

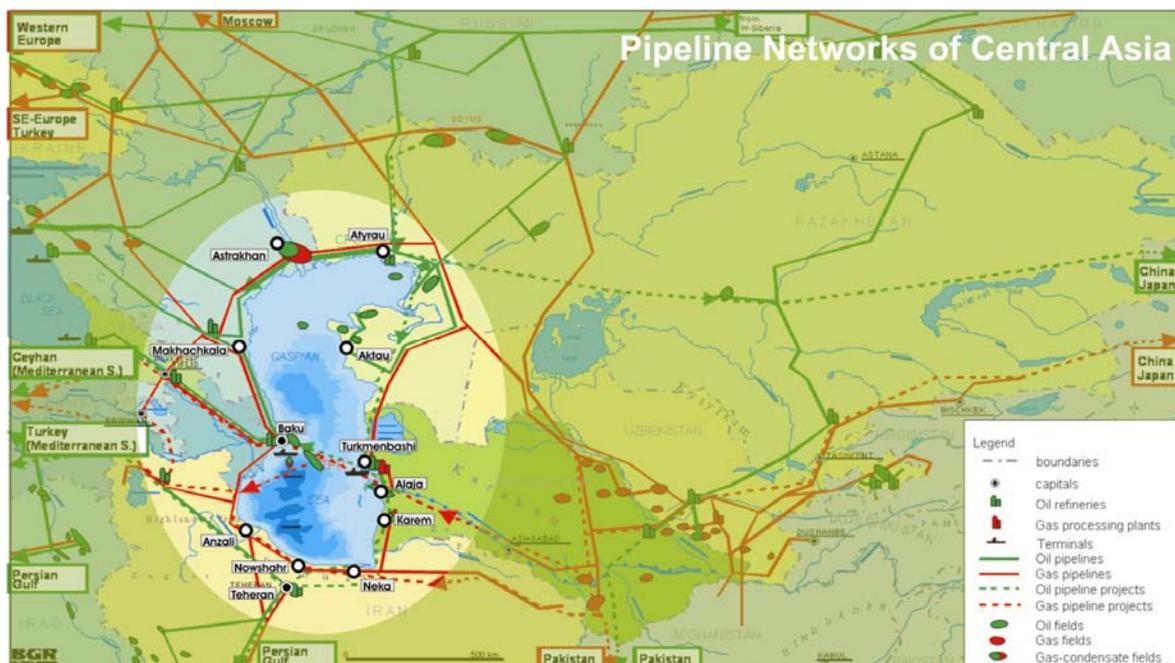
The Conceptual Model of Urban Networks in the Caspian Sea Region

1. Introduction

In the modern world stability of socio-economic development of countries chiefly depends on immediate planned reaction to internal and external changes. The geopolitical position of some countries creates a situation in which their territory and infrastructure can be used for mutually advantageous economic co-operation between different countries.

The collapse of the Soviet Union and the appearance of the New Independent States resulted in fundamental changes for each of the 15 states. Kazakhstan has become a main area of international transit because of its geographic location in the centre of the Eurasian continent where border territories play an important role in process of strengthening international co-operation between Kazakhstan and neighbouring countries.

In Soviet times administrative borders between republics represented only semi-formal lines which could be modified in response to economic needs. Today these borders have turned into the major representations of state sovereignty. Functional transformation of borders has resulted in a break in past socio-economic links, but on the other hand, it has led to development of new economic zones.



Scheme of Pipeline Networks of Central Asia, based on source [2]

2. History of Caspian Sea Navigation

It is known that in 760-761 AD the southern part of the Caspian Sea was conquered by the Abbasids. The region was under the influence of Persia until 1722. Trading navigation was developed; there were merchants from Genoa and later from Britain. The famous historian of the East- Masudi, Abd al-Hasan Ali ibn al-Husayn who lived in the 9th century wrote that in 880 the first *Russ* tribes appeared in the Caspian region conquering the island of Abeskun.

Russian Interests in the Caspian Sea and its coastal area began to grow at the stage of gradual centralization of political power in Russia (Romanov dynasty). In 1547, at the age of 17, Ivan IV (Ivan the Terrible; reigned 1533-84) was crowned Czar of all Russia. He conquered the Tatar khanates of Kazan (1552) and Astrakhan (1556), establishing Russian rule over the huge area of the middle and lower Volga, so in 1554 the way to the Southern sea was open.

On the 14th of November in 1667 Tsar Alexey Mihajlovich began the construction of the first Russian military ship, named "Orel", specially designed for the Caspian Sea campaign. There was Stepan Razin's pirate team on the sea in the late 60s of 17th century. The conquered border territories were colonized by Russian settlers and defended by the Cossacks. They attacked the Persian cities of the southern coast: Rasht, Farahabad, Astrabad, etc. Stepan Razin's flotilla defeated the Persian flotilla of 70 ships in the spring of 1669 at Svinoi island.

At the beginning of 18th century the Caspian Sea was won from the Persians by Peter the Great (1722-1723) who considered the Caspian as an important strategic route to the Central Asian countries and India. Peter the Great issued the decree concerning construction of a military port at Astrakhan in November, 1722. Persia acknowledged its defeat through the Treaty of St.-Petersburg (September 12th, 1723). After Peter's death the idea to create a military fleet was developed by the Iranian monarch Nadir. He constructed some warships: the first cruiser with the help of English engineer John Elton. In fact, the struggle over the Caspian and its coastal areas reached its peak during the period of the Kadzharov dynasty (1779-1925). On January, 21st, 1732 Russia concluded the Rasht agreement on cooperation with Persia (especially in the field of trade). That document replaced the Treaty of St.-Petersburg. Nevertheless Russia continued military actions, they seized including Makhachkala in 1784, Derbent in 1796 and Baku in 1806.

The territory of the present Azerbaijan was acquired by Russia from Persia through the treaties of Gulistan (1813) and Turkamanchai (1828), so in 1828 Northern Azerbaijan became a part of the Russian empire.

In 1869, Russian military forces founded Krasnovodsk (now Turkmenbashi) and began to conquer the Turkmens, whose fierce resistance to Russian invasion was broken in 1881 with the conquest of the Dengil-Tepe fortress. Then Russia established the Transcaspian Region in 1899. The Transcaspian Region was renamed Turkmen Region in 1921; the following year, it became part of the Turkistan Autonomous Soviet Socialist Republic.

Under Fath Ali Shah (1797-1834), Persian claims to the entire Caucasian area were challenged by the Russians in a long struggle that ended with the Treaty of Gulistan (1813) and the Treaty of Turkmanchay (1828), by which Iran was forced to give up the Caucasian lands.

After Iranian recognition of the USSR in a treaty of 1921, at the end of the Second World War, Northern Iran was controlled by the Soviet Union. However it was impossible for the Soviet army to control the territory of Northern Iran and Enzeli port. In 1921, Reza Khan, an army officer, effected a coup and established a military dictatorship.

All these facts allow the claim that the Caspian Sea began to gain international legal status during the period when it attracted political and economic interests of Russia, Persia and also Great Britain.

The treaty of Rasht (1732) gave Russia the right to possess some Persian territories. This document regulated freedom of commerce and navigation on the sea, and also on the rivers

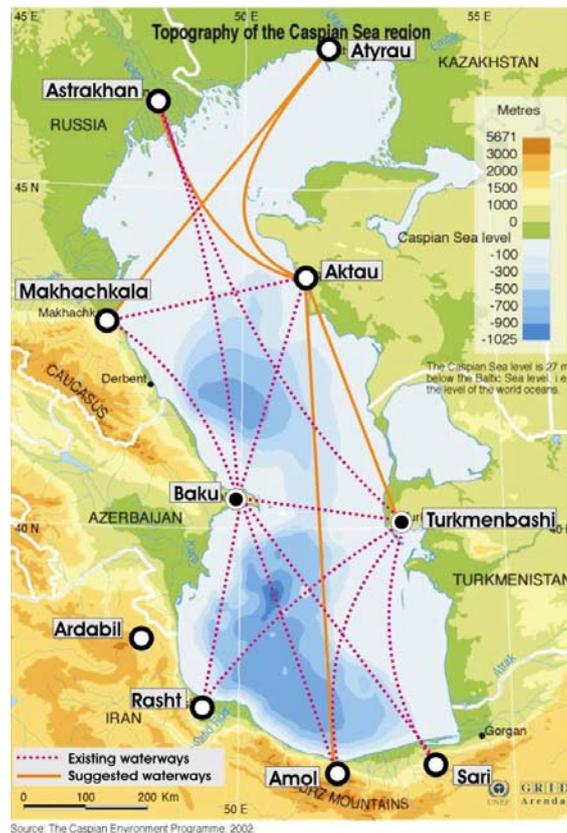
Araks and Kura. It provided some rights for Persia, in particular, on navigation. But only Russian military ships could sail in water area of the Caspian.

The treaty of Turkmanchay (1828) recognized the rights of both states on trading navigation, but forbade Persia to possess a military fleet. This state of things was kept up to the Russian-Persian agreement on peace and friendship, signed in 1921. With Article 3 of the agreement Russia ceded Ashuradeh island to Persia and article 10 concerned equipment of Enzeli port. In October 1927 USSR and Iran signed the agreement on fishing on the southern coast. According to this document a joint Soviet-Iranian fishing company was created with concessions on development of the Iranian part of bioresources of the Caspian Sea for the following 25 years.

3. Seaports are the basic nodes of an Urban network

Caspian cities are on a way to increase their position in the southwest and east west trade. Current improvement of the transnational transport infrastructure leads to a significant change in the country's urban structure. This competition for presence at the Caspian coastal area is promoting development of seaports.

The history of appearance and development of most Caspian cities is connected with the history of the Great Silk Road. The way of Silk Road passed through China on the West and Southern Kazakhstan was the most brisk trade road in the 6th-7th centuries. One branch of this led from Byzantium through Derbent to the Caspian coastal area - Mangyshlak – Aral and Southern Kazakhstan.



Scheme of Waterway Networks of the Caspian Sea, based on source [3]

Caspian cities of Russia. The territories belonging to the Russian Federation in the Caspian region are the Republic of Dagestan, the Kalmykia Republic and the Astrakhan Oblast. The most important fields of industry in the Caspian region of Russia are: extraction, treatment and transportation of oil and gas, fuel industry, machine-building, light and food industry, construction of new and reconstruction of existing ports and railroads.

The city of Astrakhan is the capital of the Astrakhan region, SE European Russia. The city is located on eleven islands on lowland of Prikaspijsk in the top part of Volga delta. There were settlements located along the Persian and Arabian trading ways in the place of modern Astrakhan city. It was a capital of the khanate of Astrakhan (1459-1556). In 1556 Astrakhan was conquered by Ivan the Terrible then in 1557 it became a part of the Russian empire. After the collapse of the Soviet Union the Astrakhan region was given the status of a southern outpost of Russia. Astrakhan had a flourishing trade with Persia, Khiva, and Bukhara until 1917. River and seaport of the Volga-Caspian pool, nodal point of the railway transport system (to Saratov, Kizlyar, Guryev), motorways (to Volgograd, Stavropol, etc.) and the international airport are functioning within the city. The seaport is of the international importance that is intended to become the second port in Russia and is currently under construction. A Caspian port on the Volga River's southern delta, it is a center for river transport thanks to a canal built for barge traffic. Astrakhan is also an important rail junction and a major transshipment center for oil, fish, grain, and wood.

The city of Makhachkala is the capital of Dagestan Republic, the large economic, administrative, political, scientific and cultural center of the SE European Russia. Makhachkala is located on a narrow strip of low plain of the western coast of the Caspian between the mountain Tarki-Tau and the sea which in the past was named the Dagestan Corridor. There was a settlement Tarki known from the 15th century as a shipping center in the place of modern Makhachkala. Trade routes crossing the settlement led to the city of Derbent - one of the most ancient cities in the world. It is considered that in the past the city of Semender, capital of Hazar khanate, occupied the site of Makhachkala in the 7th century. It was founded as a Russian stronghold in 1844 and it was called Petrovsk in memory of Peter I who stayed there during the Persian campaign. It was renamed Makhachkala in 1921. Then it became a capital of the Dagestan Independent Soviet Socialist Republic by the order of the Dagestan revolutionary committee.

The city began to develop intensively at the end of 19th and the beginning of 20th centuries. The Rostov-Baku railway was built and Port-Petrovsk route was opened. The large industrial enterprises were constructed in Makhachkala according to the Soviet policy of industrialization. The mechanical engineering and metal working, ship-repair, mechanical-repair, agricultural machinery factories and other enterprises were established. After the disintegration of the USSR in 90s, there was a long period of decrease in production. But the beginning of 21st century showed a marked improvement in structure of manufacture and growth in industrial potential of the city. Now it is an important commercial and industrial center with oil refineries that are linked by the pipeline with the Grozny oil fields. The considerable reconstruction of Makhachkala port is being carried out at present.

Caspian cities of Azerbaijan. Oil as the main resource of the country determined the principal orientation of the Azerbaijan industry already in the 19th century. During the Soviet time petroleum and basic engineering industries, chemistry and petrochemistry, metallurgy, oil and gas production were established.

The city of Baku is the capital and the largest city of Azerbaijan. The city is located close to the major petroleum fields close to the border with Iran. The first historical reference to Baku dates back to 885 AD. But some archaeological evidence indicates that settlements existed on the site several centuries before. By the 11th century Baku was in the possession of the Shirvan-Shahs who made it their capital in the 12th century. In the 13th and 14th centuries it came under the sway of the Mongols. In 1723 Peter the Great captured Baku, but it was returned to Persia in 1735. Finally it was taken over by Russia in 1806. Baku served as the capital of the Azerbaijan Soviet Socialist Republic from 1920 to 1922 and from 1936 to 1991. In 1991 Baku became the capital of the independent republic of Azerbaijan.

Most industrial plants are located in the eastern and southwestern ends of the city. The basis of Baku's economy is petroleum; its chief industry is oil refining. Historically some kind of functional division was formed on the Caspian Sea between Astrakhan and Baku. Astrakhan was a producer of fish, there was management organization of fishery, fish cultivation, fish protection and scientific institutions on ichthyology (including a unique institute of the sturgeon industry). Baku was an oil and navigation center. The all-union association of oil and gas extraction ("Kazpmorneftegaz") and the Caspian shipping company settled in Baku. After the collapse of the Oil Union, Baku saved its traditional priorities and inherited material and technical resources of those branches. By this time Baku, as a pioneer in the field of oil extraction from the sea bed, had huge amounts of shipping to service the oil industry needs in the sea. Having the best harbor and the largest port on the Caspian Baku has remained a "capital of navigation". The Shipping company "Kaspar" today is a leader on the Caspian in spite of the fact that all the Caspian states have created their own national shipping companies.

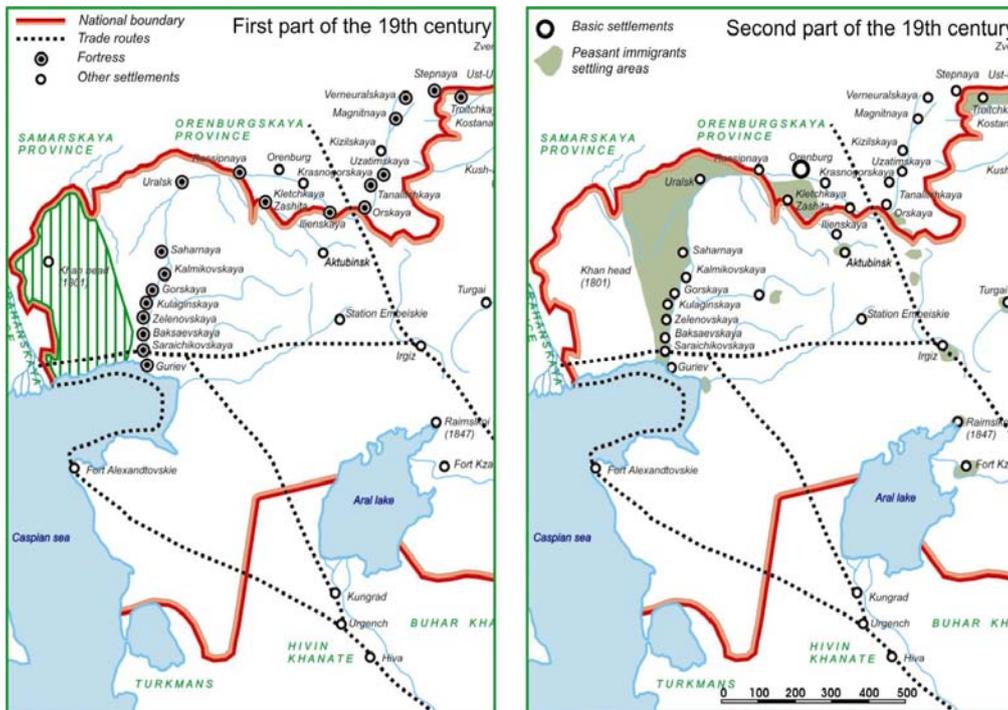
Caspian cities of Iran. The agricultural activities dominate in the Caspian coastal area of Iran, due to its rich sediment type of soil and favorable climate. Logging and production of charcoal are developed in the west of the Mazandaran region. An important sources of income are tourism, craftsmanship, fishing and carpet production. The main Iranian ports on the Caspian are Bandar Anzali and Astara (province of Guilan).

The city of Ardabil is the historical city and the center of province, famous for its silk and carpet trade. Ardabil is situated in the north-east of Iran, about 70 km away from the Caspian sea, neighbouring the Republic of Azerbaijan. The history of the province of Ardabil is a part of the history of Azerbaijan. Most Iranian historians believe that the city was built by Firooz, the Sasanid king (457-489), and the city has a 1500 year history. But even earlier, Ardabil was a very important city from the military and political points of view during the Achaemenid period. It was a military base on the northern border of the Persian Empire. In 257-317 it was the headquarters of the local government of Bani Saj who moved their capital from Maragheh to Ardabil. The city of Ardabil remained the capital of Azerbaijan until the Moguls attacked. Shah Esmael, the Safavid king made effort to establish the Iranian united empire. The Significant location of Ardabil on the main trade road between Iran and Europe had increased its importance in international trade between Iran and different parts of the Europe. The city is visited by thousands of tourists every year. Its significant location on the strategic border area with the Republic of Azerbaijan, has facilitated the development of the province and the whole region.

The city of Rasht is the capital of Guilan province, is one the most important cities of this region. This city is situated in a vast plain at a distance of 30 km from the Caspian Sea on the slopes of the northern Alborz Mountain Range. In 682 AD after the conquest of Iran by the Arabs, the name of Rasht was mentioned in historical documents for the first time. In the Safavid era, especially in the reign of Shah Ismail, Guilan land was composed of two sections of

"Biehpas" with Rasht as a center, and "Biehpish" with Lahijan as a center. During the reign of Shah Tahmaseb I, the governance of both parts was assigned to "Khan Ahmad Guilan". Finally, Shah Abbas I conquered Guilan. In 1695 Stephan Razin, a Russian sailor, plundered the city. The army of Peter the Great conquered the city in 1722 and they remained in the region until 1734. The Russians again conquered this city in 1917 following the Communist Revolution. In 1920 Rasht again became the arena of revolutionary movements. When the Red Army conquered Baku in 1918 the navy of White Army found shelter in Anzali Port, which was under the control of the British army. The commander of the Red Navy gave chase and took Anzali Port resulting in the retreat of the British Army. The British forces left the city and went to Baghdad. Finally the Iranian army defeated the movement and a treaty was signed with Russia. Today, Rasht is the most important commercial center between the Caucasus, Russia, and Iran and has considerable tourism infrastructure.

The city of Sari, located on the south-eastern shores of the Caspian, is the capital city of the province that was founded in pre-Islamic period. It is located 277 km far away from Tehran. The foundation of the city is attributed to "Toos-Ebne-Nowzar". The Great Mosque of Sari is the first building that was constructed by Moslems 140 years after the birth of Mohammad. Sari City was set on fire in 298 by the onslaught of tribes that were living around the Caspian Sea. In the early 4th century it was badly damaged by flood. Sari was also damaged during the reign of Sultan Mohammed Kharazmshah and afterwards due to the Mongol attacks In 769 a wall was constructed around the city. Some important buildings were constructed in the city in Safavid times and in the reign of Shah Abbas I. Sari became the capital city of the province in the reign of Agha Mohammed Khan Ghajar. At present, Sari is a thriving city due to its connection with national railroad network and construction of several governmental buildings as well as the implementation of many other development projects.



Map of the West Kazakhstan Settlements of the 19th Century, based on source [3]

Caspian cities of Turkmenistan. Turkmenistan's key industry is the extraction of natural gas, of which the country is the world's fourth largest producer. Historically, the gas was exported to Russia or via Russia to Europe and the Caucasus. Recently, a new pipeline to Iran has been constructed and will increase the country's economic independence. On Turkmenistan's northern coast mineral salts are produced, connecting to the chemical industries of Cheleken.

The city of Turkmenbashi is one of the main cities of Turkmenistan, part of the Balkan Welayaty, on the shores of the Caspian Sea. The city was founded in 1869 and until the 1990s was called Krasnovodsk. In 1993 it was renamed by President Saparmurat Niyazov, after his self-proclaimed title Turkmenbashi ("Leader of the Turkmen"). Turkmenistan's principal port is Turkmenbashi from whence ferries travel to Baku. The city also possesses an oil refinery.

Caspian cities of Kazakhstan. Kazakhstan was a source of raw materials for the more developed regions of the former USSR, where they would be processed further. Today, Kazakhstan is independent and can utilize all its natural resources following its own policy. The Caspian region is the main source of oil and gas production in Kazakhstan.

The city of Atyrau is the capital of Atyrau region, an industrial base of the Emba basin oil fields. It was founded as a fortress for defence of fishing by merchant Michaelo Guryev on the Ural River in 1640. Then it became a military outpost in 1647. Settlements of the fishermen began to appear around the fortress. The small town of Yaitchk grew out of the fortress. Its name was changed to Guryev in 1780. It was a fishing centre until the development of the region's petroleum. It became a base for the prospecting and search for oil, gas and other natural resources within the Caspian region. In 1869 the first ship carried cargo from Guryev to Astrakhan. That was the beginning of the regular sea shuttle service between those cities. In 1889 passenger steamships began to sail between Guryev and Astrakhan. On 27th of November in 1917 the Soviet authority was established in the city of Guryev. In 1926 a port was opened on the right coast of the Ural River. On 5th of February in 1931 the Guryev Management of the Ural-Caspian Shipping Company was established. The area of this company's activities were Guryev - Orenburg (1741 km), Astrakhan - Guryev (528 km) and Guryev - Zhilaya Kosa - Prorva (240 km). The construction of a 720 km long oil pipeline Guryev - Emba - Orsk, crossing 13 rivers, was started on June, 1932. On 28th of May in 1936 regular air communication was opened. Since the 7th of February, 1967 a regular passenger train service has run along the line from Guryev - Shevchenko (Aktau).

The city of Aktau is the capital of the Mangystau region located in the east coast of the Caspian Sea. It is the only sea port of Kazakhstan on the Caspian for the international transportation of various dry cargoes, crude oil and mineral oil. Port Aktau was constructed in 1963 for transportation of uranium and oil from deposits of the Mangyshlak region. During the Soviet era port Aktau was mainly aimed at oil transportation with up to 7 million tons transported annually in early 80s. Transportation of dry cargoes did not exceed 300 thousand tons a year. After the disintegration of the Soviet Union the volume of cargo was considerably reduced. The government of Kazakhstan together with the European Bank of Reconstruction and Development (EBRD) realised a programme of cardinal development and reconstruction of the port between 1997-1999. The reconstruction of the port Aktau gave it an opportunity to export raw materials and transit cargoes to the Caspian region and other foreign countries. With the opening of railway terminal in 2001 it became possible to transport cargo along the Aktau-Baku line by rail. There also exists a ferry line Aktau-Baku-Noushehr, which is capable of transporting general, container cargoes, wheel techniques and passengers.

4. Main Communication Lines of the Caspian Region in Kazakhstan

Today the international transport communications in the Caspian region are able to provide the best connection between the expanding Europe-Atlantic and Asia-Pacific markets, the markets of countries in Central and Southern Asia. The interests of Caspian countries are diverse, but they have similar approaches to the issue of development of the international transport infrastructure.

The modern transport system of Kazakhstan represents the uniform communication network developed during Soviet times. This historical fact caused some problems for transport communication. Today 81 % of Kazakhstan oil resources are exported through oil pipelines, 12 % are transported by railways and about 7 % are delivered by sea. Development of transport infrastructure becomes more and more important for Kazakhstan. A new stage has opened in the development of the country with the realization of the program «The Concept of Transport Corridors in Kazakhstan». The construction of new railways has been facilitated by this programme (for the first time since 1986).

Construction of new lines Aksy-Degelen, Chromtay-Altynsarino, Charskaya-Ust Kamenogorsk, Zhezkazgan-Kysylorda, Saksaulskaya-Beineu, the development of Dostyk station, electrification of a site Ekibastuz-Pavlodar, reconstruction of site Kylsari-Mangystau and also the complete overhaul of existing ways are the major projects of that concept.

Construction of a new railway Chromtay-Altynsarino was completed at the end of 2004. It was the first step in a process of joining the Caspian region to the general transport system of Kazakhstan. The railway, 404 km long, crosses the territory of the Aktyubinsk and Kostanai regions. Earlier cargoes from the northern and central regions were carried through the Russian city of Orsk, with double crossing the Russian-Kazakhstan border, or through the southern direction with a length about 4000 km long. It is supposed, that the new railway line "Chromtau-Alnynsarina" will open the way to «a sea gate» through the port of Aktau.

Certainly, the potential of Kazakhstan territory as "transit bridge" represents the big opportunities for the future development of the country. However, it is necessary to emphasize the fact that «maintenance of transit» whilst providing opportunities, is not the basis for functioning and development of the state. Otherwise, to provide maintenance of international transit we can overlook to the fact that urban development of the country is the basic guarantee of a high standard of living of the Caspian population, a safe environment and convenience of movement within the country.

It is time to raise the awareness of the issues facing urban planning, construction and architecture among the Caspian cities. We have to think about the future and how to improve the quality of life in the Caspian cities. For active co-operation of urban regions on key issues of sustainable development it is important to develop a model of urban networks for the states in the Caspian region. The purpose of new urban networks will be to clarify the existing situation and acknowledge the potential possibilities of development in the future.

The following issues can serve as a basis of the Caspian Urban Networks project:

- 1) A competitive system of cities with international importance and strengthening of towns and villages;
- 2) Support the development of trans-border networks for cross-border co-operation and transportation system;

- 3) Promotion of regional planning in the participating countries;
- 4) Networks between the Caspian cities must be the main way for the cities to develop future strategies (transnational multilateral co-operation in the field of urban and regional planning);
- 5) Post-oil life of the cities.

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