physical and functional terms.

Agriculture still employs half of the workforce. The region is famous for its watermelons, tomatoes and other vegetables. Rice is produced here. However, about 50% of the irrigation systems are in disjunction and need complex rehabilitation. The area of entirely irrigated fields under cultivation has decreased from 228,400 ha to 105,900 ha (-53% from 1989-2000). Animal husbandry is carried in the floodlands of the Volga estuary. From 1989 to 2000, 844,000 head of sheep fell to 452,000 (-47%), and cattle from 285,000 to 157,000 (-45%). Reasons for this seems to lie in the transition of the sector to private enterprise, reduced demand for relatively high priced meat, and environmental impacts.

5.3. Social Situation

Most of the employment is still generated in the agricultural sector. Even in the Astrakhan Oblast, were industrial activities are more important, only 20% of the employment is provided by industry. Overall, the number of employees engaged in the state sectors of the economy has fallen, whereas the share of the population engaged in service and trade has increased.

Within the computation of the Human Development Index for all 79 federal regions the three Caspian regions of the Russian Federation clearly score below average. Compared to the 1998 HDI average of 0.776 for all regions, Astrakhan reached 0.740 (rank 55), Daghestan 0.729 (rank 70) and Kalmykiya 0.714 (rank 75). The lower HDI results mainly from lower monetary per capita incomes. In 1998 in Astrakhan 34% of the population lived under the poverty line,

[18] 45% of the pastures are seriously degraded. One reason seems to be the uncontrolled development of a fine-fleeced sheep species, which is not appropriate for the pastures like the traditional species are.

whereas the majority of the population of the other two regions had an income below the minimum subsistence level (Daghestan 58%, Kalmykiya 60%). Public health services are facing serious problems and mortality rates are increasing.

5.4. Environment

The Russian coastal zone has very diversified natural conditions. However two main environmental problems have affected large parts of the whole Russian coastal zone: the seawater inundation and the land degradation processes, the latter particularly in the black soil areas in Kalmykiya and in the pastures of the Volga floodplains (salinisation).

During the flooding period from 1979 until 1995 extensive parts of the middle and northern coastal strips were flooded. The damage was less in the Volga delta as the people in the Volga flatlands are more accustomed to fluctuations of the water level. The most serious impacts of the flood were felt in Lagansk district (former Kaspisk) in the middle Kalmykiyan coast. Much infrastructure and industry was destroyed and many people had to be rehoused. Industry and agriculture declined substantially.

Of particular natural value are the Volga River and its delta with alluvial terraces, high soil moisture, natural wetlands and large reed areas in the Astrakhan Oblast. Environmental threats come from nutrient and pesticide discharges and from the contamination of the water of the Volga. More recently, oil and gas exploration have brought new threats of pollution. Safe water provision is also a big concern in all three coastal regions. In the Daghestan mountains deforestation is ongoing. Another environmental issue is poaching of fish and wildlife, which has become an important source of income for many hunters.

5.5. Socio-Economic Conclusions

The Russian Caspian zone was also affected by the harsh economic depression after the dissolution of the USSR. However, in recent years there are signs of slight recovery: Oil and gas exploration has increased and the energy sector is now the motor of the industrial recovery in all the provinces.

Major problems and trends are:

- As a result of the economic crisis having embraced the whole Russian Federation the situation on the labour market remains rather tense. For employment agriculture is still the dominant sector.
- Population growth has slowed down but is in Daghestan still among the highest of the Caspian countries. Unemployment particularly affects young people.
- Poverty continues to be a major issue in the whole Caspian zone of the Russian Federation. In Daghestan and Kalmykiya the majority of the population live below the minimum subsistence level.
- Public health services are reduced. The death rate has risen and is the highest in the NIS.
- Inappropriate management of grazing-land is one of the main factors in desertification. This especially affected the Black Land ("Cerniye Zemli"). These areas are increasingly worse due to overgrazing since the Soviet period.

- Pasture in the Volga floodplains continue to be degraded by salinisation.
- Large parts of the coastal zone of the Russian Federation are affected by seawater inundation, especially since 1995. The Lagansk town and surroundings were hit worst and the impact on living conditions and economic activities is still obvious today.

Chapter 6. The Coastal Zone of Kazakhstan

6.1. Administration and Demography

Two of 14 Kazakhian oblasts are located on the Caspian Sea: the Atyrau oblast in the northeast and the Mangistau oblast on the eastern coast. Together they make up 10.3% of the country's territory (Atyrau 118,600 km^2 or 4.3%; Mangistau 165,600 km^2 or 6%) and 5.1% of its population (Atyrau 443,000, Mangistau 318,000).

The Atyrau oblast consists of 8 districts, including one city, 14 urban settlements and 190 villages. Almost half of the population lives in Atyrau city; the urbanisation degree is 58%. Urban concentration in Mangistau oblast (6 districts including 3 cities, 7 urban settlements and 190 villages) is even higher (78.4%); the city of Aktau alone (161,000) accounts for half the population of the total oblast. Population density is extremely low in these vast areas; particularly in Mangistau oblast the rural areas have just about 1 inhabitant/km^2 on average.

Administrative Units of the Coastal Zone of Kazakhstan

Administrative Units	Area in km2	Population 1999	Population Density Inh/km2	Natural Population Growth 1999 (%)	Urbanisation Degree (%)
Atyrau Oblast	118,600	443,000	3.7	0.94	58.1
- Kyzylgogin[19]	24,900	31,100	1.2		0
- Inder[i]	10,900	29,200	2.7		39.4
- Kurmangazin	20,800	56,100	2.7		10
- Isatay	15,100	23,100	1.5		0
- Makhambet	9,100	25,900	2.8		0
- Atyrau	3,500	194,600	55.6		85.5
- Makat	4,900	25,500	5.2		84.5
- Zhylyou	29,400	57,500	2.0		58.1
Mangistau Oblast	165,600	318,100	1.9	1.13	78.4
- Beyneu	40,500	26,600	0.7		0
- Mangistau	47,500	29,200	0.6		0
- Aktau		161,300			99.4
- Tupkaragan	10,300	14,200	1.4		51.4
- Karakiyan	65,800	23,500	0.4		79.5
- Zhanaozen		63,300			100
Total Coastal Zone	**284,200**	**761,100**	**2.7**		
Country	**2,724,900**	**14,900,000**	**5.5**	**0.46**	

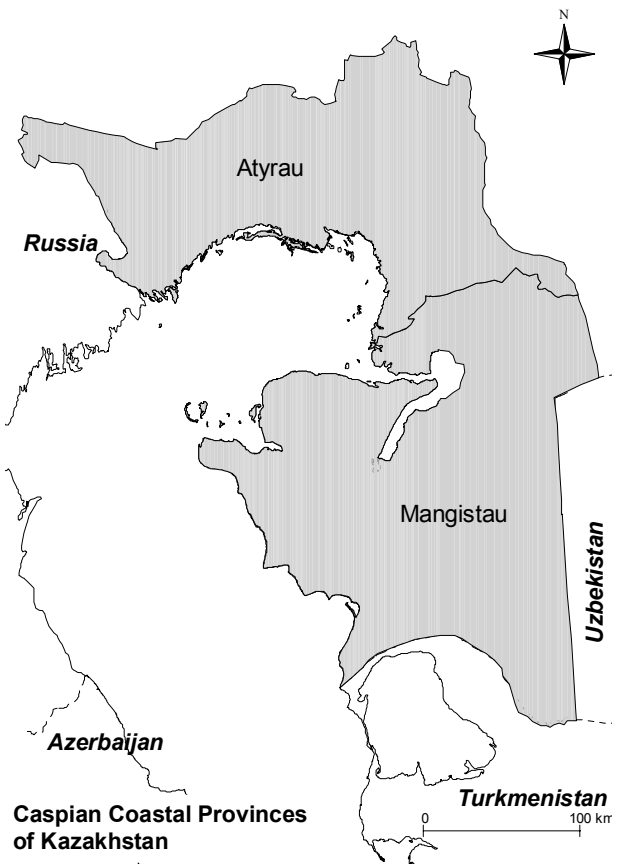
Population development in the whole country has been constantly negative (1989: 16.1 million to 2000: 14.8 million) because many people - mostly of Russian ethnic - have left the country. Natural population growth has fallen to 0.46% and average life expectancy has decreased by 4 years for men (1989: 63.4 1998: 59) and 2.5 years for women (72.7 to 70.4). The demographic

[19] Not at the coast

situation in the Kazakh coastal zone shows different features. From 1989 – 1997, the population in both oblasts increased (Atyrau: +6%, Mangistau +6.8%), then in 1998-1999 there was a clear fall (respectively –2.7% and -8.6%), and a recent positive population stabilisation in 2000. The natural population growth is about 1% (double the country's average), which is more typical for areas where the Kazakh population dominates, as in the coastal zone area.

In Atyrau oblast the Kazakh population makes up 89% and Russians 8.6%, while in Mangistau the Khazak share is less at 79% and the Russian population is 14.8%. In Atyrau there also considerable numbers of Tartars (2,728), Koreans (2,600) and Ukrainians (1,442); in Mangistau oblast there are Azeris ((3,400), Ukrainians (4,100) Tartars (2,500), Lezghins (2,400) and Armenians (1,300) in significant numbers. All other ethnic groups count less than 1.000. Migration movements seem to be low in the area.

Demographic and Administrative Profile of the Coastal Zone of Kazakhstan



Caspian Coastal Provinces of Kazakhstan

Country Area	**Coastal length**
2,724,900 km^2	1,422 km
Area of coastal provinces	**Area of coastal districts**
284,200 km^2	284,200 km^2
Total population	**Population growth**
14.9 million inhabitants	-0.7% 1989-1999 (0.46% natural growth)
Coastal population	**Coastal districts population**
761,000 inhabitants	536,000 inhabitants
Life expectancy	**Major ethnic groups**
64.8 years	Kazakh, Russian

Atyrau Oblast		118,600 km^2 **Area:**
Population	**Population growth**	**Population density**
443,000 inhabitants	0.4%	3.7 inh/km^2
Districts:		Makhambet
Zhylyou		Isatau
Makat		Kurmangazin
Atyrau		Inder Kyzylgogin

Mangistau Oblast		165,600 km^2 area
Population	**Population growth**	**Population density**
318,000 inhabitants	-0.2%	1.9 inh/km^2
Districts:		Aktau
Zhanaozen		Mangistau
Karakiyan		Beyneu
Tupkaragan		

6.2. Economy

Kazakhstan is one of the NIS countries that has carried out its economic reforms at an ambitious pace for the last years now and economic prospects look comparatively good. Reforms in large-scale privatisation, new tax policies, development of a modern banking system and creation of small and medium enterprises demonstrate a high degree of success. The rate of foreign investment with 1.5 billion US$ per year is one of the highest in the NIS and is mostly invested in the development of the oil sector. Contracts have been concluded that over the next 25 years a total of 100 billion US$ will be invested. The volume of the GDP grew by 9.5 % in the year 2000, industrial production by 15% and investments by 27%.

However, socio-economic transition problems are as difficult as in the other countries. Alongside persistent unemployment (officially only 3.9%) and rather low incomes the poverty level in Kazakhstan remains high.

The Kazakh Caspian coastal zone is economically extremely important for the country: two-thirds of its 1999 oil production of 30 million tons and 30 % of the gas production of 9.9 billion m^3 is derived from the two provinces of Atyrau and Mangistau. Hence, the economy of these oblasts has a heavy industrial base (respectively 72% and 63 % share of GDP) based almost completely on the oil and gas sector (90% in Atyrau, 75% in Mangistau). In Atyrau oblast the production concentrates in the district of Zhylyou (Tengiz field), although most districts have some activities in this economic field. In Mangistau oblast, however, the oil and gas industry is developed only in two districts, Zhanaozen and Aktau .

Socio-Economic Situation in the Coastal Zone of Kazakhstan

Region Criteria	Atyrau Oblast	Mangistau Oblast
Area in km^2	118,600	156,600
Population (number inhabitants)	443,000	318,000
GDP in million US $	1,337	606
GDP per capita in US $	2,760	1,910
Population below poverty in %	50.1	37.9
HDI	0,815	0,795
Oil production in million tons	12.3	8.1
GDP industry in %	72	63
GDP agriculture in %	2	1
GDP service sector in %	26	26
Employment industry in %	25	29
Employment Agriculture in %	9	8
Employment service sector in %	66	63

The majority of the workforce is engaged in the service sector, which employs nearly two-thirds of the active population; industrial share in employment is 25% respective 29% and agriculture

accounts for 9% respective 8% in two oblasts of Atyrau and Mangistau. The volume of the agriculture output is small and its share of the total GDP output is only 2% and 1% for the two regions respectively. In Mangistau region agricultural production comes only from animal husbandry. In both oblasts the cropped area has dramatically fallen: in Atyrau from 82,000 ha in 1990 to just 9,300 ha in 1998 (-89%) and in Mangistau from 1700 ha to just 50 ha. Mainly fodder and vegetable plants are cultivated. The reason for this decrease is, first and foremost, the flooding of the arable land near the coast and the floodplains of the Ural and Volga rivers, where salinisation of soils has made them unsuitable for production. Other reasons are continuing desertification processes and too high production costs on the poor land.

Also numbers of animals have gone down sharply[20]. Poultry farming has almost completely disappeared in both regions. This considerable decrease in animal heads is also related to land degradation processes. Again parts of the coastal pastures were flooded. Pastures here are generally of poor quality and vegetation has become scarcer. Traditional migration with the herds is reduced and stocks are kept in the vicinity of the settlements, where the concentration of animals degrades pastures and has a negative impact on water quality near the wells.

Fishing was always an important industry in the Caspian area, where the majority of the national fish production is derived. In Atyrau oblast fishing also takes place in the Ural River and the eastern part of the Volga delta. Here in the period 1996-99 alone, fish catches went down from 20,684 tons to 10,642 tons (-49%), in Mangistau the reduction was from 9,268 tons to 2,174 tons (-76%). In total about 1500 fishermen are still active in this sector.

Tourism in the region is poorly developed. During the summer, the Ural River is used for recreational purposes, including fishing and hunting. In the north and south of Aktau along the extenssive sandy beaches, some visitors as well as the local population use the recreational facilities and boarding houses.

6.3. Social Situation

The economy is extremely dependent on oil and energy production. However, this sector provides only a limited number of jobs. Incomes from the fuel sector result in high per capita rates of the GDP, which are in the case of Atyrau 117% higher than the national average, 50% higher for Mangistau. The average monthly wage in Atyrau is 20,836 Tenge (174 US$) and in Mangistau 19,186 (160 US$), which is 85% respectively 70% above the national average wage of 11,256 Tenge (94 US$).

The high per capita income is also reflected in a relatively high Human Development Index for the two regions: Atyrau scores 0.815 and Mangistau 0.795 compared to the national average of 0.755 in 1999. Only Almaty had a higher HDI (0.828).

[20] Sheep and goats have decreased from 1,252,000 heads in 1992 to 364,400 in 1999 for Atyrau (-71%) and in Mangistau from 637,500 to 301,200 (-53%). Reduction of cattle numbers was less. In Atyrau cattle heads decreased from 132,600 to 97,100 (-27%) and in Mangistau from just 5,800 to 5,100 (-12%) in the same period. Horses are breaded in larger numbers; here numbers decreased from 124,000 to 57,000 (-54%) in both oblast together.

However, the majority of the population does not benefit from the high oil revenues. Poverty rates are reported to be higher than the national average: in Atyrau 50% of the population and in Mangistau 38% of the population still live below the minimum subsistence level. As public health services are deteriorating, life expectancy has decreased during the last decade.

6.4. Environment

The environmental effects of the development of the oil and gas sector for the last 100 years can be clearly seen in the coastal areas in the major production areas. Hydrocarbons in the Kazakhstan Caspian region are exploited in three areas: the northern coast from Astrakhan (Russian Federation) up to Makat, the surroundings of the north-eastern Kazakhstan Bay with the main Tengiz field (south of river Emba) and the third one is from Aktau up to Novi Uzen.

It is estimated that 19,000 ha of land are heavily polluted with a total volume of oil spill of 5 million tons. The most critical situation is faced around the Tengiz field, as the plain is subject to flooding in surges. Today about 100 million m3 of gas are burned annually causing serious air pollution problems (SO2, NOx, heavy metals). Incidence of respiratory diseases like tuberculosis is 91% higher in the two regions than the national average. Infant mortality rates are among the highest in the country. High rates of stomach disease due to unsafe drinking water are reported; also infectious and parasitic diseases are clearly above national average. Life expectancy is the lowest in the whole country.

Flooding of the coast because of a rise of 2.5m in the seawater level is especially widespread on the flat northeastern Kazakhstan Bay (40 km inland has been flooded, and in some places up to 70 km) and on the large depression ”Mortvij Kultuk” (northern Mangistau Oblast). Additionally short-term wind-induced surges pose a threat to the coast, particularly in the narrow bays round the Caspian Sea. Rises of 1.8m up to 2.6 m are observed in the northern bay periodically. Surges occur mainly in autumn and winter season although the northeastern bay in wintertime is not affected due to the ice cover on the bay for some months.

Another general environmental problem is the dryness of the region. Crop production is only possible around Atyrau. Urban centres have a centralised water supply. In Atyrau oblast the main water source is the Ural River, although in recent years there has been no run-off for some months of the year. In contrast to this situation, 95% of drinking water in Mangistau oblast is taken from the Caspian Sea and then purified at the Aktau water treatment plant (100 million m^3/year). Tankers serve 19% of the population in this oblast, while in Atyrau this type of water provision is needed for 7% of the population.

6.5. Socio-Economic Conclusions

The regional development of the Caspian zone has a high priority in the country. It is the industrial backbone of the country. Most of the oil and gas deposits are concentrated here, and development of the oil industry continues fast. However, in these two Caspian provinces (Atyrau and Mangistau) live only 5.1% of the national population. Nearly half of the population is concentrated in the oblast capitals of Atyrau and Aktau. Here the living conditions are better than in the rural areas where people still depend on livestock and crop production. The Caspian

provinces have the highest per capita income in the country. Important investments in industry and transport are already ongoing or planned (airports, ports, railway, roads, and water supply). Also programs for social development are underway.

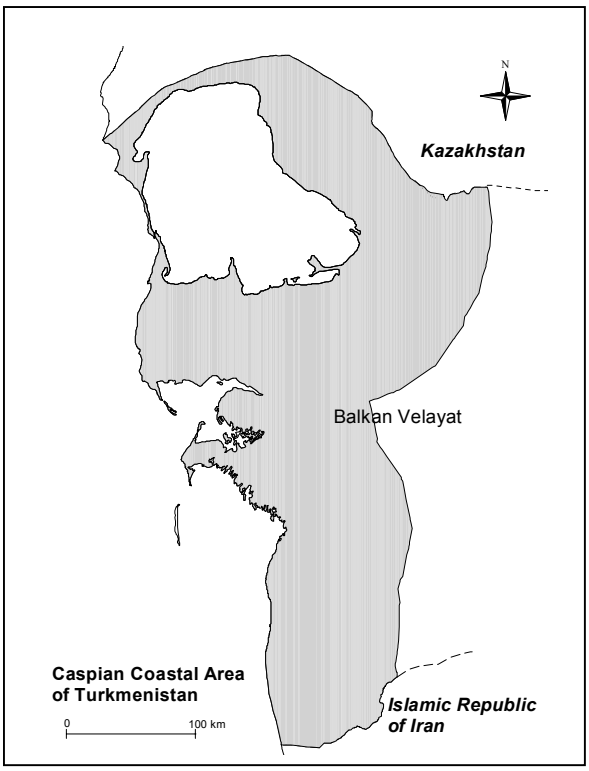
Major problems and trends are:

- The economy depends heavily on oil and gas production; however, this sector provides jobs and benefits only for a limited number of people.
- The rural sector has not been affected by recent development; on the contrary it has been in constant decline. Today the sector's share of the GDP is only 1-2%.
- Agriculture, which means here mainly animal husbandry, is affected by constant degradation of the pastures. Rural poverty is more serious here than in other parts of the country. In the Atyrau oblast still 40% and in Mangistau 20% of the population are rural; nearly all of them live below the poverty line.
- The permanent shortage and the insufficient quality of water are a major problem in the region. Due to lack of irrigation water most food products have to be imported. Drinking water mostly does not adhere to the norm required by the health authorities.
- The economic situation in the coastal areas especially in Atyrau Oblast and northern Mangistau Oblast was seriously affected by the 1979-1995 flooding. Large areas up to 40 km inland from the previous coastline have been inundated.
- Contamination of air, water, soils and food has reached intolerable levels in the vicinity of the oil and gas fields and the refineries. Health along the coastal zone is more critical than in other areas. Mortality rates are among the highest in the country and life expectancy is very low.

Chapter 7. The Coastal Zone of Turkmenistan

7.1. Administration and Demography

Turkmenistan has the smallest population of all five riparian countries; however, population growth is very high (1989-1999 2.0% per year). Of the 5 oblasts, only the Balkan.Velayat is located on the sea. It is the biggest administrative region in the country with 31.5% of the total area (139,280 km^2) and 9% of its population (442,000). From its 6 districts, only the Etrabs of Turkmenbashi and Esenguli and the three largest townships Balkanabad, Turkmenbashi and Khazar form part of the coastal zone (coastal length is 1,035 km) with a population of 256,500 of which 75% live in Balkanabad and Turkmenbashi. The rural share of the population is small; in the coastal zone the urbanisation degree is 94% against 78% in the Balkan Velayat. Population densities are rather low with only 3.0 inhabitants/km^2 in the coastal zone compared to 9.9 inhabitants/km^2 in average of the country. Life expectancy is 66.1 years.



Despite some considerable out-migrations after the dissolution of the Soviet-Union the total population size of the Balkan Velayat had significant increases in population (from 355,000 in 1989 to 442,000 in 1999). Birth rates have now fallen to 1.73% (1995: 2.33%), but are still relatively high resulting in a natural growth rate of currently 1.1% (mortality rate is 0.65%). About 90% of the population are Turkmen, the rest are Russians (4%), Kazakh (2.2%), Azeri (1.6%) and some other minorities.

Administrative Units of the Coastal Zone of Turkmenistan

Administrative Units	Area in km2	Population 2000	Population Density Inh/km2	Natural Population Growth (%)	Urbanisation Degree (%)
Velayat Balkan	139,280	442,000	3.2	1.1	78
- Turkmenbashi Etrab[21]	71,740	26,400	0.4		53
- Turkmenbashi Town	80	72,800	910.0		100
- Balkanabad Town	4,720	113,800	24.0		99
- Khazar Town	96	12,400	129.0		100
- Esenguli Etrab	10,140	31,100	3.1		51
Total Coastal Zone	**86,776**	**256,500**	**3.0**		**94**
Country	**491,200**	**4,850,000**	**9.9**		

7.2. Economy

Turkmenistan is pursuing a policy which differs from the other countries. Market liberalisation is only wanted to a limited extent, major parts of the economy are kept in state hands or if privatised are still under strict government regulation like major parts of the agricultural sector. The government is using significant amounts of its revenues from oil, gas and cotton exports to subsidise basic goods, like bread and other main food items. Fuel and water, gas, electricity and salt are even provided free of charge. Of course such a system encourages a very uneconomic use of these important resources, which is especially paradoxical in the case of water in this arid country. However, harsh socio-economic transition problems have been less problematic in Turkmenistan, and some avoided. High inflation, falling wages, high unemployment and massive poverty as in other NIS economies have not been observed here.

Of course, the economic collapse after independence also affected Turkmenistan, largely connected with very poor management of the agricultural sector (cotton production) and lack of productive investments in other sectors. Since 1998 the economy has been growing, in 1999 a respectable 16%. Considerable achievements have now been made in the agricultural sector, which expanded to a share of 26% of GDP in 1999. Other industries have also been developed (textiles, food and light industry), total share of the industrial sector in GDP was 32% in 1999, of which 47% were generated in the fuel and electricity sector.

The Turkmen policy, where all major decisions are taken by the President in an extremely autocratic way, is apparently supported by a majority of the population, who believe the country can only develop under such a strong leadership otherwise a break-up of power between different tribes would be likely to take effect (cf Afghanistan).

Of course the World Bank as a supporter of a policy of a free market economy has a different opinion. ”Turkmenistan’s economy is governed in an autocratic, centrally managed manner, drawing heavily on its oil and gas resources to finance lavish public spending on representational public works and infrastructure, that contribute little, if anything to the country’s

[21] district

economic potential. Public investments in social services and rural development, as well as private investments in industrial and service enterprises are very low or non-existent. Turkmenistan needs more transparency and efficiency in the use and administration of its public resources, a more favourable investment climate, and better social services. However, this will probably have to await a fundamental shift in the political orientation and governance in the country."[22]

The Balkan Velayat is the main industrial centre of Turkmenistan; here on the Caspian coast 93% of the current oil production, 18% of the gas extraction and 19% of the country's electrical power are generated. The provinces' share in the total industrial output of the country was 21.8% in 1999. Part of the exploited oil is processed at the refinery in Turkmenbashi for export and the home market. The refinery has been upgraded with a total investment of 1.5 billion US$ and operates at a capacity of 3 million t/year. The bigger part of the production (6.34 million t oil and gas condensate in 1999) in the form of crude oil and a part of the refined products is shipped by tanker along the Volga-Don canal and the Black Sea to the western markets. A new gas pipeline was opened to Iran end of 1997, second to the existing one serving Russia and Ukraine. Gas production was boosted to 4.1 billion m^3 in 1999, which is double the volume of 1997. Another gas pipeline through Iran and Turkey is projected.

The port of Turkmenbashi is of great importance to the country, even though its facilities are outdated. Ferry connections exist to Baku, Makhachkala, Astrakhan and Iran. The Caspian Sea routes and the Turkmenbashi port are part of the TRACECA transport programme connecting Europe with Central Asia. Loan investments and aid to build a new seaport have been requested from the EBRD, Japan, Tacis and the Islamic Development Bank.

In addition to the leading energy sector, the chemical industry is also represented in the province. But today it is only operating on a very limited scale and contributes only 2% to the industrial output of the province. This industry used to produce iodine, bromine, sodium sulphate, bishophyte, bitter salt and salt for the CIS markets, which are now mostly lost. It is difficult to break into western markets as the products do not meet western standards. There is an iodine plant in Balkanabad and an amalgamation plant called Karabogassulfat in Bekdash in the north.[23] A petrochemical plant to produce technical carbon is located in Khazar in the south of the province. The fish processing plant (SIA Balkan Balyk) could increase its production of canned fish to 8,900 t, despite the fact that fish catches have decreased.

In the Balkan province also, irrigated agriculture was more recently introduced through the extension of the Kara Kum canal bringing water to the most arid province in the country. In 1999 55,700 ha were cultivated, 84% of the area with wheat, 12% cultivated with cotton, the rest with vegetables and fodder. Only one third of the irrigated fields have a drainage system, hence the

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[22] Cited from a keynote speech by Johannes F. Linn, Vice President Europe and Central Asia Region in the World Bank at the 6th Berlin Financing Conference; July 21-22, 2001.

[23] Currently out of production, because the water supply came previously from Aktau in Kazakhstan by pipeline and was cut off.

soils are already facing salinisation problems; as the ground water level is high, this will also soon be affected by this salinisation. Only 13% of the agricultural land is of satisfactory quality.

The province and all districts along the coastal zone are of course better known for animal husbandry. Livestock herds have been increased in the past years, because the government is providing shepherds with water and fodder (the revenues are shared 50:50).[24]

7.3. Social Situation

In Turkmenistan the coastal zone has the highest income in terms of GDP per capita, because of the high industrial output and the low population numbers. In the Balkan Velayat the per capita GDP (in Power Purchasing Parities) was 8,999 US$ in 1999, which is more than double the national average of 4,015 US$ and also clearly higher than the rate in the capital Ashgabad (5.394 US$)[25]. However, it is a government policy not to give detailed figures on income and poverty.

This high GDP per capita income also results in a higher HDI index for the coastal province, which was 0.756 in 1999 compared to 0.720 in all Turkmenistan (Ashgabad 0.760).

7.4. Environment

Inadequate and unsafe water supply is the most crucial problem of the region. Main sources of water are the groundwater lenses of Yazkhan and Chilmamedkuli; here the water is taken out through 23 wells. The other water sources are the Kara Kum canal (which supplies Turkmenbashi) and the Caspian Sea (38%). Recently two desalinisation plants were installed in Esenguli and Ekerem (1,500 m^3/day capacity) operating with the technology of reverse osmosis and built by the American company Kaligan. Two more plants with higher capacities are under construction (Khazar and Bekdash). The towns have a piped water system, 63% of the population of the province are connected, and the other settlements are supplied through tankers. All villages have their reservoirs for potable water.

Despite these developments water shortages are still an issue. More problematic for the population is the low quality of the water, where laboratory analyses show that most water sources are polluted: 25% of the samples did not meet the chemical and 65% not the bacteriological standards required by health authorities.

Air pollution around the few industries, particularly at the refinery in Turkmenbashi, seems to be a lesser problem, as it is equipped with air scrubbers; however this equipment has also fallen into a state of disrepair, and is currently being repaired with the assistance of international companies. Groundwater pollution by oil products in the vicinity of the refinery, the oil terminal, the railway junction and some stretches of the coastline of the Turkmenbashi gulf is critical. The

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[24] On 01.01.2000 more than a million (1.05) sheep and goats were registered in the province (24% up from 1995), cattle stock was 59,400 (increase of 70% from 1995). Thus, the province is holding now 14.6% (up from 13.0%) respectively 3.8% (up from 3.0%) of the total sheep/goat and cattle livestock in the country.
[25] The UNDP Human Development Report 2000

drilling technologies on the offshore platforms are mostly outdated and environmentally unsound, leading to oil pollution of the marine environment.

Health parameters in the Balkan Velayat are about average, however the province had the second highest number of people suffering from a chronic disease (9.8%) after Lebap, according to a World Bank survey in 1998.

Desertification is another important environmental issue and is caused by different factors. On a larger scale, degradation of the vegetation was induced by a drought period in the past years with about 30% less average rainfall and subsequent overgrazing practices in the locally very sensitive desert pastures. Other causes are generally increased animal numbers and cutting wood for firewood around the small villages, which often have no access to a piped gas supply. In limited areas the degradation of vegetation and soil is caused by the oil and gas industries - in the belt between Balkanabad, Khazar and Ekerem – and from sulphur-sodium mining north of Bekdash. Here vegetation cover was destroyed by heavy machines and from contamination with oil and salt.

7.5. Socio-Economic Conclusions

During the past decade the exploitation of gas and oil has been expanded Major industrial development has taken place in Balkanabad, Khazar ans Ekerem took place. The main producers are joint ventures from the state oil company of Turkmenistan in co-operation with international companies. In most cases hydrocarbon deposits are located offshore.

Second to re-investments in the fuel industry, the transport sector has been upgraded: air connections to Ashgabad and to Dasoguz have been improved and a new railway from Balkanabad to Dasoguz (the northern green zone along the banks of Amu-Darya River) is planned. The peripheral location of the coastal zone in Turkmenistan still remains a problem. In particular, the Bekdash industrial area is separated by the Kara Bogas Gol bay in the north and by the closing of the border to Kazakhstan.

Major problems and trends are:

- The economy of the coastal zone depends heavily on the exploitation of oil and gas; however, this sector can provide only a limited number of new job opportunities.
- Although the number of employees in these industries is low, the generated revenues in this sector have positively influenced the development of the infrastructure, the regional income and general perspectives of the region.
- The permanent shortaget and the insufficient quality of water are a major problem in the region. Some freshwater plants are under construction or already functioning to improve the local situation. Due to lack of irrigation water most food products have to be imported. Drinking water mostly does not adhere to the norm required by the health authorities.
- In general, the socio-economic situation in the coastal zone is severely hampered by very difficult living conditionssuch as

- 280 days/year with sand or dust storm and its impacts on work and traffic
- Long distances to central locations, to medical facilities, to cultural and educational institutions.

Chapter 8. Socio-Economic Case Studies in Hot Spots Using Participatory Rural Appraisal (PRA)

8.1. Introduction

The actual phase of the Caspian Environment Programme concentrated mainly on a profound analysis of the desertification situation around the Caspian Sea and especially in the hotspots. Participatory Rural Appraisal (PRA) was introduced to train national experts in the use of special techniques allowing them to gain a better understanding of the situation in the hotspots and the problems which people face in these areas. The PRA-approach demonstrates that problems vary from one hotspot area to another, and that the problem within the hotspots varies substantially from one village to the next. E.g. fuel problems due to the interruption of the gas pipeline are perceived as the most important problem in some villages and lead to the cutting of all trees, whereas in neighbouring villages this problem does not exist at all.

The geographic position of the hot spots that have been chosen by the Caspian Regional Thematic Centre “Combating Desertification” for more intense analysis is shown in Figure 2.2.2-1. In these areas the Participatory Rural Appraisals (PRA) have been carried out by the national experts of the Caspian countries.

8.2. Problems Identified in the Hotspots by Using PRA

The national experts are very conscious that the results of the PRA only apply to the communities visited and do not allow generalisations to be made about the whole population in the same way that a large scale survey may do. However the following listing of major problems encountered by the population in the hotspot areas gives a good view of the complexity of the situation. It clearly demonstrates that desertification in the Caspian is a multidimensional developmentchallenge.

Problems Perceived by the Local Population of the Hotspots

A = Azerbaijan, I = Iran, K = Kazakhstan, R = Russia, T = Turkmenistan

Related to sea level rising

Sea level rising A I R K T
Infrastructure/flooding of settlements I K T
Loss of beaches A T
Ground water rising A I
Water logging I R K

Related to agricultural production

Overgrazing I R
Degradation/reduction of vegetation A R K
Low production on grazing land I K R
Reduction of number of livestock R
Increase of moving sands R K
Soil salinisation I R K
Lower agricultural production R
Soil pollution by petrol A R K
Deflation/dust (storms) A K R
Badlands A
Soil erosion AK
Ravines A
Limitation of land I
High land tax K
Reduction of biodiversity R T

Related to energy

Gas/electricity interruption A K T
No heating for houses + greenhouses A K T
Cutting of fuel wood A

Related to social infrastructure

Poor schools and education K R
Limitation, lack of training facilities I
Lack of transport and telephone K
Insufficient health services I K T
Increase in morbidity A R K
Increase inf death-rate R
Gastric-intestinal problems K
Tuberculosis K
Eye-infection R
Respiratory diseases A K R

Related to water

Drought/lower precipitation I K R
Water shortage for agriculture I K
Poor maintenance of irrigation canals K
Quantity of drinking water insufficient A I K T
”Drying” of orchards A
Bad drinking water A K T
Lack of sewerage treatment A K
Underground water pollution by petroleum A

Related to economic “transformation”

Closing of factories A K R T
State farms collapsed A
Unemployment A I K R T
Low income/poverty A I R K T
Poor nutrition (level) K
People without hope K
Unemployment and (e) migration A I T

Related to social “transformation

Social tension/instability K T R
Social rudeness (young people) I
Alcoholism K
Growing stratification rich – poor K R
No benefit from oil, increasing “grievance” K
Illegal activities (in fisheries) I K
Corruption A
Lack of leisure/ recreation I K
Bureaucracy A

Other problems

Settlement pollution from waste A R
Pollution of air A K
Fewer fish in the sea

8.3. Major Trends in Socio-Economic Development in Hotspots

The national experts were asked to integrate into the PRA also questions and tools that permit to show how things have changed over time. Time trends were described not only for environmental but also for socio-economic variables. This allows the deduction of some major trends:

Increasing pressure on natural resources

The PRA-results show that people in the hotspot clearly perceive that the natural resources are already overused and heavily degraded. Increasing water shortage, the accelerated reduction of vegetation - specially the degradation of grazing land -, soil salinisation and soil pollution – often by petroleum products – were mentioned as indicators of this negative trend. People seem to feel that sustainable rural livelihoods imply the sustainable management of natural resources in rural regions. In many cases shortage of natural resources occur together with poverty. Where certain natural resources are heavily over-utilised, the stabilisation may only be possible if alternative employment and income sources are taken into consideration. In all hotspots people are of the negative impact of environmental degradation on health. They see a close correlation between the increase of morbidity, the frequency of gastro-intestinal problems, respiratory diseases and eye-infections and the pollution of water and air.

Increasing unemployment, lower productivity and lower purchasing power

Unemployment often caused by the collapse of state farms and the closing of large factories, which lost their markets in the former USSR, is perceived as a major problem in all former Soviet countries around the Caspian Sea. Lack of formal employment and limited natural resources result in underemployment and in low purchasing power especially in rural areas.

Widespread and increasing poverty in rural areas

People in the hotspots perceive that the situation of the rural poor has, on average, not improved during the last decade and their number has increased. The macro-economic reforms of the 1990s have resulted in contradicting trends in most rural regions. Deregulation and privatisation offered new, but limited market opportunities, which often cannot be used by the poor. There are no sufficient and stable opportunities to secure a decent livelihood through employment or self-employment and market production. Subsistence production remains a necessity for many rural households. The situation of an increasing part of the rural population of the hotspots is still characterised by a high degree of vulnerability. In many places, rural people increasingly depend on diminishing and over-utilised natural resources without having the necessary means and incentives to avoid degradation.

Increasing social distinction of households

In most hotspots people mentioned that the number of poor families is increasing and that some families are becoming richer and richer, and that this growing social stratification is leading to social tension and rudeness. PRA shows that “rich” households normally have diversified incomes from formal employment, pensions, commercial and agricultural activities whereas poorer families depend more on self-employment and subsistence-related activities. In

oil producing Caspian countries people emphasise that the growth of this industry tends to be socially selective in favour of a better equipped minority and that the majority of the population in the hotspots does not benefit form the oil boom. In some cases the poorest families refused to participate in the PRA because they had lost all hope and were convinced that nobody would help them. This seems to underline that the states either pay little attention to the situation of the poorest, which do usually have only limited self-help capacity, or that the poverty reduction programmes of the Caspian countries are neither effective nor efficient.

Intensified (e) migration

Desertification or, more generally, the accelerated degradation of the natural resources together with increasing poverty and vulnerability in rural areas as described in the above trends has often caused migration.

”Transformation” has resulted in reduced service capacities

The macro-level frame conditions for rural development have changed dramatically during the 1990s in most Caspian countries. Markets and trade have been deregulated; state enterprises and other responsibilities of the state are in the process of being privatised. These new frame conditions give new opportunities, but often create new risks and burdens for the rural population. In the hotspots many people complain that public services are reduced or no longer reliable. Notably there are problems with the gas and electricity provision leading to increased cutting of trees and in one case of telephone poles for fuel wood. In many places education and health facilities are deteriorating. Access to alternative private services is often difficult or too expensive for the rural poor. Excessive bureaucracy and corruption are associated with the transformation problems.

Chapter 9. Conclusive Summary and Recommendations Concerning Combating Desertification and the Development of SAP and NCAPs

9.1. Major Socio-Economic Trends, their Environmental and Social Consequences

This summary attempts to draw conclusions of socio-economic trends in the whole Caspian area and their environmental implications. The PRA results correspond closely to the regional socio-economic analysis, which is based mainly on national statistics. The crosschecking of the quantitative data and findings with the qualitative research results of PRA shows that major problems and trends perceived by the population in the hotspots are also relatively well reflected in the official statistics. The identified problems and trends therefore seem to be a relatively reliable and sound basis for further planning and policy design. The Major socio-economic trends and their environmental and social consequences can be described as follows:

9.1.1. Increasing Poverty and Unemployment in Rural Areas

A major dominant trend in all five Caspian countries is the persistence of high poverty and unemployment among the rural population. In Azerbaijan, Russia and Kazakhstan, which have pursued a market liberalisation policy, impoverishment of the rural (and also the urban) population has been marked. Particularly in Azerbaijan the rural sector has been neglected and many people have migrated to towns. In Russia the relative autonomy of the regions indicates a certain hope for better self-development also in rural areas.

Extremely low-income levels (between 30-60 US$ monthly per capita average in the NIS countries compared to 140$ in Iran) also lead to a low quality diet, again having adverse effects on health.

Trends	Country	Consequences
Impoverishment of the population	A, R, K	Increased use of natural resources to generate additional income
Economic crisis and high unemployment	All	Social tensions and instability, out-migration, psychological problems, alcoholism, etc.
Negligence of rural sector in favour of urban development	All	Low productivity, out-migration
Decline of agricultural sector , reduction of cropped areas and numbers of livestock	A, R, K,	Low productivity resulting in lower unemployment in this sector
Decline of fisheries sector	A, R, K, T	Shrinking food basis, higher unemployment
Low prices for agricultural products	All	Low production due to lack of price incentives
Rural-urban migration – continuing urbanisation	I, A,	Loss of skilled workers from rural areas
Military conflicts	A, R	Refugees and political, social and financial instability, increasing unemployment

The oil and gas sector has become the most important industry in all five Caspian countries (although Russia and Iran are not drawing from the Caspian resources). However, only in Iran and Turkmenistan are revenues from hydrocarbons used largely to maintain social equilibrium. In Iran oil and gas proceeds are used for education and health programmes, and in Turkmenistan electricity, fuel, water and food are heavily subsidised. In these two countries poverty and social instability is cushioned.

In Azerbaijan and the Russian federation, military conflicts and the resulting large numbers of refugees have increased both unemployment and political and social instability.

9.1.2. Deterioration of Public Services

In the Caspian NIS public services are reduced or no longer reliable. Especially the decline of health services and the fact that people are often too poor to bear the fees of the private health services have led to an increase of morbidity and mortality. Deep impoverishment of the population has also led to lower birth rates.

Trends	Country	Consequences
Improvement of education quality	I	Gender empowerment, better self-development opportunities
Irregular provision of electricity and gas	A, R	Use of fuel-wood as alternative energy, deforestation
Unsafe provision of drinking water	A, R, T	Deterioration of health
Break-down of health system	A, R, K	Higher morbidity, higher impoverishment
Declining birth rates	All	Better care for fewer children
Increasing morbidity rates	R, K	Affects more men and leads to social and labour gaps due to absence of men
Deterioration of education quality	A, R, K	Lower self-confidence and seeking of opportunities
Political and macroeconomic stabilisation	K	Trust in future and development possibilities
Democracy and local self-governance	I, R, (K)	Self-confidence and community driven actions
Successful privatisation	K, R, (A)	Growth in economic and social development

Higher frequency of diseases is often connected with poor drinking water quality. Water supply is not always secured by a piped system. Wells in coastal areas often became mineralised by salt-water intrusion with the rise in sea level until 1995 (especially the case in Azerbaijan). On the other hand scarce water is often wasted and in particular irrigation systems are badly maintained. In Iran the health and educational services have been remarkably improved during the last decade. Thus life expectancy has risen from 61.6 to 69.5 years on average and adult literacy improved from 57% to 74% in the period 1988-1997. Extreme low income levels (between 30-60 US$ monthly per capita average in the NIS countries compared to 140$ in Iran) also lead to a low quality diet, again having adverse effects on health. The socio-economic analysis also shows that there are first signs of political and macroeconomic stabilisation and successful privatisation in the Caspian countries. This gives hope that the transformation process will finally lead to improved service capacities for the population.

9.1.3. Economic Development and Social Distinction

Industrialisation in the four NIS countries of the Caspian is build on the oil, gas and electricity sector, which makes up more than 80% of the industrial output in the Caspian zone of the 4 NIS countries (not Iran). However, this sector is very capital intensive and labour extensive. The majority of the population does not benefit from this new industrial development, but has to withstand the negative environmental consequences of air, water and soil pollution. The contamination is especially serious on the Absheron peninsula in Azerbaijan and industrial areas on the coast of Kazakhstan (Zhylyou/Tengiz, Zana-Ozen, Aktau) and Turkmenistan (Turkmenbashi).

Trends	Country	Consequences
Decline of previous industrial basis and new dominance of energy sector (fuel and electricity)	A, R, K, T	Unemployment as energy sector is not labour intensive
Industrial growth favours a minority of the population	A, R, K, T	Increasing social distinction between rich and poor (rural) people
Increasing inequality in incomes	A, R, K, T	Social grievance, less solidarity
Social instability	A, R, K	Dissolution of rural communities, out-migration
Empowerment of women	I, R, K	More sustainable development

Per capita income of GDP in the coastal zones of the latter countries is twice as high as the respective national average. However, the situation of the rural population in these areas of Kazakhstan and Turkmenistan, although not numerous, is especially depressive.

Continued unemployment facilitates negative effects like psychological stress and alcoholism. Social instability in the form of higher divorce rates, birth out of wedlock, more abortions, social tensions are particularly observed in urban areas in Russia, but tend to be also a problem in rural areas (Russia, Azerbaijan). A positive aspect of transition economies is that there are first signs of an empowerment of women to be seen in Russia, Kazakhstan and even in Iran.

9.1.4. Increasing Environmental Threats and Desertification

The decline of the rural sector is associated with the continuing land degradation processes. Of particular concern is the deforestation rate in Azerbaijan and Russia, where timber is used as an energy source either because of a lack of electricity and gas supply, or too high costs of this supply.

Deforestation in Iran is a consequence of land pressure and high animal numbers. Other important environmental aspects are the increased soil salinisation due to rising Caspian Sea water level, improper irrigation and drainage systems, soil erosion and degradation of quality of pastures due to drought effects and often poor range management. Poaching of wildlife and fish (sturgeon) is another environmental issue associated with the impoverishment of the population leading to increased pressure on natural resources.

Trends	Country	Consequences
Population pressure	I	Results in pressure on natural resources: arable lands, forests, water, fish, wildlife
Extension of land use	T, K, R, I	Deterioration of natural ecosystems, reduction of biodiversity
Devastation of vegetation cover by overgrazing, oil and gas industry, transportation corridors	T, K, R, I, A	Decline of agricultural area, harvest, and income
High consumption and inefficient use of water	A, R, K, T	Waste of the most scarce resource, reduction of development potentials, land degradation
Damage of coastal infrastructure by 1979-1995 flooding	R, K, T, A	Destroying of pasture and agricultural land, coastal infrastructure (ports, industries, settlements)
Contamination of soil, water and air	A, R, K, T	Increasing health problems, reduction of agricultural production
High consumption and inefficient use of energy	A, R, K, T	Environmental pollution, global warming,

9.2. Recommendations for SAP and NCAP process

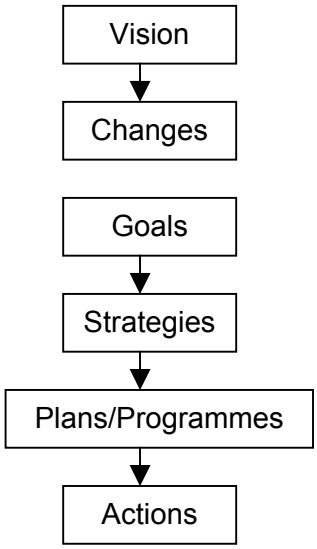
9.2.1. Towards a Vision

The CRTC Turkmenistan ”Combating Desertification” has promoted a process of identifying and understanding the environmental and socio-economic dimensions of desertification in the Caspian sub-region. The Analysis of the environmental situation around the Caspian Sea shows that desertification is a multidimensional development challenge. Technical measures alone cannot win the battle against desertification. Therefore efforts to combat desertification must be integrated into complex development programmes. Concerning desertification the actual situation of the sub-region – the point ”where we are” - is relatively well known.

It is now time to switch from investigation to planning, to ask the question ”where we want to be”. The development of a vision could be a first step towards policies designed to prepare the ground for sustainable resource management and growth (”SAP[26]-Combating Desertification”). It is the discussion of an image of a future that can be achieved and is worth achieving. A vision can respond to trends (as developed in chapter 4 and 5). It can create new trends we want and prevent those we do not. A vision provides a sense of mission and an enduring foundation for strategies and actions to combat desertification.

[26] Strategic (Environmental) Action Plan

The proposed process of developing a vision will immediately raise the question about which changes are required in the Caspian sub-region. These changes, in turn, are reached through specific goals, which form the basis for strategies on which plans are based. To elaborate further the SAP-Combating Desertification we recommend the following process:



The PRA showed that the happiness of people in the hotspots is influenced by many environmental and socio-economic factors. So the vision will probably be centred on the well being of the people in the sub-region. As it is not possible to create a single definition of the well-being of a region we think it is better to identify factors which will contribute to this well being and which can be influenced by SAP and NCAPs[27] actions directly. These are in fact physical parameters such as e.g. health, food, environment, and wealth.

Relating a vision to quantifiable parameters has the following advantages:

Permits more realistic planning;

Increases confidence in the ultimate success of the SAP and the NCAPs;

Keeps the objective clear and visible; and

Allows accountability.

We recommend starting as soon as possible, and in close co-operation with the national experts the process of identification of the major variables that need to be taken into account.

[27] National Caspian Action Plan

9.2.2. Strategy Components for a SAP and NCAPs

The following strategy components are general guidelines. They are to be used if relevant in the specific local context. They are addressed to those in charge of planning and implementing sub-regional and provincial action plans, but are not blueprint strategies for local organisations or local people. Rather, they are meant to assist and provide guidance where there is no easy answer to the questions of how to cope with complex desertification problems and with the challenges of development in the sub-region.

The ecological dimension

In many areas of the Caspian sub-region, resources are already overused and seriously degraded. In view of the limited external resources, strategies of low-level and conservative use of local resources and the creation of alternative income sources are needed. Where certain natural resources are heavily over-utilised, a stabilisation may only be possible if alternative locations or income sources and measures in the field of family planning or migration support are taken into consideration. Sustainable rural livelihoods imply:

The sustainable management of natural resources in rural coastal zones (additional investigations on the living conditions of the rural population and their respective natural environment)

A reasonable evaluating of natural resources (awareness creation, pricing, taxation…)

Appropriate service, support and financing systems for the rural population, and

An adequate legal and cultural framework.

The economic dimension

The increased openness of markets in combination with deregulation and privatisation resulted in new opportunities, but also in new challenges, risks and problems for the rural population. The economic strategy focuses on enabling the poor or vulnerable rural households in the desertified areas:

To make use of new opportunities (e.g. alternative income, local economic development including transport)

To cope with markets (e.g. adapted production systems, market information system, diversification of economic activities)

To gain access to given limited opportunities (e.g. non-discriminative economic promotion schemes)

To cope with challenges and risks (e.g. social security systems, disaster prevention, emergency assistance).

The socio-cultural dimension

The socio-cultural dimension concerns interaction with people. In the hotspots co-operation between providers of public services and rural households is often characterised by a top-down approach in decision-making, the paternalistic approach of distributing gifts rather than working in partnership. Uniform innovation packages rather than group-specific approaches still characterise many state intervention and development activities. In contrast, SAP Combating Desertification should pay special emphasis to:

Securing target group orientation and gender differentiation (e.g. knowledge of rural factors, ensuring representation of disadvantaged groups, strengthening gender and minority representation)

Institutionalising public participation e.g. giving people the right to articulate their interests, taking the local know-how into consideration, encouraging public involvement in decision-making processes.

The political and institutional dimension

The PRA carried out in the Caspian hotspots clearly point to the fact that rural poverty and underdevelopment is reinforced by deficiencies in the political and institutional system. The wide institutional gap, which separates the poor rural majority from the services necessary to make better use of resources and to satisfy basic needs, is a result of the political power balance and of institutional limitations. The institutional reforms of the 1990s, such as independence, privatisation, and decentralisation, are not yet the answer to the problem of defunct public services for the rural population; there is still an enormous challenge associated with a wide range of new unresolved problems. SAP Combating Desertification should pay specific attention to the following principles:

Promoting transformation towards diversified and appropriate service systems (e.g. principles of subsidiarity, complementarity and competition)

Stimulating decentralisation (e.g. sharing responsibilities, promoting decentralised units, encouraging self-help groups at local level)

Promoting intelligent service system solutions (e.g. appropriate technical and institutional solutions, user-friendly information and communication systems, balancing the supply and demand orientation of rural services, more incentives – less control)

Promoting community ownership (e.g. organisational support, affordable cost-sharing systems, access to basic services for the poorest)

Acknowledging the role of traditional knowledge and of traditional authorities (e.g. traditional authorities as stakeholders in desertification combat, traditional appropriate resource management techniques)

9.2.3. SAP/NCAPs Recommendations

A people-centred, rural and regional (sub-national) development approach

The strategic measures outlined above illustrate the philosophy of SAP and NCAPs that measures to combat desertification in the Caspian must be strictly people-centred. This is in contrast to product-oriented, growth-oriented or technology-centred approaches. Where people's livelihoods are based on the use of natural resources, where poverty is a mass phenomenon, where opportunities are limited, where growth tends to be socially selective in favour of a better capacitated minority, integrated desertification combat should follow a people-centred approach.

SAP Combating Desertification should target rural areas that form the basis for a wide range of environmental resources, such as water, air, bio-diversity, bio-energy and tourist attractions. The maintenance of these resources is not only of crucial importance for sustainable rural livelihoods but for sustainable development on a national and global scale.

SAP Combating Desertification promotes a regional (sub-national) development approach. Regional refers to geographical areas within a nation state, but bigger than a town or village. The regions share common characteristics with regard to their natural, socio-cultural and economic features. Regional approaches are to be seen as a complement to sectoral and technical approaches. They are necessary to ensure appropriate solutions with regard to the natural and the socio-cultural environment. Regional approaches of integrated desertification combat and development planning are also a tool for decentralised government in rural areas.

Guiding principles for combating desertification

SAP and NCAPs should be designed in a way that they are in line with the following general principles of development:

Sustainability

- Sustainability of development: following the principle that current generations should meet their needs without compromising the ability of future generations to meet their own needs.
- Sustainable impact of programmes: the positive impacts of the SAP and NCAPs should persist.
- Participation
- Public participation: a democratic principle helping to design more appropriate programmes by considering people's needs and experiences, and helping to strengthen people's and communities' participation in programmes.
- Poverty orientation

- Identification of problem solutions and related programmes which address the typical problem situation of poor and vulnerable population groups whenever their living conditions do not meet the basic needs in the local context.
- Avoiding negative impact of other programmes and interventions.
- Subsidarity
- Underlines the principle that responsibility should be shared and that everything that cannot be done better at a higher level should be done at a lower level.

Target group and gender differentiation

- Principle of designing programmes and carrying out measures in a way which takes the different problems, needs and potentials of people into account.
- Ensuring the representation of all groups and gender categories in relevant organisations.

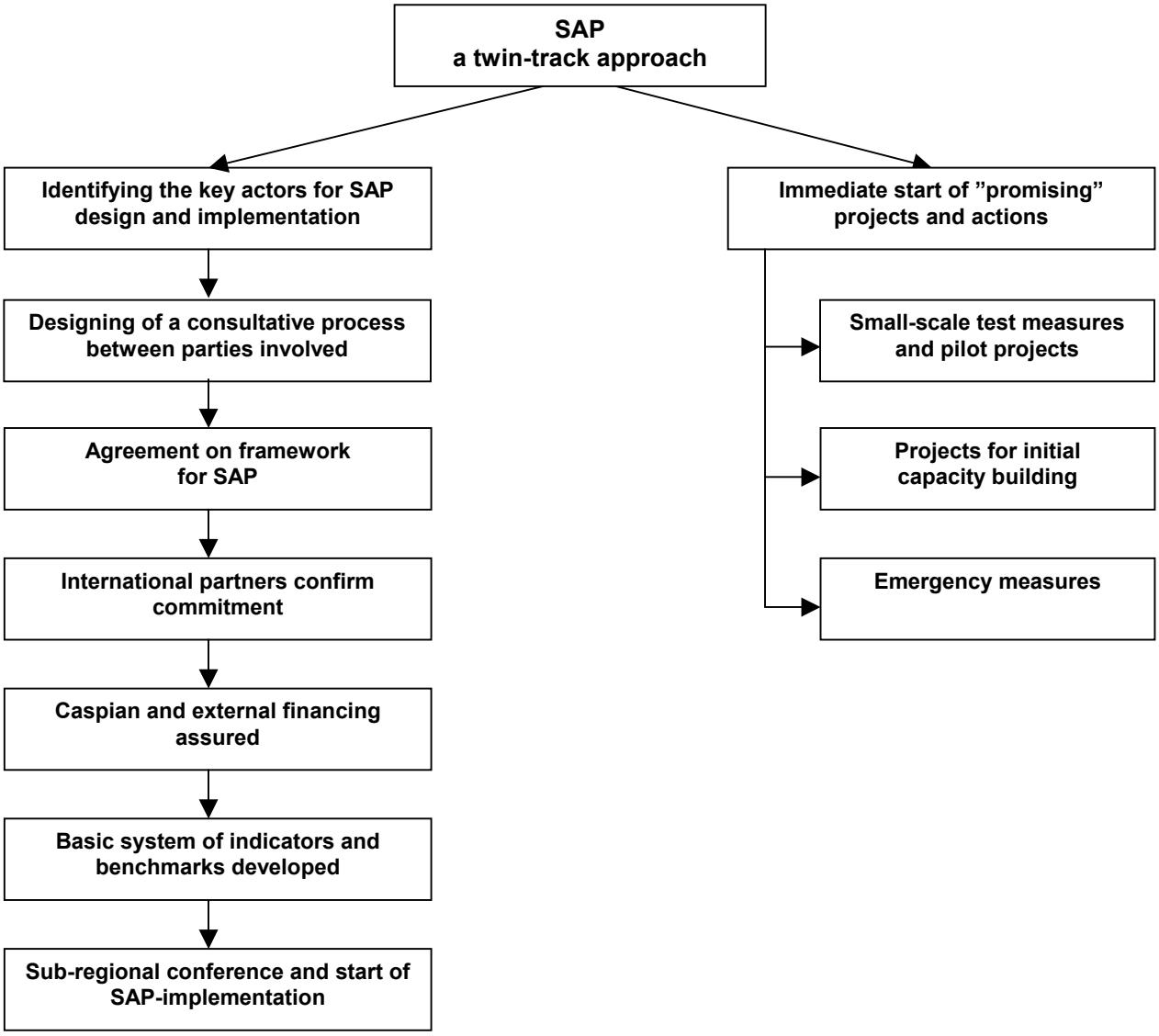
Operationalising SAP

Experience has shown that the process of intensifying sub-regional co-operation and developing sub-regional action programmes is a complex and time-consuming one. It would be unrealistic to presume that a well-thought-out SAP and the elaboration of promising projects could even begin to constitute a guarantee for sub-regional co-operation in the field of desertification combat. SAP implementation could run into a dead-end, if it not incorporated into ”mainstream” development in the sub-region. A key component of operative strategy making in terms of sub-regional co-operation and SAP must therefore revolve around the question of how and with what means this ”mainstreaming” can be set in motion and maintained.

Experience from other regions have shown that it takes approximately two years to generate the framework conditions needed for regional co-operation and the development of sub-regional plans. We therefore recommend choosing a twin-track approach:

On the one hand, projects with promising potential can be started as soon as feasible.

On the other hand, and again right from the start, these individual projects must be part of an overall concept. The process of sub-regional co-operation must be more than just a collection of planned projects. Indeed, everything must be organised with the required political willpower and teamwork to make ”mainstreaming” the backbone of the process.


SAP
a twin-track approach
Identifying the key actors for SAP design and implementation
Designing of a consultative process between parties involved
Agreement on framework for SAP
International partners confirm commitment
Caspian and external financing assured
Basic system of indicators and benchmarks developed
Sub-regional conference and start of SAP-implementation
Immediate start of ”promising” projects and actions
Small-scale test measures and pilot projects
Projects for initial capacity building
Emergency measures