

Chapter 2 Current Status and Issues of Afghanistan and the Surrounding Countries

2-1 Current Status and Issues of Afghanistan and the Surrounding Countries

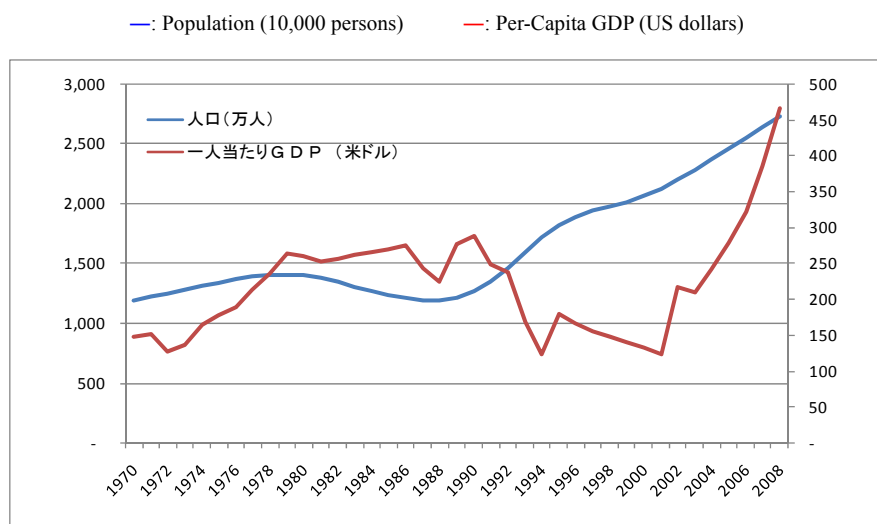
2.1.1 Current Status and Issues of Afghanistan

2.1.1.1 Current Status and Issues of the Industry and the Economy

(1) Outline

Figure 2.1 shows the changes in the population in Afghanistan. It remained flat at about 12-13 million to 1990 but increased remarkably after 1990, and the population as of 2008 increased to twice as much as that in 1990 or increased to about 27 million.

Dollar-denominated per capita GDP¹ increased up to 1990 and then downwarded in 1990s and rebounded in the 2000s. The decrease in per capita GDP in the 1990s is considered to result from a downturn in the economy as well as the rapid increase in population.

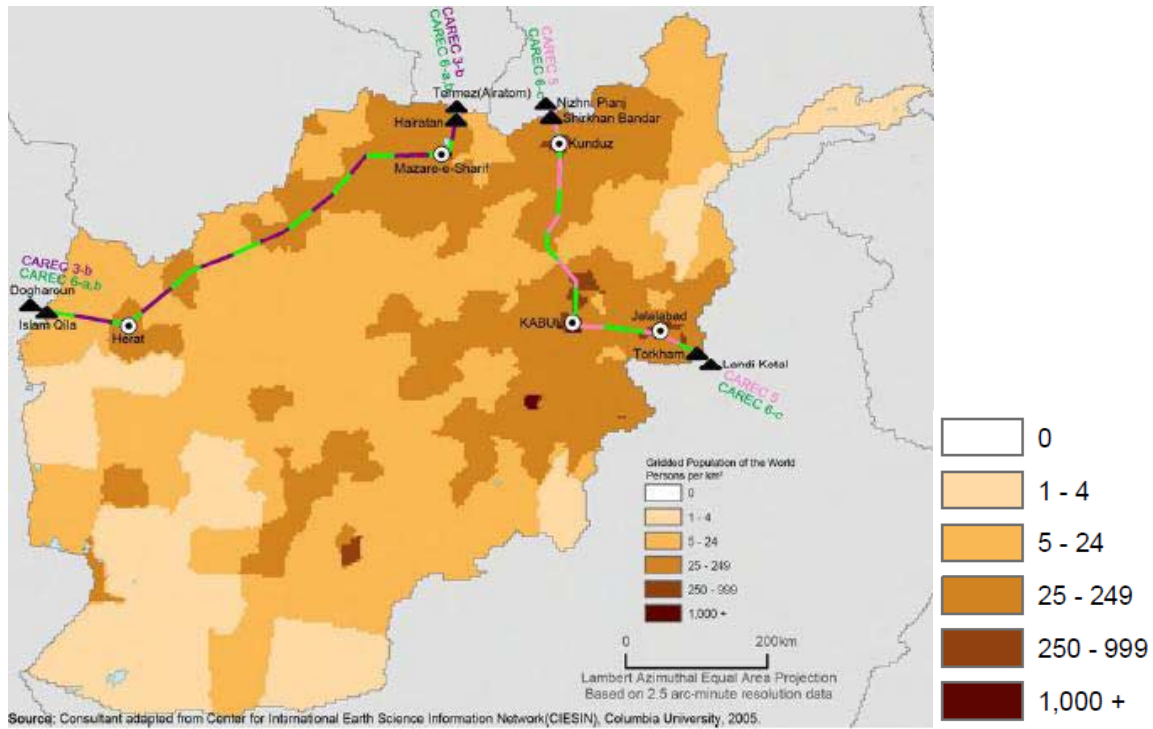


<http://unstats.un.org/unsd/snaama/dnList.asp>

**Figure 2.1 Population and Per-Capita GDP in Afghanistan
(left axis: population, right axis: Per-Capita GDP)**

The population in Afghanistan is dispersed. The population density is relatively high in the southeast, mainly in Kabul, and in the north in Mazar-e-Sharif but low in the southwest especially in the Balochistan area.

¹ Current price



Afghanistan; Cross Border Trade and Transport Facilitation
(from Columbia University, Socioeconomic Data and Application Center)

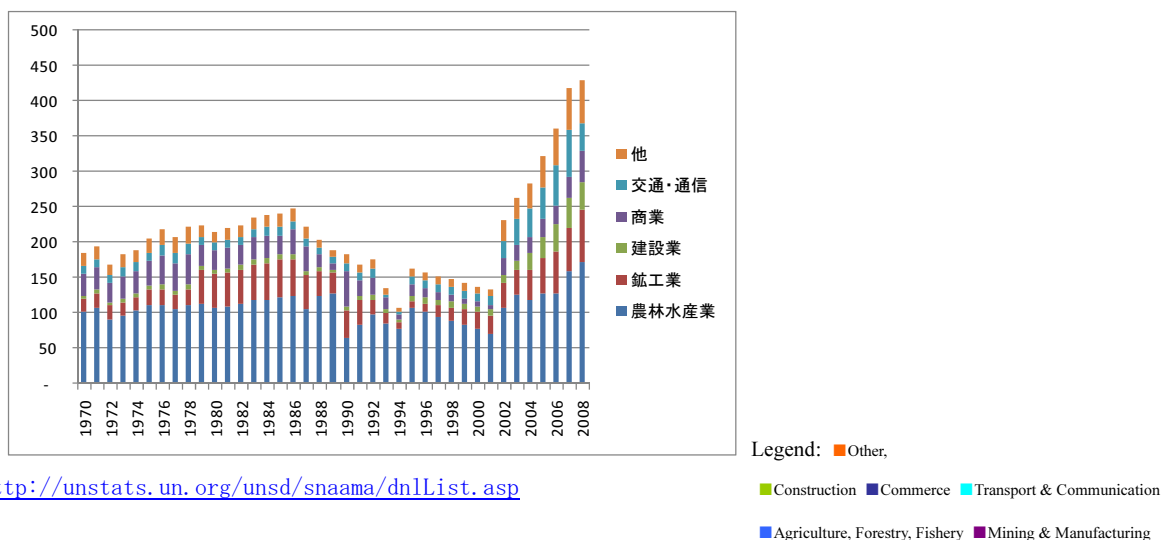
Figure 2.2 Population Distribution in Afghanistan (persons/km²)

Figure 2.3 is the GDP distribution by industry indicated in the UN statistics². When the Soviet Union troops retreated in 1987 (withdrawal completed in 1989), the Afghan economy began to drop, and severely dropped in the anarchy after collapse of the Najibullah regime.

From 1994 when the Taliban emerged (it gained effective control of most of the land in 1996), the downward trend continued with some upturns from the level of anarchy immediately after retreat of the Soviet Union troops. Full-fledged economic upturn occurred after the simultaneous terrorist attacks in September 11, 2001. The economy rapidly expanded between 2002 and 2007, but stagnated in 2008.

Agriculture occupies a large share in the economy of Afghanistan. Up to the beginning of 1990, the share of agriculture in all industries was 50% and increased due to collapse of the other industries in the period of confusion. In and after 2000, the share of agriculture dropped due to growth of other industries. Agriculture still holds a large share of 1/3 of all industries as of 2008.

² Local currency denominated 1990 prices by National Accounts main Aggregates database



<http://unstats.un.org/unsd/snaama/dnllist.asp>

Figure 2.3 GDP of Afghanistan and its Breakdown (prices in 1990, unit: million Afghani)

(2) Status of industries

Figure 2.4 and 2.5 shows the outline of the industries in Afghanistan. The nominal GDP in 2008 was about 10 billion US dollars³ and agriculture accounts for 1/3 of it. The share of manufacturing is as low as about 17% and half of the remainder is service industry. The economy of Afghanistan additionally has a narcotic based economy segment of 3.4 billion dollars (Potential export basis. 730 million dollars in agricultural shipment basis.)⁴. As a result, Afghanistan is an agricultural country, and half of the national economy is supported by agriculture and opium.

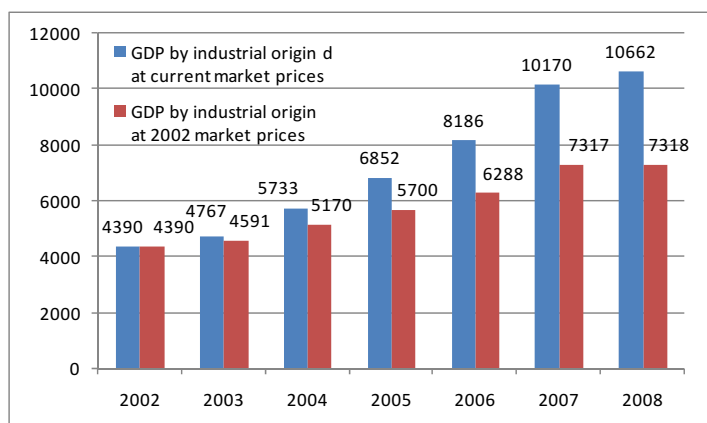
Chronologically, the nominal GDP doubled or more in the past five years, including the increment due to inflation, and in real terms 1.6 times or more, or about 10% per annum. (Recently, the economy stagnated between 2007 and 2008.)

By expenditure, private consumption stood at 9,979 million dollars, government consumption at 1,078 million dollars, gross fixed assets at 3,111 million dollars, net export of goods and services at -3,997 million dollars (export of 1,748 million dollars and import of 5,755 million dollars), resulting in 10,174 million dollars in total.⁵

³ Purchasing power parity of 31,842 million dollars (ADB, Development Indicator 2009)

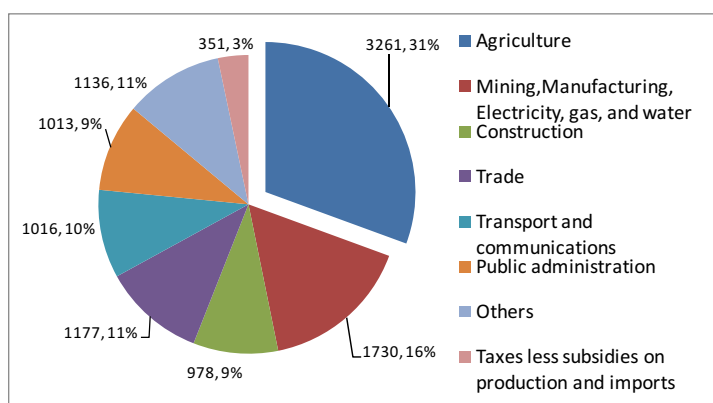
⁴ Afghanistan Opium Survey 2009 Summary Findings September 2009, UNODC, 2009, Fact Sheet Afghanistan Opium Survey 2009

⁵ Key Indicators for Asia and the Pacific 2009 Country Table, ADB



Source: Key Indicators for Asia and the Pacific 2009 Country Table

Figure 2.4 Current Status of Industry and Economy in Afghanistan (Unit: US\$ million)

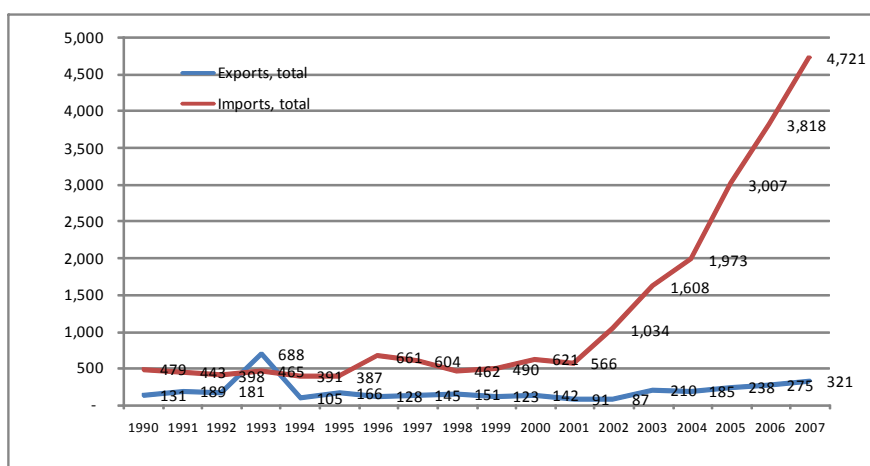


Source: Key Indicators for Asia and the Pacific 2009 Country Table

Figure 2.5 Current Status of Industry and Economy in Afghanistan (Unit: US\$ million)

(3) Trade

Figure 2.6 shows the changes in imports and exports of Afghanistan. In 2007, the exports stood at 321 million dollars and the imports at 4,721 million dollars. Imports to Afghanistan rapidly increased after collapse of the Taliban regime in 2001.



Source: Key Indicators for Asia and the Pacific 2008, ADB

Figure 2.6 Imports and Exports in Afghanistan (Unit: million dollars)

The trade indicated above is formal trade⁶. According to a report of the World Bank in 2005⁷, in addition to the exports from Afghanistan as formally recorded in 2002, it was estimated that there were exports of about 1.2 billion dollars including export of narcotics⁸, smuggling and reexport, and import of 2.3 billion dollars in addition to formally recorded data of about 1.0 billion dollars.

According to other material of the World Bank, it was estimated that the imports (including smuggling) of Afghanistan were 1,202 million dollars in 1999, 396 million of which is for domestic consumption and 806 million dollars of which involved possibility of re-export.

It was estimated that the export stood at 1.277 billion dollars (including smuggling), 130 million of which was export of domestic products, and 1.097 billion dollars of which was re-export⁹.

⁶ Coverage of the DOT (Direction of Trade) and IFS (International Statistics) is limited to formal trade (Afghanistan's Trade Environment from the Viewpoint of Relation with its Neighboring Countries (Rinsetukoku tono kankei kara mita Afghanistan no boueki kankyo), Maoka Onishi, IDE-JETRO, Japan Cooperation Center for the Middle East News, 2005, p60). The Key Indicators for Asia and the Pacific based on the above DOT statistics is the same as well. The Afghanistan's trade in the widely used statistics as DOT, however, is only a fraction of the whole, for example the World Bank estimate based on an onsite survey (Afghanistan's International Trade Relations with Neighboring Countries, 2001). Afghanistan's trade with Iran is not posted.

⁷ Afghanistan - State Building, Sustaining Growth, and Reducing Poverty, 2005, p166
http://www-wds.worldbank.org/external/default/main?pagePK=64193027&piPK=64187937&theSitePK=523679&menuPK=64187510&searchMenuPK=64187283&siteName=WDS&entityID=000160016_20040915113121

⁸ Estimation by Central Statistical Office, UNDOC estimates that the value of exported narcotics is US\$ 2.5 billion.

⁹ WB (World Bank), 2001, AITR (Afghanistan's International Trade Relations with Neighboring Countries)

2.1.1.2 Present Conditions and Issues on Road Transport in Afghanistan

This sub-clause discusses the present conditions and issues on the international road network of Asian Highways introduced by UNESCAP among nine (9) study countries. The present conditions are summarized in this sub-clause based on the information from UNESCAP, which were originally collected from road administrative institutions of the study countries. Note that traffic volume shown in this sub-clause includes that of passenger vehicles, buses, trucks, trailers and small size passenger vehicles (subject to category/identification by each country).

Table 2.1 Geometric Standard of Asian Highways

Road Class		Primary (Dual Carriageway or more - Highway)				Class I (Dual Carriageway or more)			
Terrain		Flat	Hilly	Mountain	Gorge	Flat	Hilly	Mountain	Gorge
Design Speed(km/h)		120	100	80	60	100	80	60	
Width (m)	R.O.W	50				40			
	Carriageway	3.50				3.50			
	Shoulder	3.00		2.50		3.00		2.50	
	Median	4.00		3.00		3.00		2.50	
Min. Radius (m)		520	350	210	115	350	210	115	
Cross-fall (%)		2				2			
Shoulder Cross-fall (%)		3 – 6				3 - 6			
Pavement Type		Asphalt/Concrete Pavement				Asphalt/Concrete Pavement			
Max. Super-elevation (%)		10				10			
Max. Gradient (%)		4	5	6	7	4	5	6	7
Axle Load		HS20-44				HS20-44			

Road Class		Class II (Single Carriageway)				Class III (Single Carriageway)			
Terrain		Flat	Hilly	Mountain	Gorge	Flat	Hilly	Mountain	Gorge
Design Speed (km/h)		80	60	50	40	60	50	40	30
Width (m)	R.O.W	40				30 (40)			
	Carriageway	3.50				3.00 (3.25)			
	Shoulder	2.50		2.00		1.5 (2.0)		1.0 (1.5)	
	Median	Nil				Nil			
Min. Radius(m)		210	115	80	50	115	80	50	30
Cross-fall (%)		2				2 – 5			
Shoulder Cross-fall (%)		3 – 6				3 – 6			
Pavement Type		Asphalt/Concrete pavement				Double Surface Treatment			
Max. Super-elevation (%)		10				10			
Max. Gradient (%)		4	5	6	7	4	5	6	7
Axle Load		HS20-44				HS20-44			

Remarks : 1. (); Desirable Value

2. Min. Radius is subject to Super-elevation

3. Carriageway of Primary Class is revised by the agreement among the AH countries; as shown later in this report.

Source: The Agreement among AH countries, 2004, UN ESCAP

The road sections, which are identified as Asian Highways by UN ESCAP (United Nations Economic and Social Commission for Asia and the Pacific), are classified into four (4) groups depending on their geometrical requirements as shown above, and its lowest class is III. It is desired that the section, even if it is classified as III, shall be upgraded to be at least class II because the road section is justified to contribute to the earliest improvement as the international transport.

1) Present Conditions of International Trunk Road Network in Afghanistan

Afghanistan is one of the countries which participated in the Asian Highway (hereinafter referred to as "A.H.") at an early time in its establishment of the project, which was in the 70's, and the five (5) sections including A.H. 1 were identified as the trunk road at the entry time. However, the road network in Afghanistan was heavily deteriorated due to the Soviet invasion starting from 1979. UNESCAP established a strategy in the reviewing of the entire network of A.H. in 1993 that all A.H. networks would be reviewed in the assumption that the existing damaged domestic network would be maintained, and the whole A.H. network was established.

Present road network condition is that the southern part of the Ring Road in the country (Torkham, Pakistan border - Kabul- Kandahar-Herat-Islam Qala, Iran border) was identified as a part of A.H.1 which is the road section connecting between Pakistan and Iran.

The location of Afghanistan is geographically meaningful in view of logistic movement between Central Asian countries and the Arabian Sea since all the traffic must pass through the country. After braking up of the Taliban government in 2001, the coordination of bilateral dialogue between ESCAP and the Ministry of Public Works was resumed and it became possible to assess the road information in Afghanistan. Moreover, the experts meeting for reviewing the A.H. network held on May 2002 have succeeded in collecting the road information for the country from the Minister of Public Works, Afghanistan.

The following table shows lists of A.H road in Afghanistan, which was the results of reviewing the A.H. network in the ESCAP expert meeting held on May, 2002.

Table 2.2 International Trunk Road in Afghanistan

Route No.	Itinerary	Length (km)	Selection Criteria
A.H.1	Torkham (border of Pakistan) – Kabul – Kandahar – Dilaram –Herat – Islam Qala (border of Iran)	1,400	* Connection between Capitals * Connection between Industrial//Agricultural center
A.H.7	Shirkhan (border of Tajikistan)– Polekhumri – Djbul sarcj – Kabul	389	*Connection between Capitals
	Kandahar – Speenboldak (border of Pakistan)	105	*Connection between Major Ports
A.H.62	Hairatan (border of Uzbekistan)– Mazar-i-Sharif (A.H.76)	120	*Connection between Capitals
A.H.71	Dilaram – Zarang (border of Iran)	264	*Connection between Major Ports
A.H.76	Polekhumri – Mazar-i-Sharif – Shehergam – Herat	986	* Connection between Industrial//Agricultural Center
A.H.77	Djbul sarcj – Bamiyan – Herat – Tourghondi (border of Turkmenistan)	983	* Connection between Industrial//Agricultural Center
Total (6 Routes)		4,247	

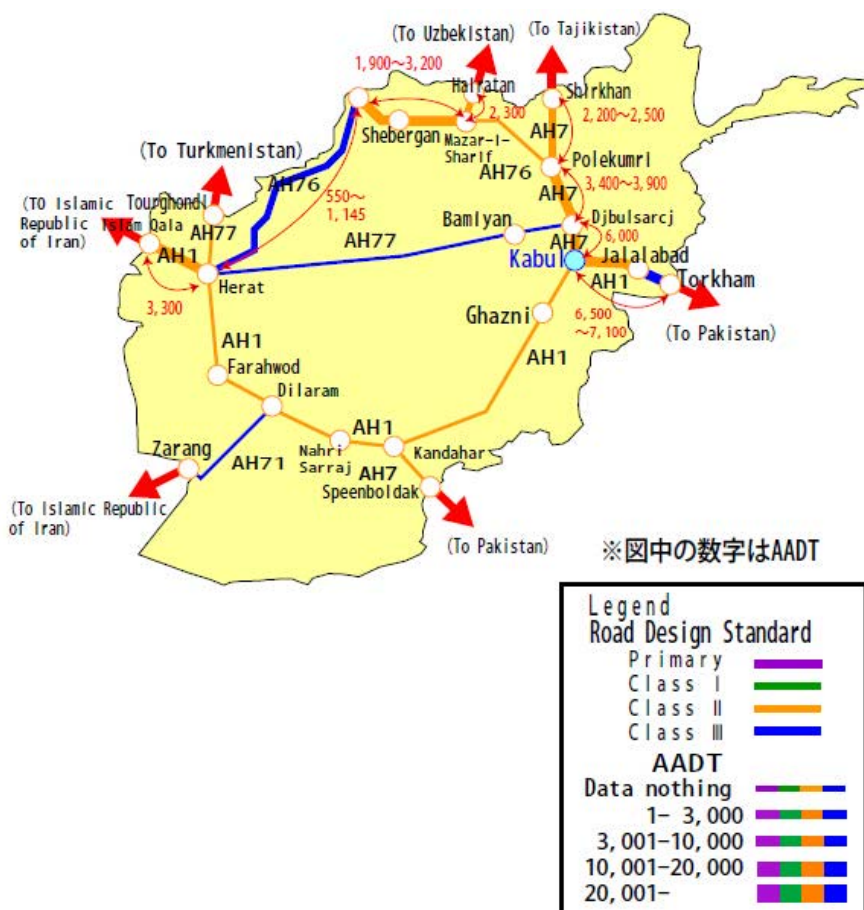
Source : Asian Highway Database 2009, UN ESCAP

2) Present Asian Highway Network in Afghanistan

In Afghanistan, there are A.H roads with various classes from class II to III and the lower class of III that are explained as follows,

- The road section of A.H.1 connecting between Torkham and Jalalabad with class III is identified as one of the major trunk roads.
- There is also a major trunk road section on the same section of A.H.1 connecting between Jalalabad, Kabul, Kandahar, Dilaram, Herat and Islam Qala which was constructed with financial support by the U.S.A, EU and Japan.
- There are other major trunk road sections on A.H.7 in Afghanistan which are sections from the Tajikistan border to Sirkhan and from Sirkhan to Kabul and from Kandahar to Speenboldak (Pakistan border), which are all classified into II.
- There are some minor A.H. road sections in the country. A.H 77 (Class III) crosses the center of the country from east to west in the shortest distance.

There are also some roads branching from the Ring road which are A.H. 62 (Class II) connecting between Mazar-i-sharif and Hairatan ,Uzbekistan Border and A.H.77 (class II) connecting between Herat and Tourghondi, the Turkmenistan border.



Source: UNESCAP 2009, the quantity in the figure is AADT by CAREC

Figure 2.7 A.H. Road Network in Afghanistan

3) Issues

The road network in Afghanistan used to be assigned an important part of the Silk Road. Despite the long historical important assignment, the commencement of tarmac road construction was delayed compared to that of other neighboring countries. The construction of tarmac road was commenced in the late '60s with technical supports by the U.S.A. and Soviet Union. However, the construction of tarmac road had not been well progressed due to the unstable security condition, therefore, the length of tarmac roads are minimal among the 40,000km of total road length in Afghanistan, hence most of the network remains unpaved.

In Afghanistan, there are two (2) road categories of the highway which are “National Highway” connecting between international capitals and “Regional Highways” connecting between domestic capitals. In addition, there are other road categories namely “Provincial Roads” and “Rural Roads”. Those categories of road connect between regional centers that have been prioritized for construction. In parallel, the feeder road constructions are also promoted using various schemes of development partners so as to improve life standards in rural areas. Those road construction activities have been implemented with supports from various development partners such as the U.S.A., EU, Sweden, Italy, India, Pakistan, Iran, Japan, ADB and WB, however, the security issues have still largely affected such activities.

The Road operation and maintenance (O&M) is mandated on the Ministry of Public Works for National Roads and Provincial Roads, and the O&M for Rural Roads is on the Ministry of Rehabilitation and Rural Development for Rural Roads. However, both Ministries have been facing serious shortage of budget, human resources and machinery, which makes them almost un-operational. Despite the serious shortages, the Government of Afghanistan has recognized the importance of Road O&M so that the reconstruction of the Road Maintenance Division of MPW has been prioritized in compliance of the “Priority Reform and Restructure (PRR).

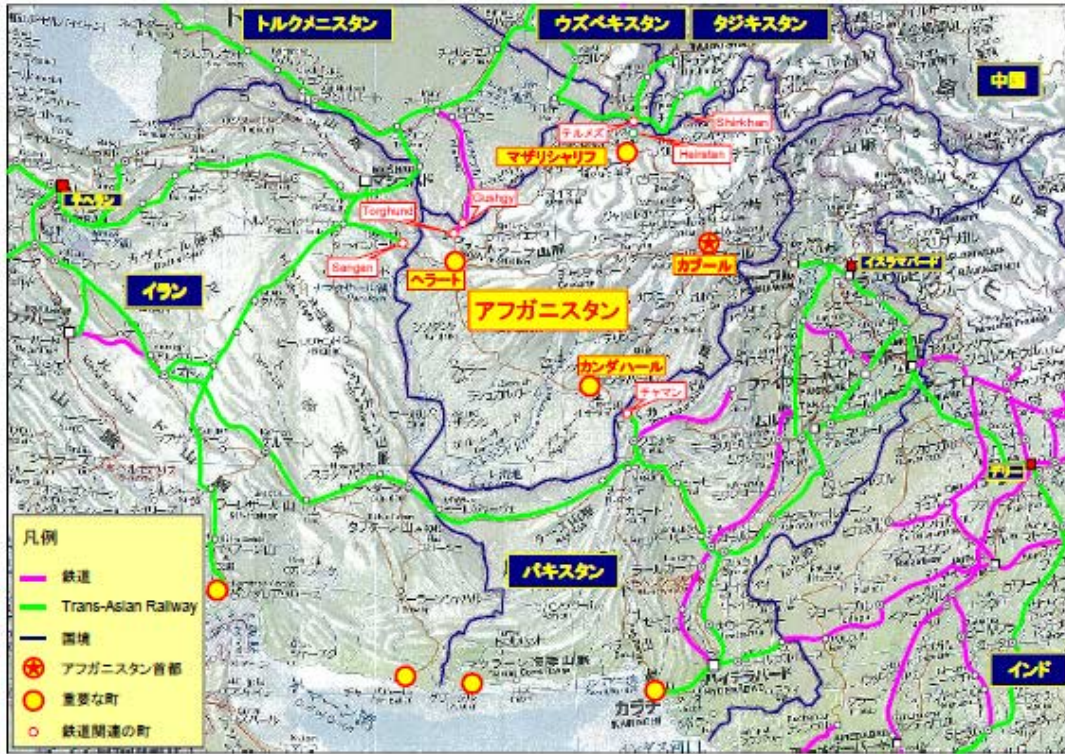
2.1.1.3 Present Situation and Issues on the Railway Sector

(1) Overview of the Railway Network and Transport

The total length of the railways in Afghanistan is approximately 25 Km. It consists of 2 lines, 10 Km from the Turkmenistani border to the freight transshipment facility in Torghandi, 15 Km from the Uzbekistani border to the freight transshipment facility in Hairatan. The first railway line in Afghanistan, 7 Km in length, was operated in 1928 in Kabul city. It was a tram track by English steam locomotive. It is not used at present.

Department of the Railway Lines is under the supervision of the Ministry of Public Works, which has 14 employees under the director, and is the agency responsible for railway operation in Afghanistan. However, its operation and management are not conducted by the Department of Railway Lines; it is conducted by accessing neighboring countries' railway agencies, Turkmenistan Railways for the route from Turkmenistan, and Uzbekistan Railways for the route from Uzbekistan.

Once in the former Soviet Union era, the railway network was constructed in the gauge of 1,520mm the same as the former Soviet Union. There are no locomotives or wagons possessed by the Department of Railway Line, all of those are from neighboring countries.



Legend: — Railway — Border ⊗ Capital Kabul

Figure 2.8 Railway Network in and around Afghanistan



A Freight Transshipment Facility in Torghandi (Railways of Afghanistan)



Railway Bridge on the Border of Uzbekistan (Ministry of Public Works)



A Freight Transshipment Facility in Hairatan (Ministry of Public Works Afghanistan)

In neighboring countries of Afghanistan, the following 4 railway lines are disconnected near the Afghan border.

- 1) up to Sangan in Iran, approx. 81 Km from the border
- 2) up to Kolkhozobod in Tajikistan, approx. 56 Km from the border
- 3) up to Landi Kotal in Pakistan, approx. 6 Km from the border
- 4) up to Chaman in Pakistan, approx. 4 Km from the border

Only around 20 to 25 wagons of freight per week are operated on two lines from Turkmenistan, and 30 wagons of freight per day from Uzbekistan. The most of the freight are imported goods, export goods amount only to 10 percent of freight traffic. The tonnage of import goods from Uzbekistan is approximately 4,000 tons per month; it has almost reached the capacity of the freight transshipment facility. Freight traffic tonnage is expected to increase up to 25,000 to 40,000 tons in five years; the expansion of the transshipment facility will be required in the future.

2.1.1.4 Present Situation and Issues on Transport Infrastructure (Summary)

The transport infrastructure in Afghanistan used to be assigned to an important part of the Silk Road; however, most of the road part is still unpaved. Meanwhile, domestic railways access lines from the neighbouring countries; their operation and maintenance are managed by each country.

The original domestic railways such as the Mazar-i-sharif ~ Kabul ~ Kandahar ~ Herat route is under planning but due to the security problem the same as the road mode, development of both modes is still very complicated.

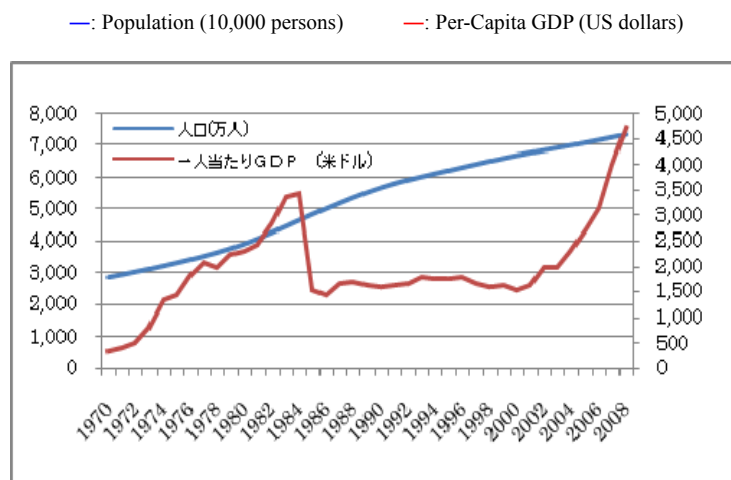
Budget, manpower and equipment are all insufficient in the road sector; road development must be expanded little by little. Unit cost for railway development is fairly high; it is also difficult to develop the railway lines unless a large sum of assistance is supported by donors.

2.1.2 Current Status and Issues of Iran

2.1.2.1 Current Status and Issues of the Industry and the Economy

Figure 2.9 shows the changes in the population in Iran. The population as of 2008 was 73 million or about 2.5 times that in 1970. Dollar-nominated per capita GDP had been increasing from 1970s but dropped to 1,500 dollars in 1985 during the 2nd Iran-Iraqi war, and remained low up to the beginning of this century. It increased rapidly recently and reached 5,000 dollars in 2008.

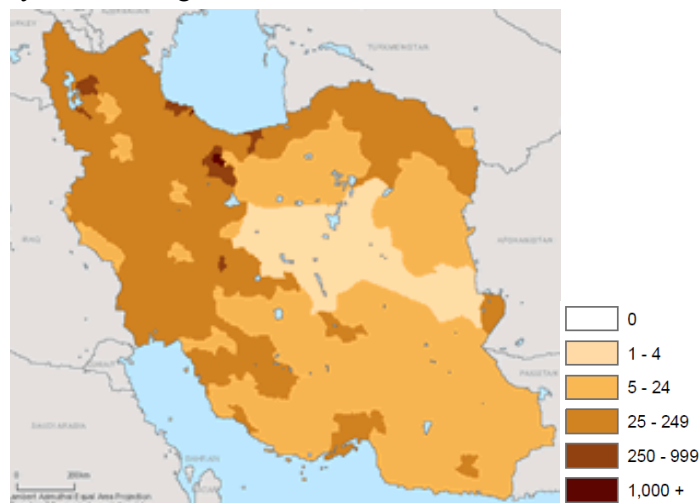
The rapid increase in the per capita GDP is due to the soaring prices of crude oil which is a great foundation of the economy as the 2nd largest oil producing country in OPEC.



Source: United Nations Statistics Division

Figure 2.9 Population and Per-Capita GDP
(left axis: population, right axis: Per-Capita GDP in Iran)

The population density in Iran is high in the northwest and low in the center and Balochistan.



Source: Columbia University, Socioeconomic Data and Application Center

Figure 2.10 Population Distribution in Iran (Unit: persons/km²)

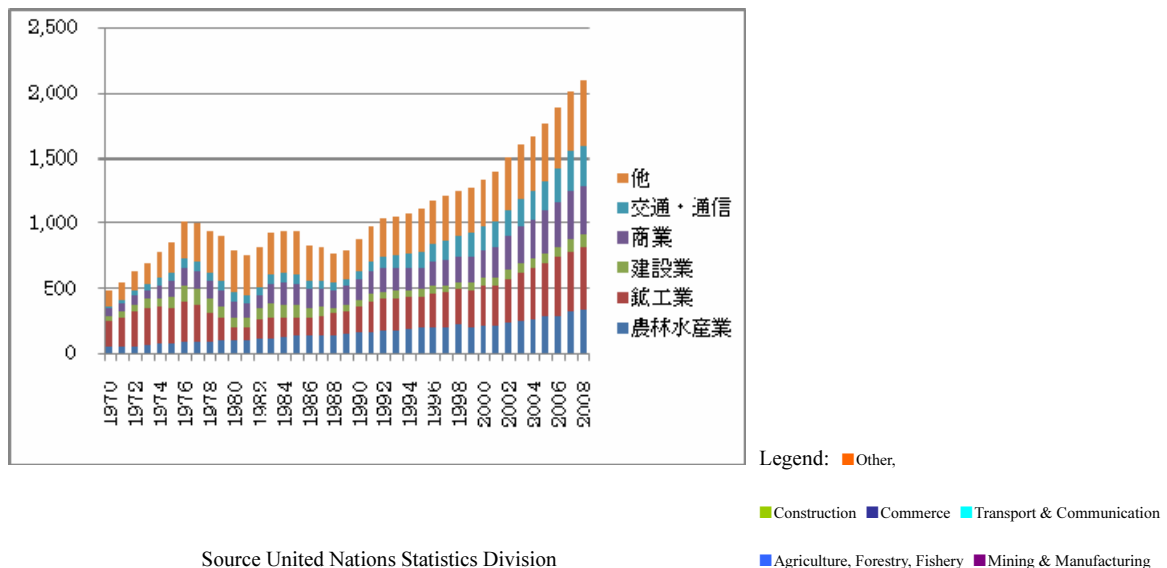
Figure 2.11 shows the industrial shares of GDP in 1990 prices denominated by the local currency according to the statistics of the United Nations¹⁰. Iran's economy depends on mining and industry represented by oil and agriculture, forestry and fisheries. The mining and manufacturing was about 40% of the total in the first half of the 1970s. Due to growth of other sectors and diversification of the economy, the share of mining and manufacturing remains as low as 20%.

The United States has been continuing economic sanctions on Iran since its Islamic Revolution in 1979. The Government of Iran has pursued escape from the heavy dependence on oil and has been diversifying to other industries such as manufacture of cars and service industry such as tourism.

The policy to provide a full industrial structure means self-sufficiency in various items in the country due to the economic sanction, and is greatly disadvantageous in terms of division of labor by trade and introduction of overseas technologies.

The Iranian economy adopted extensive subsidy for foods, gasoline and other necessities of people's lives and the country controls trade, mining, banking, insurance, power generation, electricity and telecommunications, and all transportation sectors including airline, marine transportation, roads, railways, and others. The economy is thus highly controlled by the state.

The economy in Iran stagnated during the Islamic Revolution in 1979 and during the Iran-Iraqi war between 1980 and 1988 but it has been growing ever since.



Source United Nations Statistics Division

Figure 2.11 GDP of Iran and Its Breakdown (Prices in 1990. Unit: 100 million rial)

¹⁰ National Accounts Main Aggregates database

2.1.2.2 Present Conditions and Issues on Road Transport

1) Present Conditions of International Trunk Road Network in Iran

In Iran, there are some international trunk road sections connecting with the borders of Afghanistan, Armenia, Azerbaijan, Pakistan, and Turkmenistan and the major ports such as Bandar Abbās, Abadan and Chahbahar. The road network of Iran is relatively much more developed compared to that of other researched countries. Major cities in the country are connected with a tarmac road network and the length of the entire road network; road density (road lengths per square kilometer), pavement ratio and expressway ratio were recorded as 172,927km, 0.10, 72.8% and 0.49% respectively as of year 2006 according to the World Road Statistics 2008, IRF.

Currently, the country focus is on strengthening of international connections with neighboring countries and the south-north road corridor plan connecting between the country and Russia, Azerbaijan, and Kerman /Zahedan on A.H.2 is underway.

Terrain in Iran is generally classified into two types of areas which are hilly and desert, and those can typically be seen north of the Elburz Mountains and on the coasts of Caspian Sea as hilly areas, and south of the Elburz Mountains as desert areas.

Table 2.3 International Trunk Roads in Iran

Route No.	Itinerary	Length (km)	Selection Criteria
AH1	Dogharun (border of Afghanistan) – Mashhad – Sabzevar – Damghan – Semnan – Tehran – Qazvin – Tabriz – Iveoqlu – Bazargan (border of Turkey)	2,103	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between Cargo Terminals
AH2	Mirjaveh (border of Pakistan) – Zahedan – Kerman – Anar – Yazd – Qom – Tehran – Saveh – Hamadan – Khosravi (border of Iraq)	2,269	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between Cargo Terminals
AH8	Astara (border of Azarbaijan) – Rasht – Qazvin	357	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between Major Ports *Connection between Cargo Terminals
	Saveh – Arak – Khorramabad – Ahvaz – BandarEmam	785	*Connection between Industrial/Agricultural Centers *Connection between Major Ports *Connection between Cargo Terminals
AH70	Inche Boroun (Turkmenistan) – Gorgan – Sari – Semnan	420	*Connection between Industrial/Agricultural Centers *Connection between Major Ports
	Damghan – Yazd	455	*Connection between Cargo Terminals
	Anar – Bandar Abbas	515	
AH71	Milak – Zabol – Dashtak	162	*Connection between Industrial/Agricultural Centers
AH72	Tehran – Qom – Esfahan – Shiraz – Bushehr	1,156	*Connection between Industrial/Agricultural Centers *Connection between Major Ports
AH75	Sarakhs (border of Turkmenistan) – Mashhad – Gonbad – Birjand – Dashtak – Zahedan – Iranshahr – Chabahar	1,751	*Connection between Industrial/Agricultural Centers *Connection between Major Ports *Connection between Cargo Terminals
AH78	Bajgiram (border of Turkmenistan) – Quchan – Sabzevar – Deyhuk – Kerman	1,033	*Connection between Industrial/Agricultural Centers
AH81	Border of Azerbaijan – Jolfa	1	*Connection between Industrial/Agricultural Centers
AH82	Nour Douz (border of Armenia) – Jolfa – Eyvoghli	146	*Connection between Industrial/Agricultural Centers
Total (9 Routes)		11,153	

Source : Asian Highway Database 2009, UN ESCAP

2) Present Asian Highway Network in Iran

The road conditions are relatively good compared to those of other researched countries. The road classes in the network are mainly classified in the Primary and Class I in around the capital Tehran area, and Class III in rural areas that are explained as follows,

- The road section between Tehran, Qom, Kashan and Naeen, the section between Tehran and Saveh (A.H.2), and the section between Tehran, Qazvin, Zanjan and Bostanabad (A.H.1) are all expressways and classified as Primary Class.
- The road section between Tehran and Dogharun, the Afghanistan border (A.H.1) is classified as either I or II.
- The most of road section between Kashan and Anar (A.H.2) is classified as I and the section between Anar and Mirjaveh, Pakistan border is classified as II.
- Other A.H. road sections in rural area are mainly classified as II such as the A.H. 75 and 78 passing the eastern side of country (Afghanistan side).

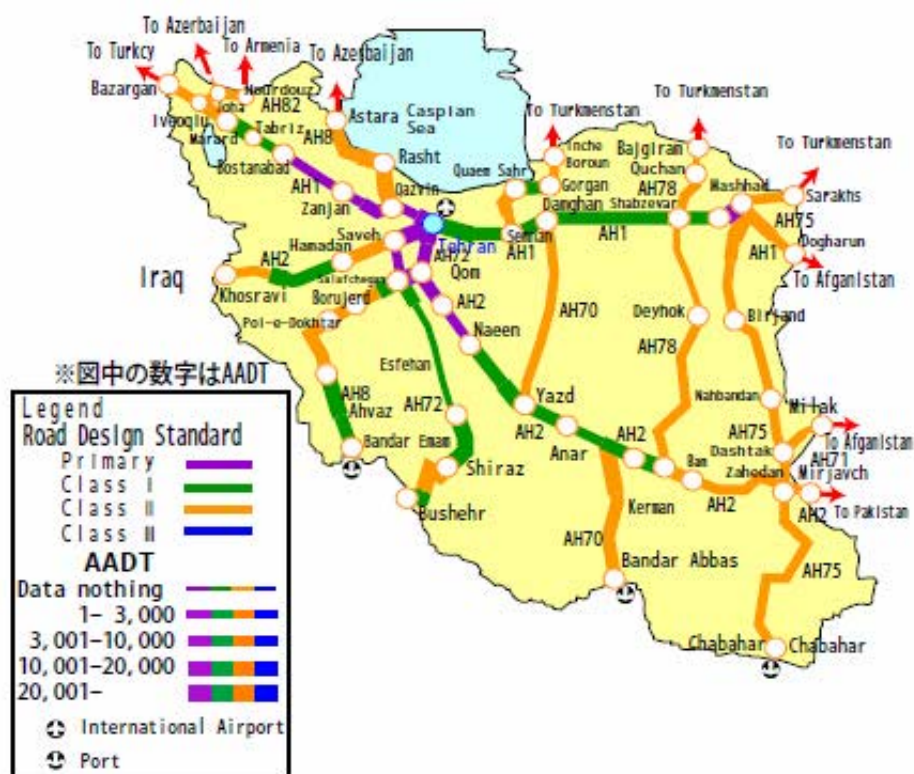


Figure 2.12 A.H. Road Network in Iran (UNESCAP 2009)

3) Issues

In spite of good development on the railway network, the cargo traffic is still highly dependent on the road network and therefore, major trunk road sections have become expressways with multiple carriageways. However, most of the trunk road sections still have a single carriageway that makes transport efficiency lower. Moreover, since such single carriageway road sections are not maintained properly, the major issue on the road network in Iran is insufficient road O&M.

The road O&M is mandated on the Road Maintenance and Transport Organization, and the Organization has approximately 1,800 employees. The organization deals with general road O&M, policy making, and road network development plans. The Organization issues the operation permits for international and domestic transport to private logistic companies..

2.1.2.3 Present Situation and Issues on Railway Sector

The government of Iran recognizes the importance of development of the railway system due to its contribution to socio-economic prosperity, topographic location of the country as the important east-west intersection on the silk-road, and the opportunity of development of the strategic cross border corridor between CIS countries after the collapse of the former Soviet Union. In 2007, there were 8,702 Km of highly developed railway network in Iran, furthermore, the same scaled extension program is under planning.

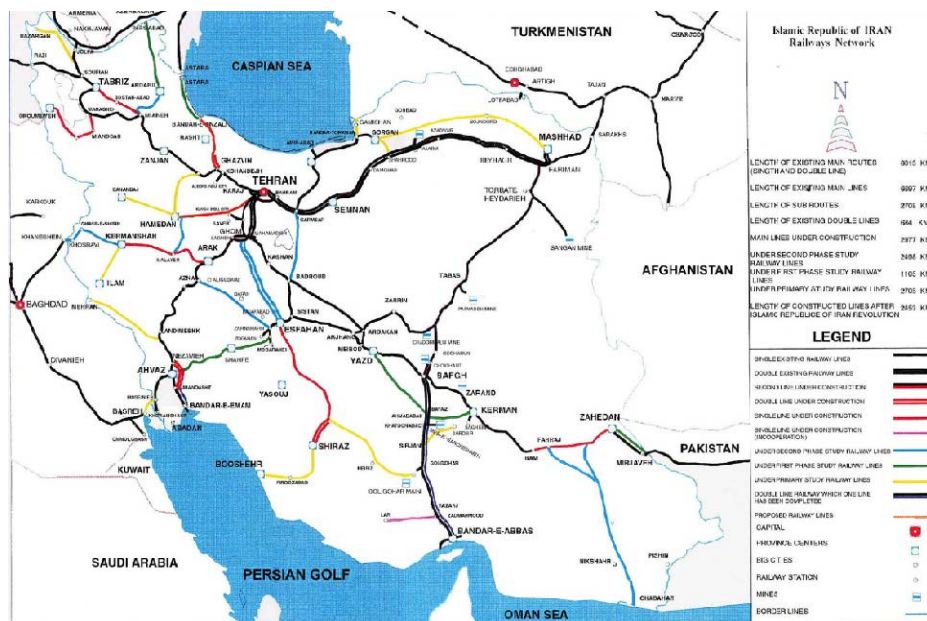


Figure 2.13 Railway Network in Iran

Source; Iran Railways Facts & Figures 2007

Present railway network in Iran expands into Bandar Khomeini Port, Bandar Khorramshar Port, Bandar Abbas Port in the south, the Black Sea's southern coastal region of Amirabad, Bandar Torkaman in the north, the Turkmenistani border of Sarakhs in the north-east, the Azerbaijani border of Jolfa and Razi in the north-east, and the Pakistani border of Zahedan in the east.

The government of Iran has commenced the construction of two railway lines, the northern part of Amir - Abbad which is an important section on Mashhad - Sarakhs route linking Asia and Europe, and Kerman - Zahedan which is a part of the Trans Asian railways that connect to the Middle East and Europe through the Mirjaveh - Quetta route. Iranian railways are connected to the neighboring countries through the following routes;

- At Razi border to the Middle-East and the European railways via the Turkish railway
- Jolfa border to the rail network of the newly independent republics and Russia via the Azerbaijan railway
- At Sarakhs border to the Central Asian rail network via the Turkmenistan railway
- At Mirjaveh border (Taftan) to Pakistan

The most recent condition of operation and feasibilities of Iran Railways are shown in the Table 2.4.

Table 2.4 Condition of Operation and Feasibilities of Iran Railways

operation				
Description	unit	2006	2007	Changes
Tonnage	1000	32978	30995	-6.01%
Ton-kilometer	million	20542	20229	-1.52%
Loaded wagons	-	554881	513961	-7.37%
passenger	1000	21346	24459	14.58%
passenger-kilometer	million	12549	13900	10.77%
Diesel fuel consumption	1000 litre	303699	304684	0.32%
Traffic unit (ton-Km. +passenger-Km.)	million	33091	34129	3.14%
Train movement	1000	45129	46286	2.56%
Gross train tonn-Km.	million	49099	49958	1.75%
Transit tonnage	1000	1546	1541	-0.32%
Feasibilities				
Personnel	person	12807	12704	-0.80%
Total number of locomotives	unit	636	631	-0.79%
In service locomotive	unit	350	403	15.14%
Total number of wagons	unit	21406	21633	1.06%
In service wagons	unit	19800	20375	2.90%
Total number of Coaches	unit	1323	1344	1.59%
In service Coaches	unit	967	1005	3.93%
Main Line	km	8565	8702	1.60%

Source; Iran Railways Facts & Figures 2007

The railway in Iran, 7,888 Km in length, is a national railway managed by the Islamic Republic of Iran Railways consisting of 12,704 employees. It has been partly privatized since 1996. Passenger transportation is operated by RAJA Passenger Trains Co., and freight transportation is operated by the Railway Transportation Co., a subsidiary of the Islamic Republic of Iran Railways. A total of 1,559 Km of railways are double-tracked; e.g., Tehran to Mashad, Tehran to Qom etc., 148 Km of railways are electrified, Tabriz to Jolfa. There are 14 regional management units. The government of Iran is positively enhancing the railway network. A total of 2,438 Km of route have been newly constructed or double-tracked in the 10 years since 1998.

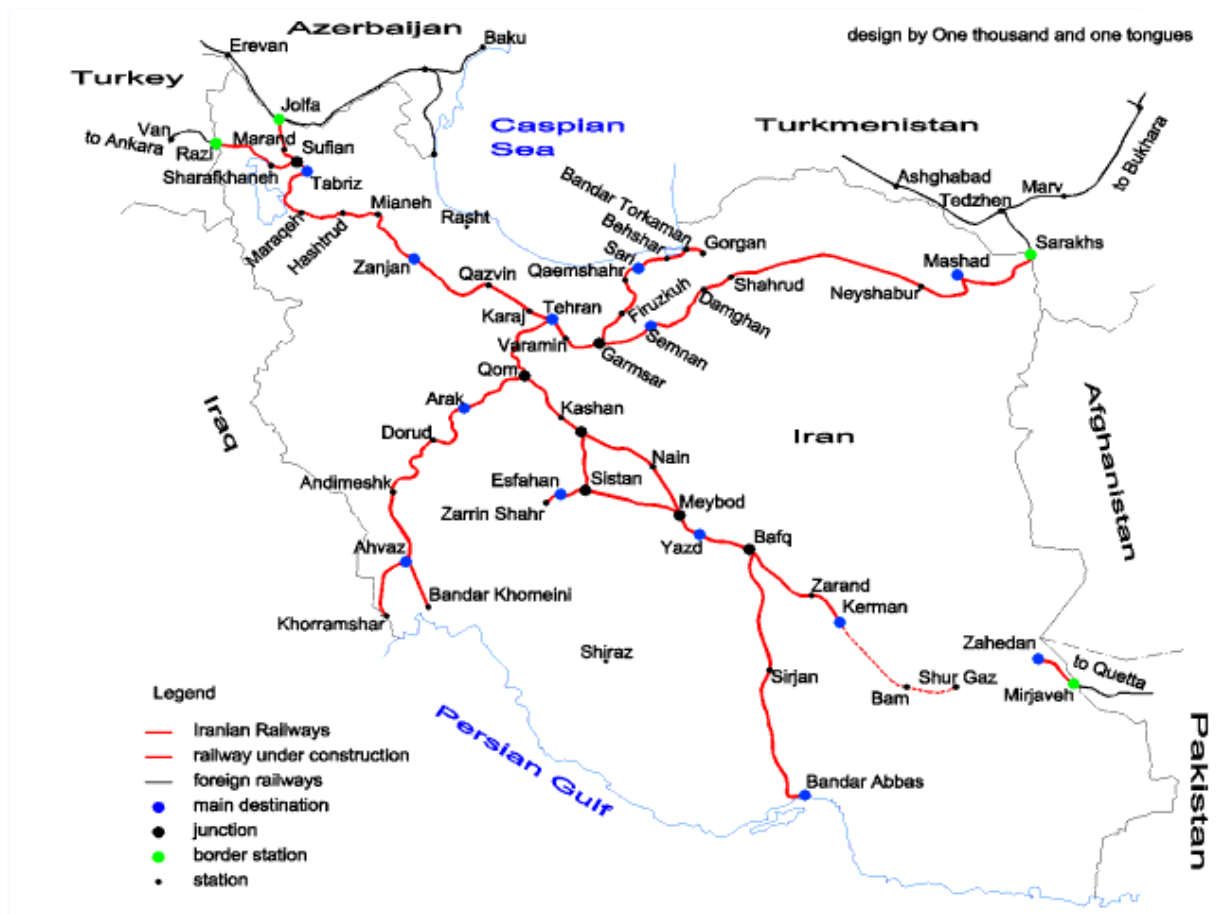


Figure 2.14 Railway Route Map of Islamic Republic of Iran Railways

Source; Islamic Republic of Iran Railways

Photographs (2007)



Tehran Railway Station



SIEMENS' diesel car introduced in 2005



Mashad- Bafq section completed in 2004 Bogie Exchange Terminal at Turkmenistani border

Source; Islamic Republic of Iran Railways

Railway Facilities

- Line length: 8,702 km
- Number of locomotives: 371
- Number of coaches: 1,193
- Number of wagons: 21,633
- Number of stations: 456

Railway Transport in 2007

- Passengers: 24,459,000
- Passenger-Km: 13,900 million
- Tonnage: 30,995,000 tons
- Ton-Km: 20,229 million

Railway lines listed on the Trans Asia Railway are shown in Figure 2.15. Standard gauge of 1,435 mm is adopted in Iran except for the Pakistani extension section of 92 Km from the border to Zahedan. The line between Kerman and Zahedan, shown as under construction in the figure, was opened on the 14th of August 2009. It takes 15 days by rail from Islamabad to Istanbul, which is one third of the 45 days by ship from Karachi to Istanbul.

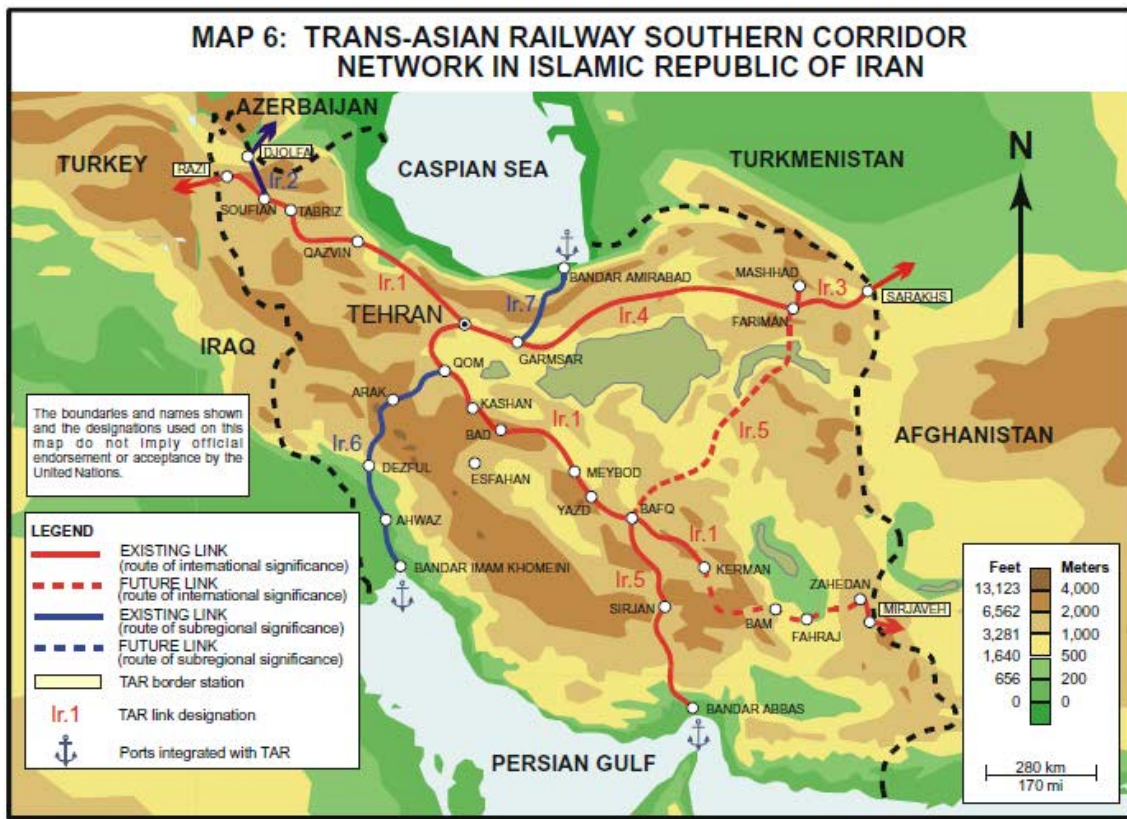


Figure 2.15 Railway Network in Iran, a Part of the Southern Corridor of Trans Asian Railway

Source: UNESCAP

2.1.2.4 Current Situation and Issues of Ports and Shipping

The organization of the central government that directly administers ports in Iran is the Ports and Maritime Organization (hereafter PMO) in the Ministry of Roads and Transport. The history of PMO started in 1928 when the central government established the General Directorate of Ports, recognizing the significance of administrating Khorramshahr port along with the opening of the expressway between Tehran and Khorramshahr. Anzali port in Northern Iran which borders the Caspian Sea had been returned from the Russian government in the previous year. After several organizational revisions, PMO was organized in 1974 under the control of the Ministry of Roads and Transport. Currently, a total of 11 ports, 9 ports along the 2,440km of Persian Gulf (including 3 ports on isolated islands) and 2 ports along the 740km of the Caspian Sea are under the management and operation of PMO. Organization chart of PMO is shown below.

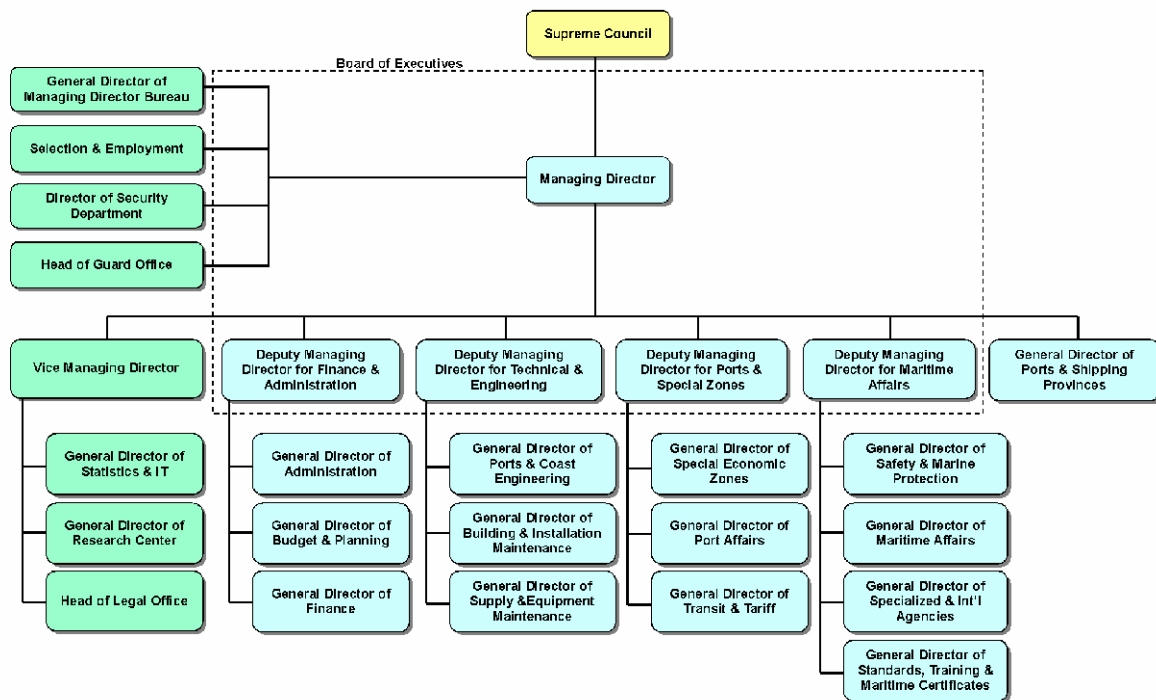


Figure 2.16 Organization Chart of PMO

(1) Port Policy

The total volume of general freight in all of Iran's ports has increased from 15.3 million tons/year (2000) to 42.5 million tons/year (2008) with an average growth rate of 13.6%/year, and the containerization rate has also rapidly increased from 27.4% (2000) to 54.9% (2008). The average increase rate of the volume of container goods in these 8 years was 23.9%/year, which was a miraculous growth.

Thus, the development of logistics activities and containerization are not exceptional on an international scale for Iran, which has been under sanctions by the international society. Therefore, PMO, which has aspired to administer ports directly for a long time, is getting eager to respond to internationalization by planning an extended development of SEZ (Special Economic Zone) which is based on the premise of drawing foreign direct investment at 5 ports under the control of PMO, as well as starting the preparation to open a part of the administration of the port facilities including container terminals to private capital in or outside the country.

In addition, Iran, which has thrived a long time as a traffic route from Asian countries to Europe, historically recognizes the importance of connecting maritime and land routes and is taking a positive attitude toward the conclusion of the international agreements concerned. In September 2000, Iran signed an agreement concerning the South-North corridor of international transport with the ministers of transport of Russia and India in St. Petersburg.

This agreement attempts to further the development of a logistics corridor starting by sea from Mumbai port to Bandar Abbas and Chabahar ports (or via Dubai) where they unload, then through the inland of Iran, Central Asia, CIS countries and to Northern Europe.

(2) Issues of the current situation

From the view point of Iran's national benefit, ports have logistics functions that support the national economy and people's livelihoods, therefore, reasonable, fast, and safe transport of goods is expected. At the same time, ports in Iran have been far from being effective, and the decision that suggested introducing private capital into the administration and operation of each terminal has been willingly accepted.

However, Iran, which has been restricting active interaction with western countries for a long time and directly administering ports by the central government, has not obtained the human resources and know-how required for the modernization of port administration. Active development is also necessary from now on by inviting influential operators from abroad, and so on.

It is important to maintain a treatment system which stands comparison with private port operators as well as attempting quality improvement of the personnel through training and so on even in the political areas where the government remains its direct administration in the policy.

Current facilities are getting significantly older, and it is necessary to establish a sustainable system for operation and development and to renew the facilities. Application of the asset management method which has been introduced widely in advanced countries is considered for these issues. The attrition of freight-handling equipment is remarkable; therefore, detailed responses must be required to address individual matters such as training of repair engineers for the activation of Iran's port function.

2.1.2.5 Present Situation and Issues on Transport Infrastructure (Summary)

The railway network in Iran is quite well developed in comparison with other surrounding countries but due to the low ratio of electrification, most of the freight distribution depends on road transportation. Recently, because of the increase of freight volume, a full-scale electrification and a rapid speed plan was considered last year after 30 years of stagnation. This accelerates the railway mode to take over the freight distribution by road mode, transported through the very poor road ways, except some for particular routes. It also accelerates the operation and maintenance in the road mode.

The three major ports, Bandar Imam Khomeini, Bandar Abbas and Chabahar, are all connected with the road mode; however, the railway mode is not connected at Chabahar port. Therefore, the connection with the railway mode at the port becomes an essential issue together with the development of the port itself. Also, the port facility should be actively improved using overseas technology because the limited exchange with the European countries made the port function less effectively.

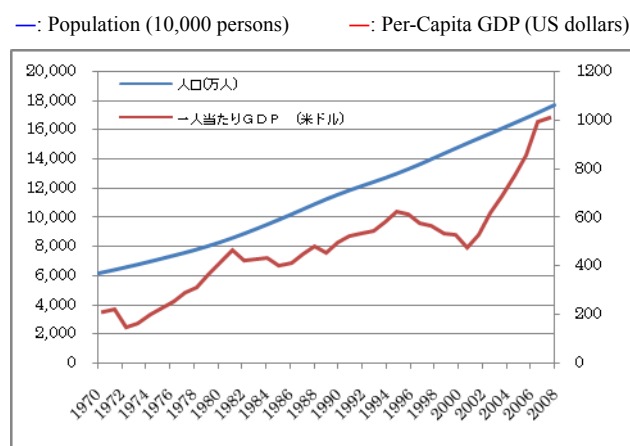
2.1.3 Current Status and Issues in Pakistan

2.1.3.1 Current Status and Issues in the Industry and the Economy

Figure 2.17 shows the changes in the population and per capita GDP in Pakistan. The population in Pakistan has been increasing year by year from 1970 and it tripled to 180 million in 2008, growing annually at 2.1%. The increase in and after 2003 includes natural increase plus immigrants from Afghanistan.

According to the State of World Population 2008 issued by the United Nations Population Fund, the population in Pakistan will be 350 million by 2050, ahead of Indonesia which will have about 290 million people as of 2050, and expected to be the 4th superpower in terms of population following India, China and the United States.

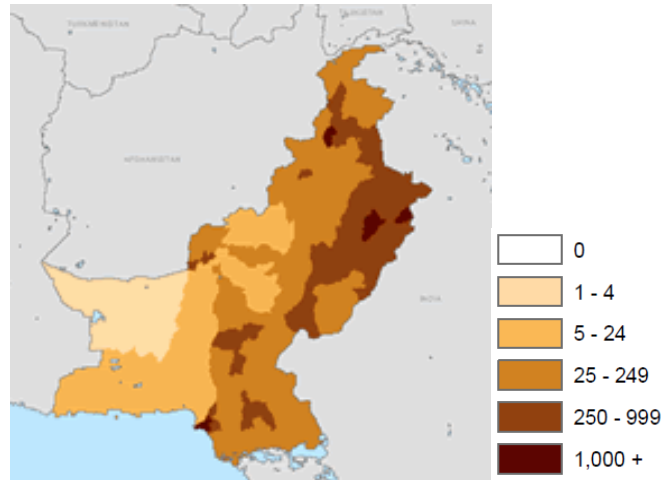
Despite the rapid growth in population, the dollar denominated per capita GDP (current price) continued to grow from 1970, with some decline in and after 1997, and rebounded in and after 2001. The per capita income of about 500 dollars in 2001 jumped to 1,000 dollars or twice as much in 2007.



Source: United Nations Statistics Division

**Figure 2.17 Population and Per-Capita GDP in Pakistan
(left axis: population, right axis: Per-Capita GDP)**

Figure 2.18 shows the geographical distribution of population density in Pakistan. The population of Pakistan is concentrated along the Indus, particularly in the Punjab region. On the contrary, the population density in the Balochistan region to the west is quite thin.

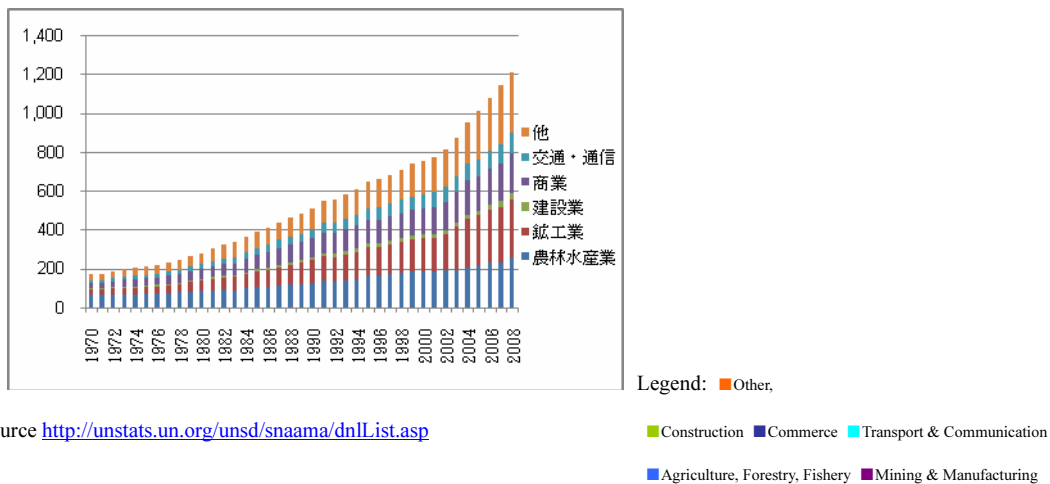


Source: Columbia University Socioeconomic Data and Application Center

Figure 2.18 Population Distribution in Pakistan (Unit: persons/km²)

Figure 2.19 shows the changes in shares of industries in terms of local currency denominated GDP based on the prices in 1990 according to the United Nations statistics¹¹.

Each industry has grown in a balanced way, but the mining and manufacturing grew the fastest of all industries. In the 1970s, agriculture, forestry and fisheries had large share but mining and manufacturing has had the largest share since 2003 due to industrialization.



Source <http://unstats.un.org/unsd/snaama/dnflist.asp>

Figure 2.19 GDP and the Breakdown in Pakistan (1990 prices. Unit: 100 million Pakistan rupees)

The uneven distribution of the population affects the patterns of flow of people and goods.

¹¹ National Accounts Main Aggregates Database

2.1.3.2 Present Conditions and Issues on Road Transport in Pakistan

1) Present Conditions of International Trunk Road Network in Pakistan

Pakistan is located between land locked countries such as CIS countries and the Arabian Sea, and also between the two major countries in the region namely Iran and India, the role of road transportation is very important since Pakistan plays the part of the gateway of freight cargo to the land locked countries. In addition, the country plays the part of the relay point for traffic between Iran and India.

Pakistan has a large waterway, namely the Indus River, which runs north to south in the country and the agriculture and industries have been developed along that river. Because of the developments, the transport modes such as railways and roads have been constructed along the river which also has played an important role of in domestic transport. There is, however, a fact of the poor maintenance condition and low reliability of the railway system; the transport of agricultural products such as wheat, rice, cotton and sugarcane has been highly dependent on the road transport mode.

As for the recent trend of A.H. in Pakistan, the road section between Lahore and Islamabad was proposed to be A.H. 1 by Pakistan because the upgrading of the road section to the highway has been completed, and it was approved by the A.H. experts committee in May, 2002. At the same time, the numbering of A.H. routes in the country was reviewed in the committee as well.

Table 2.5 International Trunk Roads in Pakistan

Route No.	Itinerary	Length(km)	Selection Criteria
AH1	Wahgah (border of India) – Lahore – Rawalpindi – Islamabad – Hassanabdal – Peshawar – Torkham (border of Afghanistan)	607	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between Cargo Terminals
AH2	Lahore – Multan – Rohri – Quetta – Taftan (border of Iran)	1,828	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between Cargo Terminals
AH4	Khunjerab(border of China) – (Karakoram Highway) – Gilgit – Hassanabdal	806	*Connection between Industrial/Agricultural Centers
	Rohri – Hyderabad – Karachi	483	*Connection between Industrial/Agricultural Centers *Connection between major Ports *Connection between Cargo Terminals
AH7	Chaman (border of Afganistan) – Quetta – Karachi	816	*Connection between Industrial/Agricultural Centers *Connection between major Ports *Connection between Cargo Terminals
AH51	Peshawar – Dera Ismail Khan – Quetta	837	*Connection between Industrial/Agricultural Centers
Total (5Routes)		5,377	

Source : Asian Highway Database 2009, UN ESCAP

2) Present Asian Highway Network in Pakistan

In Pakistan, there are A.H road sections with various classes from the Primary level to Class III that are explained as follows,

- The road section between Lahore and Islamabad on A.H.1, which is motorway, is classified as Primary level and the section between Lahore and Karachi on A.H.2 is classified as Class I.
- The road section between Peshawar and Quetta on A.H. 51 and the section between Quetta and Chaman, the Afghanistan border, and the section between Rohri~Quetta~Taftan with the exception of some short sections are all classified as Class III.
- The section of the Karakoram Highway in the north of the country is classified either Class II or III.

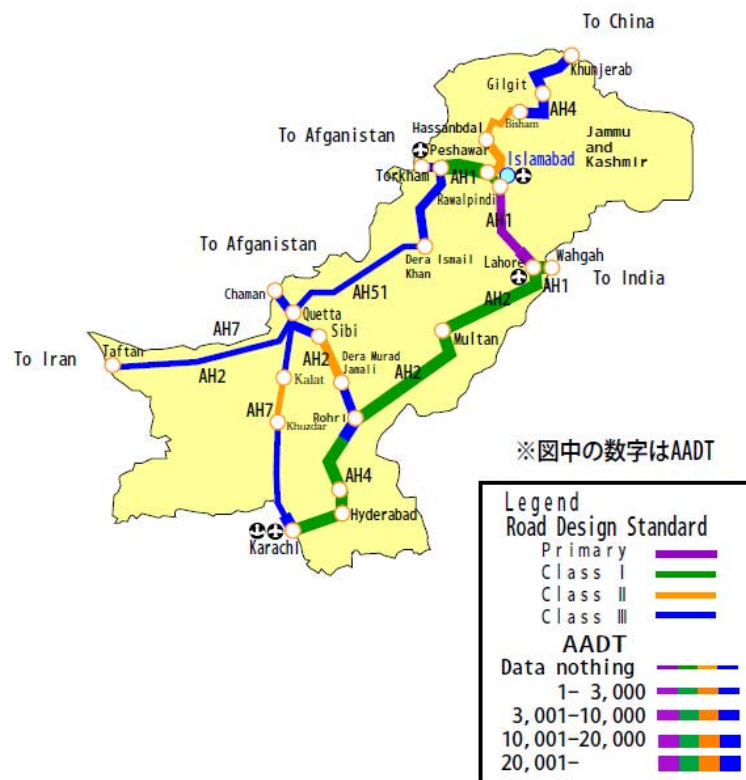


Figure 2.20 A.H. Road Network in Pakistan (UNESCAP 2009)

3) Issues

The road network in Pakistan is measured as 250,000km and it caters to 95% of domestic cargo and 90% of passenger traffic, and it has been identified as the most major and important transport mode in the country. Despite the importance, the road density remains only 0.25km/ km² while that of India and Sri Lanka are 0.49 km/km² and 0.48km/km² respectively, which can suggest the development level is still low in comparison.

As it is mentioned above, the road network has mainly been developed north and south along the Indus River in the country; therefore, there are still backlogs for the development of the road network connecting east and west. The road O&M is mandated on the NHA (National Highway Authority) that is under the jurisdiction of the Ministry of Communication. The NHA has a huge annual budget at approximately 40 billion Pakistani rupees and 40% of it is allocated for the road maintenance. However, the allocated budget for the maintenance is not sufficient since the pavement conditions in the road network are mostly poor.

As for financial arrangements of the road development/maintenance, the Road Maintenance Account was established in the year 2000, which has a positive impact on the road O&M. However, the maintenance budget can not meet the maintenance needs since the speed of deterioration of the pavement is much faster than expected.

NHA focuses on the road network development along Indus River and proceeds with the motorway construction that is also in accordance with the national strategy, namely the National Trade Corridor Improvement Program (NTCIP).

The road development/maintenance policies are established with focus on short term policy and it is being reviewed regularly. However, no long term policy has been established in the country yet.

2.1.3.3 Present Situation and Issues on Railway Sector

The total length of 7,791 Km of the Pakistani Railway is operated and managed by the Pakistan Railway under the supervision of the Ministry of Railways of the government of Pakistan. On most of those lines the 1,676 mm broad gauge is adopted, but there are some sections of narrow gauge (1,000 mm) called the meter gauge. A limited section is electrified (alternating current, 25,000 V) but mostly it is not electrified and diesel locomotives are operated. Top speed of the rapid train is 120 Km/h but schedule speed of the express between Lahore and Karachi is 85 Km/h, it takes about 14 hours for the 1,200 Km. International express is operated bound for both Iran and India. International express from Quetta, the city in the mid-southern Pakistan to Zahedan in Iran is operated once every two days.

The condition of the railway network in Pakistan is severely deteriorated due to lack of large scaled rehabilitations since its construction during the era of British colonization; also it has been inadequately maintained relative to its traffic demand. The financial situation is in deficit due to inefficiency of the management. Administrative reformation is urgently required. There are two international railway development plans connecting to Afghanistan; from Peshawar to Kabul via Khyber Pass, and from Quetta to Kandahar via Chaman.

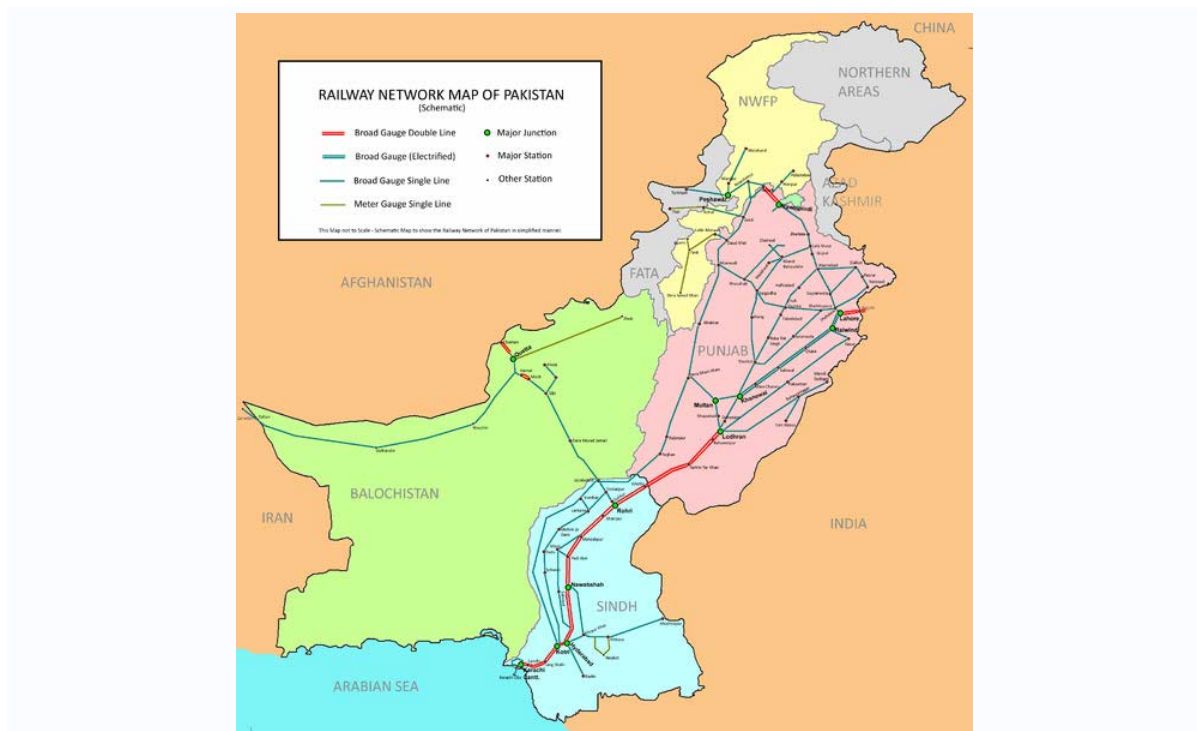


Figure 2.21 Railway Network in Pakistan



Double-tracked section



Karachi Railway Station

Railway Facilities (2007-2008)

- Line length: 7,791 Km
- Number of locomotives: 555
- Number of coaches: 1,868
- Number of wagons: 18,638
- Number of stations: 559

Operation Status (2007-2008)

- Operation of Passenger Trains in Number: 83,884
- Operation of Passenger Trains in Km: 33,413,000 Km
- Operation of Passenger Trains in Passenger- Km: 603,445,000
- Operation of Cargo Trains in Number: 18,181
- Operation of Cargo Trains in Km: 7,338,000 Km
- Operation of Cargo Trains in Ton- Km: 365,480,000

Railway Transport (2007-2008)

- Passenger: 79,984,000
- Passenger-Km: 24,730,726,000
- Tonnage: 7,234,000
- Ton-Km: 6,187,299,000

Management Indicator (2007-2008)

- Number of Staff: 86,669
- Revenue: 19,972,850,000 Rupee
- Expenditure: 21,889,768,000 Rupee

In Pakistan, there are five lines which are the part of southern corridor of the Trans Asian Railway proposed by UNESCAP; its gauges are all 1,676 mm.

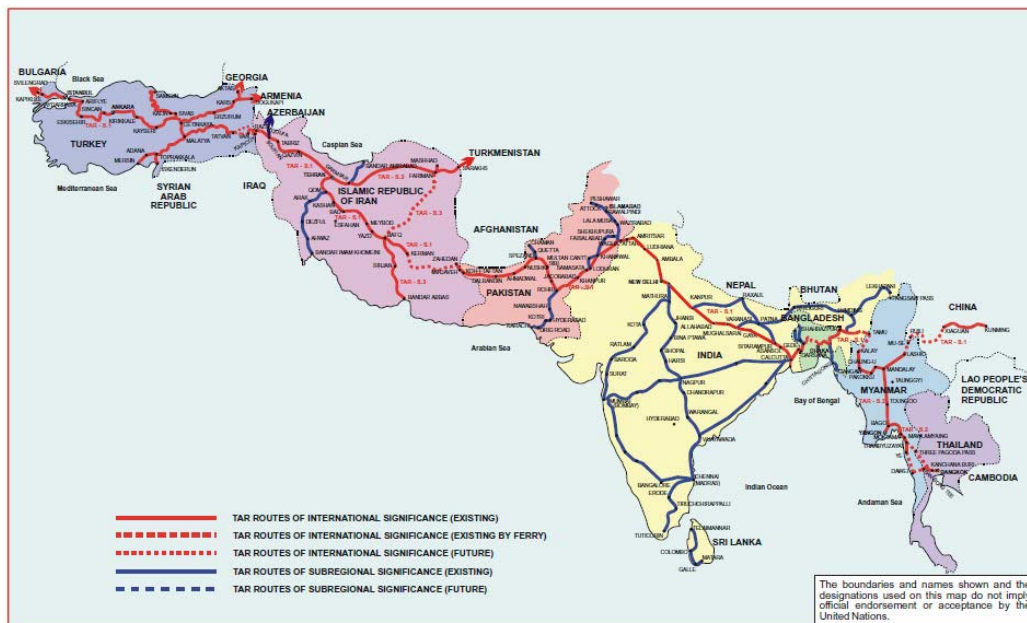


Figure 2.22 Route Map of the Southern Corridor of the Trans Asian Railway

Source; UNESCAP

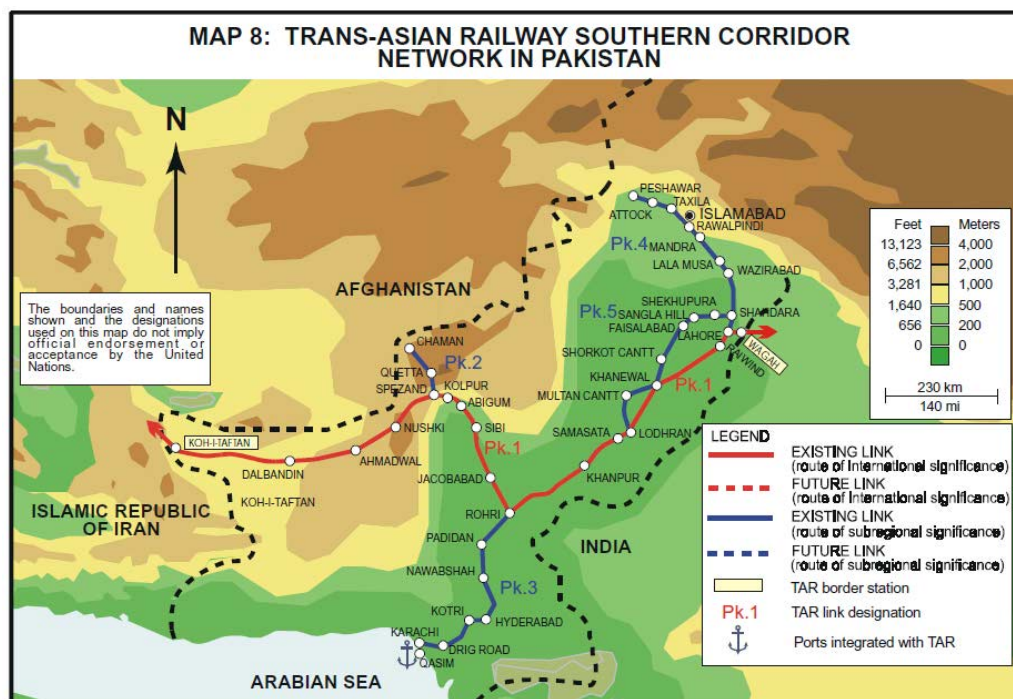


Figure 2.23 Railway Lines in Pakistan, Part of the Southern Corridor of the Trans Asian Railway

Source: UNESCAP

2.1.3.4 Current Situation and Issues of Ports and Shipping

(1) Port organization

The organization of the central government which controls the administration of Pakistan's ports is the Ministry of Ports & Shipping (hereafter MPS). The organizational chart of MPS is shown below. The Ministry controls matters ranging from the port development to administration and operation of the national shipping company, with seven major divisions which are shown in double brackets in the organizational chart at the center. There are 3 major ports, Karachi port, Qasim port, and Gwadar port along the length of 1,046km coastal line.

- **Karachi Port Trust (hereafter KPT)**

The port handles 38,730,000 tons (the record from 2008 to 2009) of freight annually, and is the biggest port in the country and handles about 60% of Pakistan's trade goods. It has 11km of passageway (the depth of water -12.2m), and allows the entry of tankers of nominal weight of 75,000 DWT.

In addition, two container terminals in the East Wharf and West Wharf are under operation with BOT base.

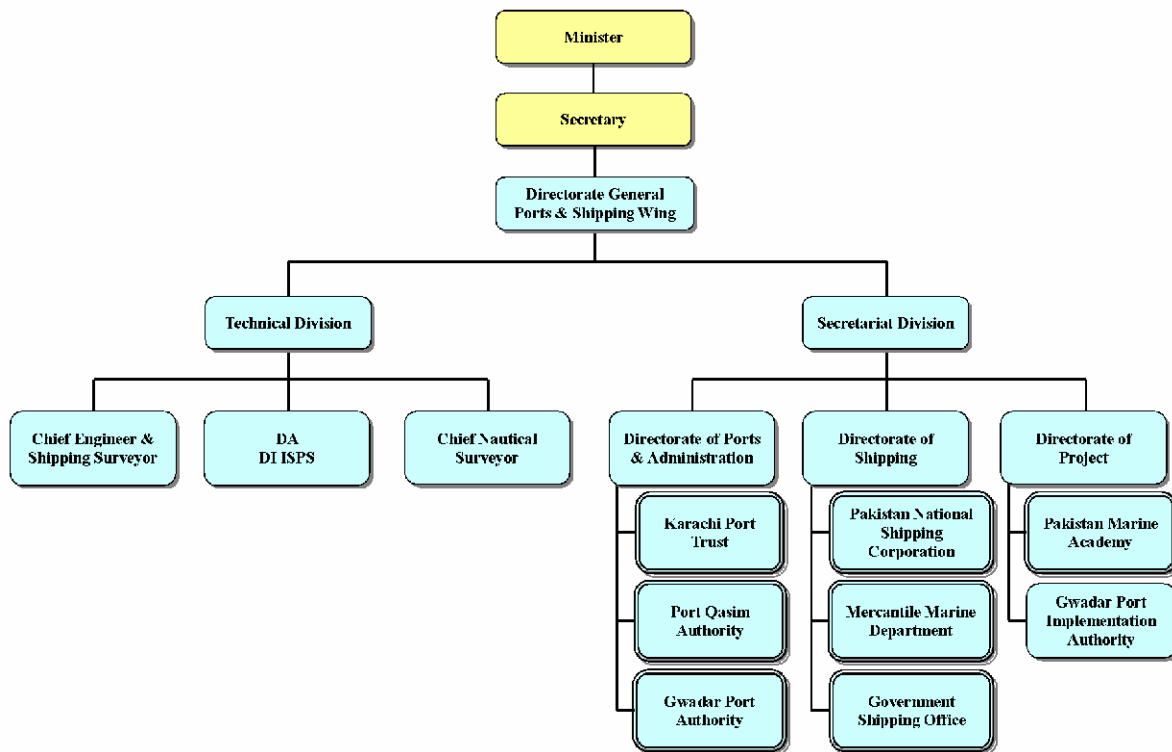


Figure 2.24 Organization Chart of MPS

● **Port Qasim Authority (hereafter PQA)**

Qasim port which is the second biggest port in the country is located 50km east-southeast of Karachi port, and has been growing since the 1980s as a supplier port which transport raw materials and fuels to steelmaking plants, generating facilities, and so on, which had been built in the spacious hinterlands more than in Karachi. Along with the development of neighboring industrial estates, more development has been carried out recently to make it a port which has a function to supply imported parts to advancing industries and also a function to import the products.

● **Gwadar Port Authority (hereafter GPA)**

The port was opened in 2007. The central government is promoting its development placing this port as a core of the development in Baluchistan which is near the border of Iran. This port has great strategic significance together with Iran's Chabahar port because it is not only the logistic starting point to inland areas on the north side of the Pakistan border such as from China to Afghanistan if further infrastructural development was carried out, but also it is located at the entrance of the Straits of Hormuz which is a front door to international oil export. Therefore, the Chinese government is actively continuing its support.

- Pakistan National Shipping Corporation (hereafter PNSC)

NSC (National Shipping Corporation) was merged with PSC (Pakistan Shipping Corporation) in 1979. This is currently a national shipping company and the government sponsors 89% of the capital of Rs. 2,000 million (paid-up capital Rs. 1,320 million). They operate their own 9 ships of 436,000 DWT, and have 18 shipping companies also under their control handling about 20% of the country's maritime freight transport. They allocate their own ships mainly to the west route which goes to Gulf Countries, Africa, and to Europe, and to the east route which goes to Sri Lanka, Singapore, China, Korea, and to Japan starting from Karachi as a basic point.

- Mercantile Marine Department (hereafter MMD)

It was established in MPS as a division to control the country's register and the safe navigation in 1930. They currently perform operation and maintenance of beacons in the country, as well as all the paperwork concerning all maritime transport as follows; registration and regular examination of private merchant ships, asset evaluation concerning ships, etc., on-the-spot inspection of ships under port regulations, examination and permit of dangerous goods embarkation plans, qualifying examinations of inland waterway transport pursuers and issuance of the licenses. To give professional advice to the central government at ratification of the treaty for international maritime transport is also one of their important roles.

- Government Shipping Office (hereafter GSO)

It was established in 1948 as an organization for management and training of sailors, and its services include issuance of sailor's certificates and dispatch to each shipping company, providing health and welfare benefits, and supervision of the wage system. About 6,000 sailors' certificates are renewed every year in this office.

- Pakistan Marine Academy (hereafter PMA)

The original body of PMA was the Mercantile Marine Academy which was established in 1962 in Chittagong, East Pakistan at that time. PMA was newly established in 1978 in Karachi along with the separation from East Pakistan. As a part of Pakistan Maritime Training Complex (In addition to PMA, it consists of the Seamen Training Center, Marine College/Maritime University, and Training Ship, hereafter PMTC) of which the central government is promoting the maintenance, they provide education for sailors following IMO code of STCW-78 and are sending 80-odd personnel (navigation/institution) every year.

(2) Port policy

1) Policy of the Country and Alignment

The port policy has been taken to promote the user's benefit by revision of port usage fees and expanding the demand, as well as setting performance goals and planning organizational enhancement from the view points of both efficiency of MPS's organizational administration and reinforcement of finance, following the National Trade Corridor Improvement Programme (hereafter NTCIP) in which the Prime Minister's Office plays a central role in promoting.

2) Ports and maritime policy

The National Ports Master Plan which was instituted in 1995 is the central pillar in the current port policy. This policy is mainly pointing out those issues such as i) imbalance of the volume between imports and exports, ii) Low productivity in both Karachi and Qasim ports, iii) excessive labor and low capital intensification of both ports, and also suggests the proposals as follows;

- Division of functions in each terminal of Karachi and Qasim ports, and improvement in efficiency
- Effective reform of loading and storage facilities, and improvement in access routes from backlands to Karachi port
- Maintenance of passageway in Qasim port
- Privatization of port transport operation
- Start on a revision of port labor law
- Introduction of Landlord Policy as port's administrative and operational method

It also suggests that it is essential to build new ports in order to resolve issues described above with the lowest investment and to maintain highly cost-effective ports for logistics.

In response to the above, the terminals of Karachi and Qasim ports which can be operated on a commercial basis are switching to this method so that basic facilities are maintained by the government and administered and operated by private sectors after subleasing with a Landlord Port Concept by BOO/BOT as a basic method of the port operation. Gwadar port is promoting development on the basis of this policy from the beginning of its development.

Details of Landlord Port Concept are summarized in the Table below.

Table 2.6 Concepts of Landlord Policy

Type of Port	Infrastructure	Superstructure	Port Labor	Other Functions
Public Service	Public	Public	Public	Majority Public
Tool Port	Public	Public	Private	Public/ Private
Landlord Port	Public	Private	Private	Public/ Private
Private Service	Private	Private	Private	Private

Source : World Bank, "World Bank Port Reform Tool Kit"

Currently, there are four major container terminals which are operated by public sectors of the country, and each of them are managed by international operators such as Karachi KICT operated by Hutchison Port Holdings (hereafter HPH), Karachi PICT by local capital, Qasim QICT by Dubai Port World (hereafter DPW), and Gwadar port by Ports of Singapore Authority (hereafter PSA). Besides container terminals, the representative cases are Qasim FOTOCO (handling goods: Oil), Qasim EVTL (handling goods: Chemical), and PROGAS (handling goods: LPG). Details about each operator will be described later.

As for the labor productivity which is indicated in the National Port Master Plan, Karachi port has become a model case of organizational modernization and efficiency which realises the intention of the central government, by means such as reducing the number of employees from 11,700 to 4,800 (59% reduction), even though the cargo throughput has increased from 22.6 million tons to 38.7 million tons (71% increase) in the 10 years from 1999 to 2009. MPS is starting the revision of the National Ports Master Plan as described above to be ready for new phases after 10 years since its institution.

On the other hand, in the field of maritime transport, they are working actively for conclusion of a maritime transport agreement with neighboring India and ratification of international treaties as well focusing on the training of seamen who will be available for national shipping companies and the international society as a part of the plan to earn foreign currency.

(3) Issues of the current situation

In the national policy, they have held up the following issues which benefit national industries that are working to improve the export competition ability, with improvement of issues suggested in National Ports Master Plan as a pillar.

- Promotion of the Landlord Policy
- Conclusion of the maritime transport agreement with India
- Privatization of port transport, modernization of Karachi port introducing BOT method, and the cooperation from KPT for modernization
- Promotion of the plan for industrial estates behind Qasim port and the cooperation from PQA
- Promotion of the development plan for Gwadar port (Phase-I)
- Expansion of business share and improvement of profitability of PNSC.

2.1.3.5 Present Situation and Issues on Transport Infrastructure (Summary)

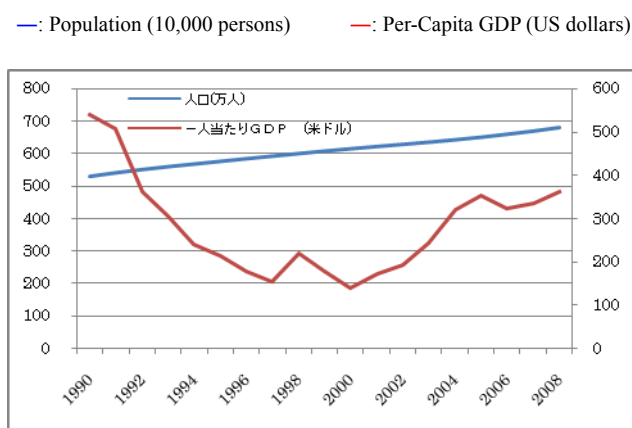
More than 90% of freight and passenger transport is dependent on the road mode in Pakistan. The background of this situation is that the railway mode is not actually functioning. Full-scale repair for the facility has not been carried out since the era of British colonization. Nothing has been maintained even if the facility became overage. Meanwhile, the motorway pavement which mostly handles transportation is not durable and easy to deteriorate, therefore, much more funding than usual has been spent for maintenance. There is a short term plan for road maintenance but no long term plan in the country. Meanwhile, there is a master plan and policy for Ports but it is ineffective.

2.1.4 Current Status and Issues of Tajikistan

2.1.4.1 Current Status and Issues in the Industry and the Economy

Figure 2.25 shows the changes in the population in Tajikistan. It grew at a more or less constant rate from 1990. The population as of 2008 was 6.84 million.

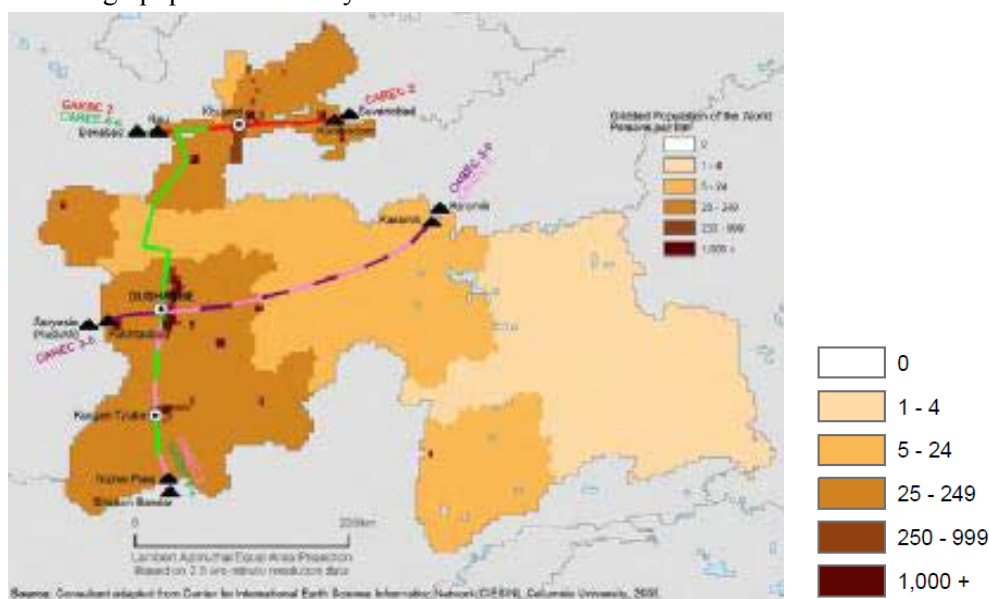
The dollar-denominated per capita GDP decreased from 1990s and in 2000 it dropped to US\$139 or one fourth of that of 1990. It went up thereafter but the level of GDP has not yet recovered to the level of 1990.



Source: United Nations Statistics Division

Figure 2.25 Population and Per-Capita GDP in Tajikistan (left axis: population, right axis: Per-Capita GDP)

The population of Tajikistan is concentrated in the west. Especially, the area surrounding the capital Dushanbe has high population density.

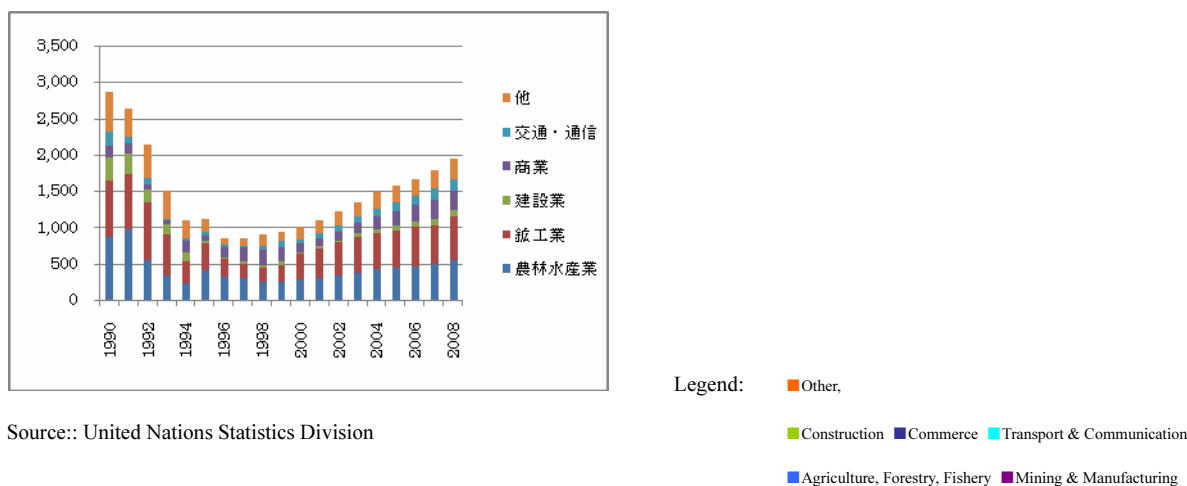


Source: Afghanistan; Cross Border Trade and Transport Facilitation (from Columbia University, Socioeconomic Data and Application Center)

Figure 2.26 Population Distribution in Tajikistan

Figure 2.27 shows the changes in GDP as classified by industry based on the United Nations statistics¹² by the 1990 prices in local currency.

Tajikistan’s economy largely depends on mining, manufacturing, agriculture, forestry and fisheries. The contribution to GDP of agriculture, forestry and fisheries stood at 30% in 1990 and increased to 39% in 1996. For these few years, agriculture, forestry and fisheries account for 28% of all industries and mining and manufacturing stand at 32%.



Source:: United Nations Statistics Division

Figure 2.27 GDP and its Breakdown in Tajikistan (Prices of 1990. Unit: million somoni)

2.1.4.2 Present Conditions and Issues on Road Transport in Tajikistan

1) Present Conditions of the International Trunk Road Network in Tajikistan

Tajikistan is a mountainous country and its road network plays an important role for not only domestic traffic but also for international traffic between the neighboring countries such as from/to Afghanistan, Kyrgyz and Uzbekistan. Moreover, the road network plays the role of relay point between CIS countries and the Arabian Sea which is identified as an important international corridor as well.

Dushanbe, the capital of Tajikistan, is located in the west of the country where is the junction of international corridors running east-west (A.H.65) and north-south (A.H.7) is located. A.H.66 branches from A.H.65 at Kofirnigan which is adjacent to Dushanbe, and goes toward the east and reaches China eventually.

The major industry of Tajikistan is agriculture that produces mainly cotton, wheat, barley and fruits. Additionally, there are the mining industries of coal, antimony, gold and rock salt, which are also productive. Therefore, the road network plays an important role to transport these products.

Most of the road network was constructed during the era of the Soviet Union, and these are heavily damaged due to poor maintenance after the breaking up of the Soviet Union, and it has become a bottleneck for development of Tajikistan’s economy.

¹² National Accounts Main Aggregates Database

Table 2.7 International Trunk Roads in Tajikistan

Route No.	Itinerary	Length (km)	Selection Criteria
AH7	Chavast (border of Uzbekistan) – Istaravshan – Dushanbe – Kurgan Tyube – Nizhniy Panj (border of Afghanistan)	481	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between major Ports
AH65	Border of Kyrgyzstan – Dzhirgatal – Kofarnikhon – Vakhdat – Dushanbe – Tursunzade (border of Uzbekistan)	431	*Connection between Industrial/Agricultural Centers
AH66	Kulma Pass (border of China) – Murgab – Khorugh – Kulob – Kofarnikhon	995	*Connection between Industrial/Agricultural Centers
Total (3routes)		1,907	

Source: Asian Highway Database 2009, UN ESCAP

2) Present Asian Highway Network in Tajikistan

In Tajikistan, there are A.H roads with various classes from Class II to III, and the lower class of Class III, which are explained as follows,

- The road section on A.H.7 between Chavast, the northern border to Uzbekistan, and Dushanbe, the capital, and the section between Dushanbe and Nizhiniy Panj, the southern border to Afghanistan, are classified as Class II.
- The road section on A.H.65 between Tursunzade, the western border to Uzbekistan, and Dushanbe, and the section between Kofirnigan and the north-east border to Kyrgyz are classified as Class II and Class I respectively. There are also some road sections that are Class III and lower class between Kofirnigan and the Kyrgyz border that require improvement immediately.
- A.H.66 from Kulab going towards the east on the section between Kofirnigan and Kulma Pass (China Border), which runs through a mountainous area more than 1,000 km in length, is classified as Class III or lower class.

3) Issues

The road network in Tajikistan has been developed from Dushanbe, as the center of development, to major cities in the north, south and east of the country. The total network length is 27,767km and 4,732 km of them are classified as the national roads. The pavement ratio is more than 90% but its condition is evaluated as very poor.

Most of the road network in the country was constructed during the era of the Soviet Union and most was built 30-40 years ago, and its deterioration has progressed seriously. According to the information of PSI investigation by the Ministry of Transport, this is the responsible agency on road O&M, poor or very poor pavement conditions affect 80% of the entire road network. This was because of insufficient budget for road maintenance due to the low progress of economic development after the internal conflict. Furthermore, there were many natural disasters but recovery works were not carried out adequately because the budget allocations were insufficient.

Regarding the financial arrangements for road O&M, Tajikistan has abolished the Road Fund following the recommendation of IMF in 1999. Before the abolishment, taxes related to the road usage had been collected and dedicated to the Road Fund and had been directly administrated by the Ministry of Transport. After the abolishment, the taxes became revenue of the government general budget and the Ministry of Transport receives the budget from it. The allocated budget is used only for the maintenance of the national roads but not the rural roads since the budget is too little to cover the entire network (only 10~15% covered). Under this circumstance, the Ministry requests financial support from donors in order to ensure the road maintenance needs.

Neither a long term nor a short term policy for road sector has been established.

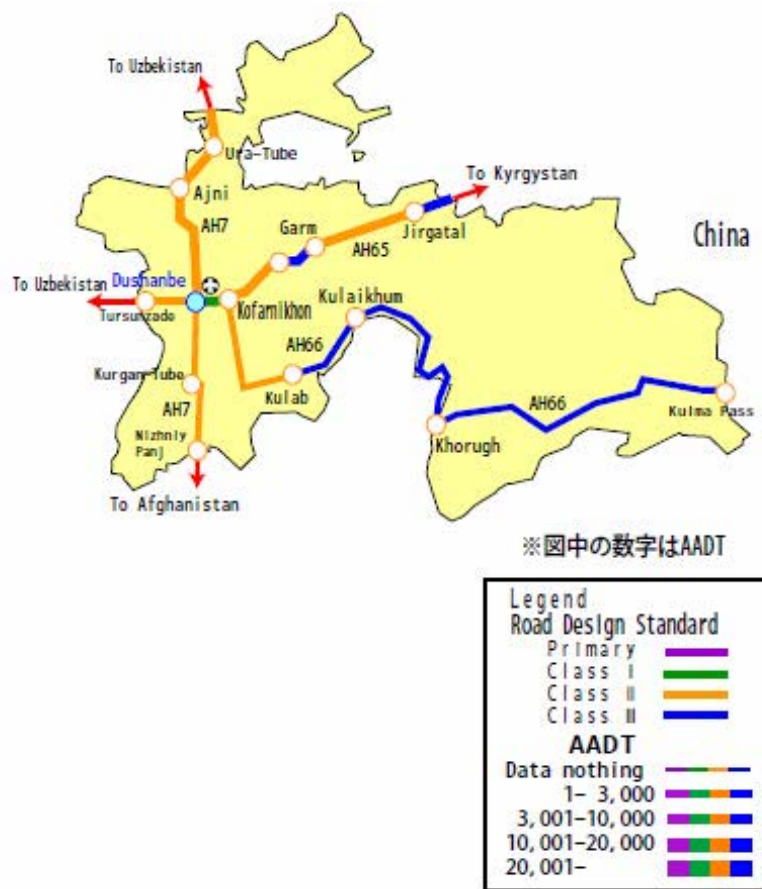


Figure 2.28 A.H. Road Network in Tajikistan (UNESCAP 2009)

2.1.4.3 Present Situation and Issues on Railway Sector

(1) Overview of the Railway Network and Transport

There are no railway lines such as the Trans Asian Railway Corridor in Tajikistan, and no international rail transportation is being operated. The total length of railways is 480 Km, gauge is 1,520 mm, connecting to neighboring countries of Uzbekistan and Turkmenistan.

Railway transport, which carries 32 % of all passengers transported and 96% of all freight transported, exceeds the road transport, which carries 26 % of all passengers transported and 4 % of all freight transported. However, the share of road transport has been rapidly increasing more than railway transport since year 2000.

Freight and Passenger Traffic by Railway (Source; ADB in 2006)

- Tonnage: 13,938,000
- Ton- Km: 1,063 million
- Passengers: 800,000
- Passenger- Km: 51 million



Figure 2.29 Railway Network in Tajikistan

(2) Development Plans in the Railway Sector

The National Traffic Development Master Plan was established by ADB in August 2008. It seems to adequately match the future traffic demand until 2025 on the premises that the existing railway facilities will be properly maintained. Some emergency rehabilitation works are listed in each of the short, mid and long term periods in the ADB’s Plan.

Short Term (2009 to 2014)

- Track Rehabilitation: US\$ 25 million
- 150 number of Bridge Rehabilitations: US\$ 7.5 million
- Electric Facility Rehabilitation: US\$ 1.9 million
- Procurement and overhaul of 20 Locomotives for the main line and 10 Locomotives for yards: US\$ 180 million
- Procurement and maintenance of cargo cars: US\$ 20 million
- Quarry facilities: US\$ 0.4 million
- Improvement of locomotive pit: US\$ 9 million

Mid Term (2014 to 2019)

- Track Rehabilitation: US\$ 30 million
- 55 number of Bridge Rehabilitations: US\$ 9.4 million
- Procurement and overhaul of 7 Locomotives for the main line: US\$ 49 million
- Procurement and overhaul of cargo cars: US\$ 27 million

Long Term (2019-)

- Track Rehabilitation: US\$ 26 million
- 10 number of Bridge Rehabilitations: US\$ 8.8 million
- Procurement and overhaul of cargo cars: US\$ 67 million
- Improvement of locomotive pit: US\$ 20 million

Furthermore, the following new lines are planned for the extension of the railway network, feasibility studies will be held in due order.

- Missing link between Yavan- Yangi Bazar, 8 million freight tons per annum, US\$ 170 million
- Access line to Afghanistan between Kalkkhazabad- Nijini- Kunduz, 16 thousand freight tons per annum, US\$ 119 million
- Access line to Kyrgyzstan between Yangi Bazar- Karamik, 6 million freight tons per annum, US\$ 1,579 million

(3) Japanese assistance

There has been no Japanese assistance in Tajikistan.

2.1.4.4 Present Situation and Issues on Transport Infrastructure (Summary)

The occupancy ratio of the railway mode is more than that of the road mode regarding the international transport, but the growth ratio of the road mode far exceeds that of the railway in this 10 years. One of its reasons is that the pavement ratio of the national road is more than 90%. However, the pavement condition is very poor because the road maintenance, which reflects the actual condition, has not been carried out.

The infrastructure of the road mode was developed in the era of the Soviet Union but no proper maintenance has been carried out when it was necessary, even though it has been several decades since construction. Therefore, an immediate restoration plan is required but no mid-long term plans has been drawn up yet.

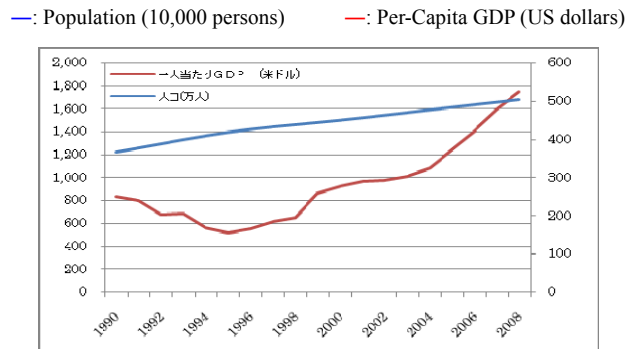
Meanwhile, the master plan for the railway sector has been established by ADB and the urgent correspondence to needs of railway is not necessary to be assumed if the maintenance for existing system is carried out properly.

2.1.5 Current Status and Issues in Turkmenistan

2.1.5.1 Current Status and Issues of the Industry and the Economy

Figure 2.30 shows the changes in the population of Turkmenistan. The population in Turkmenistan has been consistently increasing since 1990. The population as of 2008 was 5.04 million.

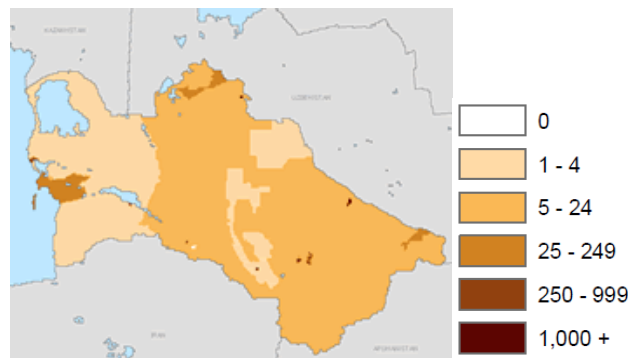
The dollar-nominated per capita GDP tended to decrease from 1990 but it rebounded in 1995 and has been remarkably increasing since the middle of 2000.



Source: United Nations Statistics Division

Figure 2.30 Population and Per-Capita GDP in Turkmenistan (left axis: population, right axis: Per-Capita GDP)

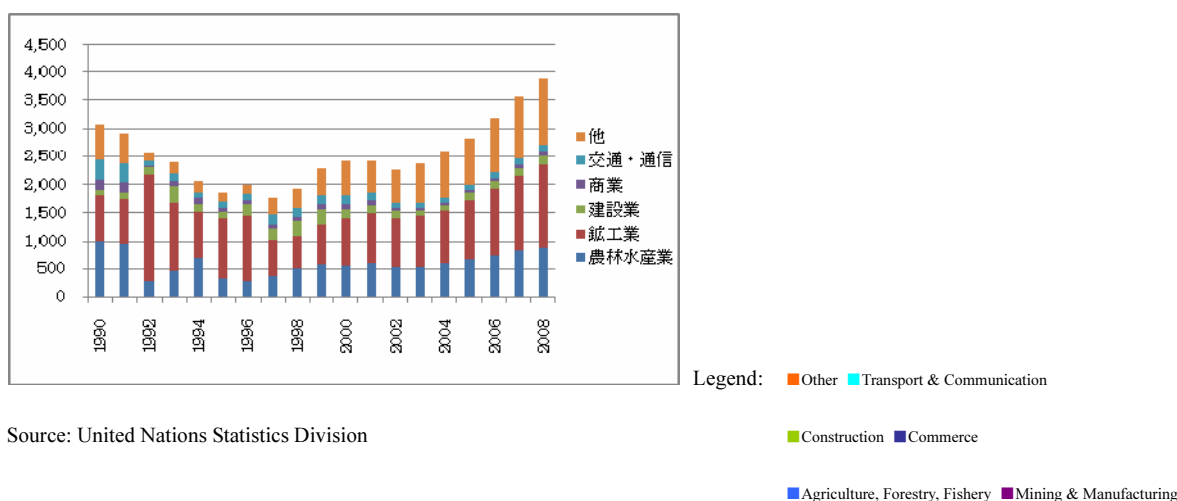
The population in Turkmenistan is relatively dispersed. There is a high population density in a part of the west but it is low in other areas.



Source: Columbia University Socioeconomic Data and Application Center

Figure 2.31 Population Distribution in Turkmenistan

Since 1992, mining and manufacturing have provided the larger share of GDP. As of 2008, the share of mining and manufacturing increased to 38% from 27% in 1990.



Source: United Nations Statistics Division

Figure 2.32 GDP and its Breakdown in Turkmenistan (1990 prices. Unit: million manat)

2.1.5.2 Present Conditions and Issues on Road Transport in Turkmenistan

1) Present Conditions of the International Trunk Road Network in Turkmenistan

The international trunk road network was created to connect with neighboring countries such as Afghanistan, Iran, Azerbaijan (including waterway), Kazakhstan and Uzbekistan. Turkmenistan produces a great deal of the natural gas in the Caspian Sea area, which makes the country wealthy among CIS countries, however, the existing road condition in the network is still poor and many road sections require repair works.

The road network is developed across the country, mainly in the east-west direction from Ashgabat located at the center of the country. The major trunk road section crossing east-west through the country is A.H.5 which branches extend to A.H.70 at Serdar, the west side, and to A.H.75 at Tejen, the east side, as well as to A.H.77 at Mary, the east side. Turkmenistan faces Europe over the Caspian Sea at the west side of the country and there is a large port, namely Turkemenbashi port which is identified as the most important discharge and loading point of export/import cargo from/to Europe.

Besides natural gas, the following domestic products are produced as major items,

- Mining Products: Oil, Salt, Sodium sulphide
- Agriculture Products: Cotton, Various Grains, Sesame

In addition to the above, Livestock farming and Sericultural industry are also active in the country.

Table 2.8 International Trunk Road in Turkmenistan

Route No.	Itinerary	Length (Km)	Selection Criteria
AH5	Farap(border of Uzbekistan) – Turkmenabat – Mary – Tejen – Ashgabat – Serdar – Turkmenbashi	1,227	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between major Ports *Connection between Cargo Terminals
AH70	Border of Kazakhstan – Bekdash – Turkmenbashi	227	*Connection between Industrial/Agricultural Centers *Connection between major Ports
	Serdar – Guduro lun (border of Iran)	272	*Connection between Cargo Terminals
AH75	Tejen – Sarahs (border of Iran)	120	*Connection between Industrial/Agricultural Centers *Connection between major Ports
AH77	Serkhetabat (border of Afghanistan) – Mary	315	*Connection between Industrial/Agricultural Centers
AH78	Ashgabat – Chovdan Pass (border of Iran)	43	*Connection between Industrial/Agricultural Centers *Connection between major Ports
Total (5 Routes)		2,204	

Source : Asian Highway Database 2009, UN ESCAP

2) Present Asian Highway Network in Turkmenistan

In Turkmenistan, there are A.H. roads with various classes from Class I to Class III that are explained as follows,

- The road section on A.H.5 between Tejen and Ashgabat and a part of the section between Ashgabat and Serdar for some ten km are classified as I and II.
- The other road sections are classified as III with single carriageway.

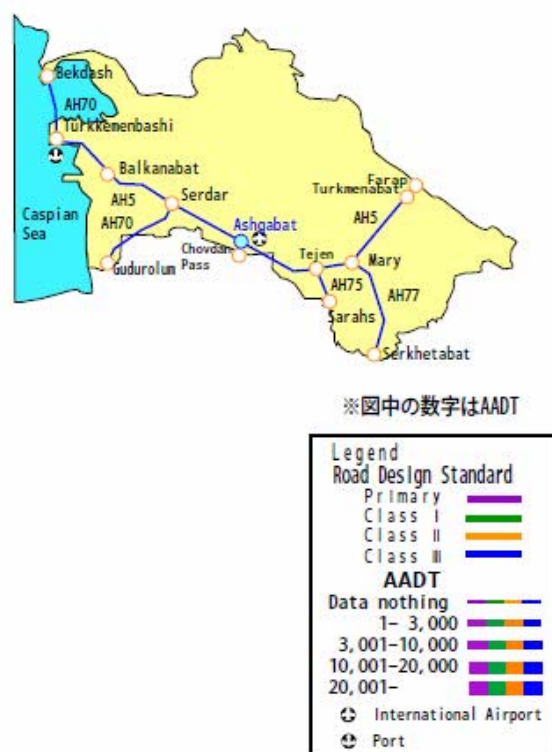


Figure 2.33 A.H. Road Network in Turkmenistan

3) Major Highway Network in Turkmenistan

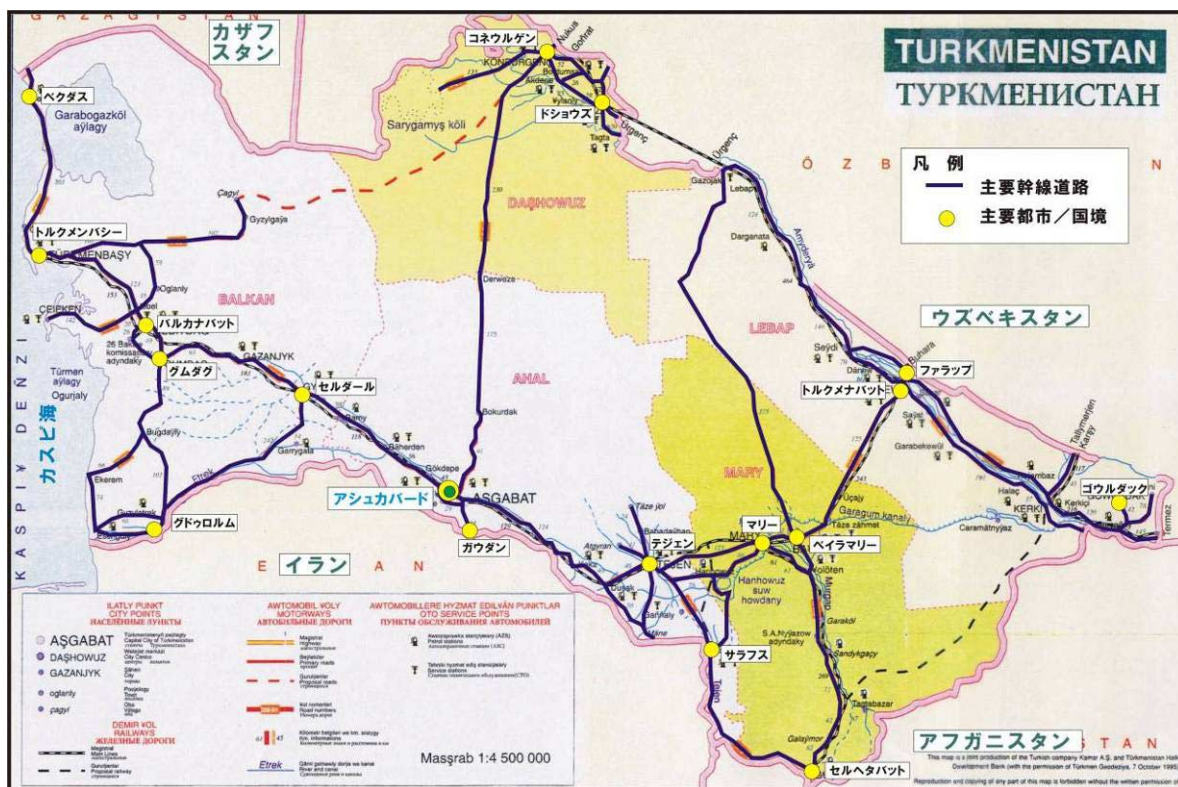
In Turkmenistan, there are two road categories which are State Road and Rural Road. Total road length reaches approximately 13,600km, however, Asphalt pavement road is only 70km, and the others are 11,670km of DBST and 1,880km of Earth (Gravel) Road.

Hence, the above conditions suggest the needs for road improvements widely in the country. (Based on data in 1996)

Table 2.9 Road Length by Pavement Type in Turkmenistan

Road Category	Length (km)			Total (km)
	AS Pavement	DBST	Gravel Pavement	
State Road	65	5,928	478	6,471
Local Road	0	5,737	1,395	7,132
Total	65	11,665	1,873	13,603

Source: "Study on the Development of Highway Network in Asian Republics, Final Report", 1996, UN ESCAP



Legend: — Main Trunk Road, ● Major City / Major Border

Figure 2.34 Road Network in Turkmenistan

4) Issues

The road transport carries 90% of all passenger traffic and 74% of all cargo traffic which identifies it as a major transport mode in the country the same as railway. Pavement ratio, when the DBST is included, is more than 80%, which suggests a relatively high level compared to that of C.I.S countries. However, as mentioned above, the main pavement type is still DBST and its condition is identified as poor due to the non-modernized maintenance system from the era of the Soviet Union. No high technological quality control is applied, either.

The road O&M is mandated to the Ministry of Motor Transport and it has a so called “Enterprise” which is a regional maintenance office with 13,500 employees.

2.1.5.3 Present Situation and Issues on Railway Sector

The railway network in Turkmenistan is 2,980 Km in length, 1,520 mm wide gauge is adopted. The Tejen~Serakhs~Mashhad route was completed in 1996, the route was that the inland transportation route from Central Asia to Bandar Abbas Port in Iran had been established. Approximately 70% of inland freight is through Serakhs Station, 400 wagons are handled per day. Gauge is different between Iran and Turkmenistan therefore bogie exchange and container transshipping are required at the Serakhs station. Totally 49,207 million ton-km of freight transported in Turkmenistan consisted of 56% by pipelines, 24% by railways, and 20% by road mode in year 2008. According to the Investment Guidelines, railway freight accounts for 80% of cross-border freight thus the government considers railway development as a higher priority. Tonnage of rail freight was 23.4 million tons and number of passenger was 5.8 million in 2007.



Figure 2.35 Railway Network in Turkmenistan (Source; United Nations)

The section from Uzbekistani border of Turkmenabad to the Caspian Coast of Turkmenbashi is defined as a part of Corridor 2 of the Central Asia Regional Economic Cooperation (CAREC).



Railway in Turkmenistan (Source; Railway of Afghanistan Web Site)



Figure 2.36 CAREC Corridors in Turkmenistan (Source; ADB)

2.1.5.4 Present Situation and Issues on Transport Infrastructure (Summary)

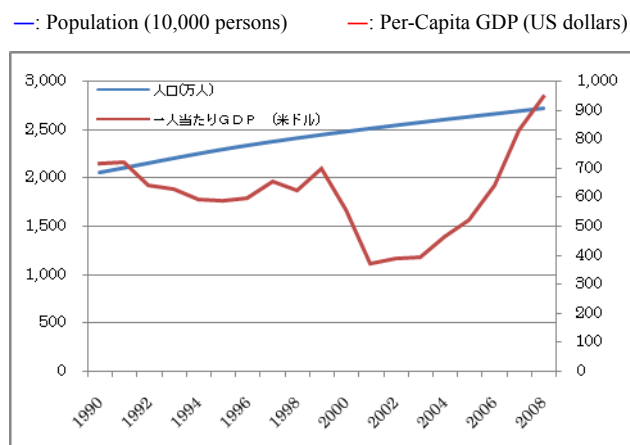
In Turkmenistan, 74% of the freight transported is by road mode and 24% by railway mode. This is against the background that the road pavement ratio is more than 80%. However, the road maintenance is managed following the quality control method under the era of the Soviet Union; therefore, existing road condition is not so good. Meanwhile, more than 80% of international freight is transported by the railway mode and more efforts are being made for expansion of passenger transport in the international routes such as the north-south corridor.

2.1.6. Current Status and Issues in Uzbekistan

2.1.6.1 Current Status and Issues in the Industry and the Economy

Figure 2.37 shows the changes in the population of Uzbekistan. The population in Uzbekistan has increased since 1990, and is currently 27 million.

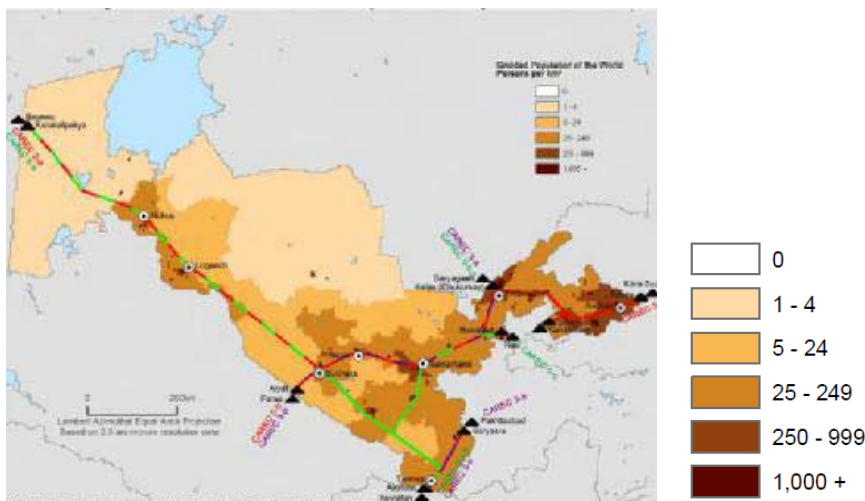
The dollar-denominated per capita GDP rapidly dropped in 1999, but has turned upward since 2001 and has been rapidly increasing since 2003. Uzbekistan experienced stagnation after 1990 due to the collapse of the Former Soviet Union, and dropped after the financial crisis in Russia in 1998. In the recent five years, the per capita GDP rapidly and remarkably recovered to the same level as when the Soviet Union collapsed.



Source: United Nations Statistics Division

Figure 2.37 Population and Per-Capita GDP in Uzbekistan (left axis: population, right axis: Per-Capita GDP)

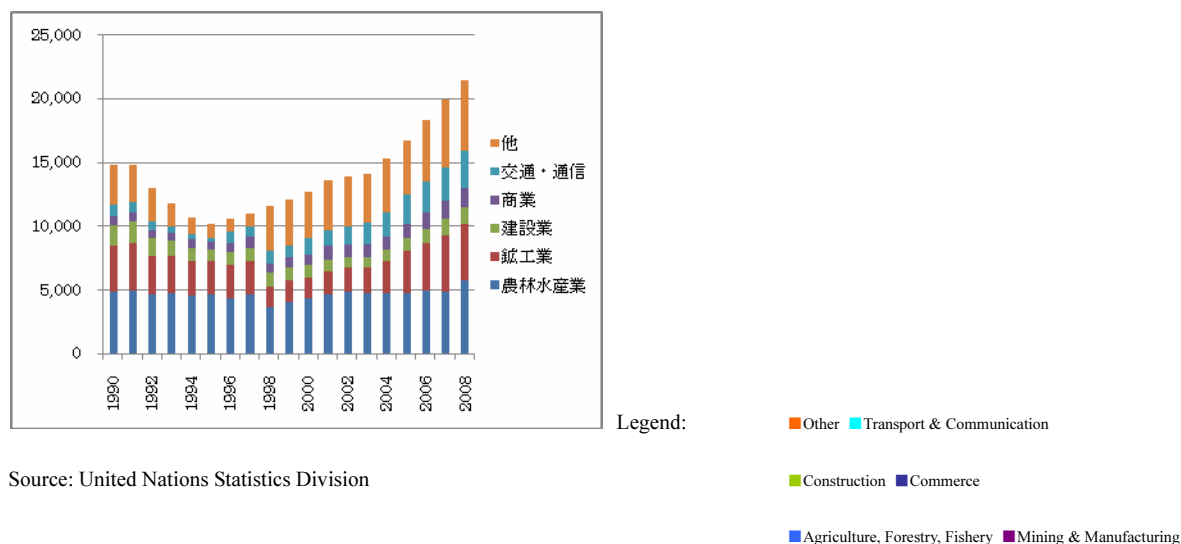
The population in Uzbekistan is highly concentrated. The population density is high in the east, and low in the northwest.



Source: Afghanistan; Cross Border Trade and Transport Facilitation (From Columbia University, Socioeconomic Data and Application Center)

Figure 2.38 Population Distribution in Uzbekistan

Figure 2.39 shows the changes in the composition of industries by GDP based on the prices in 1990 according to the United Nations statistics¹³ by local currency. Uzbekistan's economy largely depends on mining, manufacturing, agriculture, forestry and fisheries. The GDP in Uzbekistan tended to decrease after 1990 but has been increasing since 1995.



Source: United Nations Statistics Division

Figure 2.39 GDP and its Breakdown in Uzbekistan (1990 prices. Unit: million sum)

2.1.6.2 Present Conditions and Issues on Road Transport in Uzbekistan

1) Present Conditions of International Trunk Road Network in Uzbekistan

The international trunk road in Uzbekistan is composed of the road sections connecting to Afghanistan, Kazakhstan, Kyrgyz and Turkmenistan. There is a vast desert namely Kyzyl Kum in the northern part of the country and the Aral Sea is attached to the northern part of the country.

Table 2.10 International Trunk Roads in Uzbekistan

Route No.	Itinerary	Length (km)	Selection Criteria
AH5	Chernyavka (border of Kazakhstan) – Tashkent – Samarkand – Navoi – Bukhara – Alat (border of Turkmenistan)	677	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between Cargo Terminals
AH7	Border of Kyrgyzstan – Andijon – Kokand – Tashkent – Syrdaria – Khavast (border of Tajikistan)	531	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between Cargo Terminals
AH62	Samarkand – Guzar – Termez (border of Afghanistan)	386	*Connection between Capitals *Connection between Industrial/Agricultural Centers *Connection between Cargo Terminals
AH63	Oazis (border of Kazakhstan) – Nukus – Bukhara – Guza	1,194	*Connection between Industrial/Agricultural Centers *Connection between Cargo Terminals
AH65	Uzun (border of Tajikistan) – Termez	178	*Connection between Industrial/Agricultural Centers
Total (5 Routes)		2,966	

Source : Asian Highway Database, 2009, UN ESCAP

¹³ National Accounts Main Aggregates Database

Tashkent, the capital, is located at the crossing point of A.H.5 and A.H.7. The A.H.5 is one of the major corridors across the country east to west. The country is geographically spread from northwest to southeast. A.H. 63, which crosses A.H.5 at Bukhara, goes to the northwest and to Kazakhstan.

In the southeast of the country, there is a fertile land which produces raw cotton. The rivers of Amu Darya and Syr Darya cross the country are used for irrigation.

2) Present Asian Highway Network in Uzbekistan

In Uzbekistan, there are A.H. roads with various classes from Class I to III that are explained as follows,

- The road section on A.H.7 between Kyrgyz border and Kokand is classified as Class I but the section between Kokand and Andijon (Kyrgys) is classified as Class II.
- The road section on A.H.63 and 62 are classified as Class II or III while the section between Samarqand and Guzar is classified as Class I.
- The road section between Guzar ~ Nukus ~ Kungrad is classified as Class II but on the section between Kungrad and Kazakhstan border about 330km is DBST pavement.

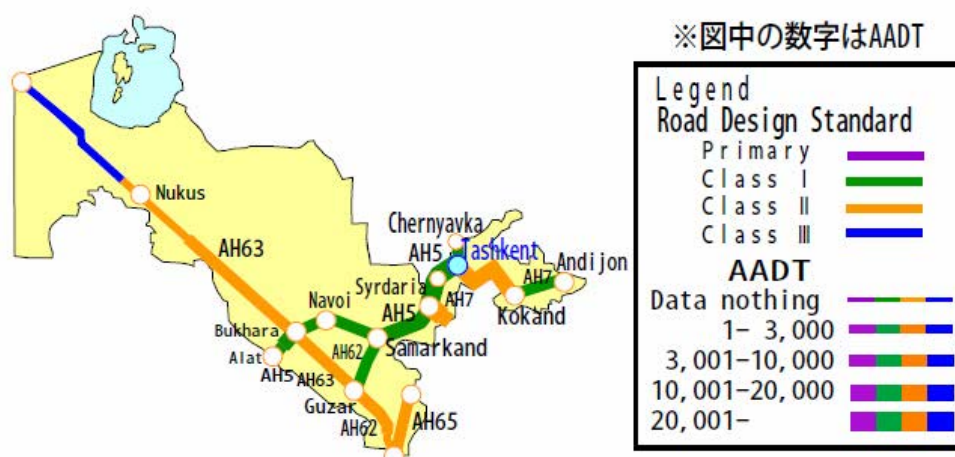


Figure 2.40 A.H. Road Network in Uzbekistan (UNESCAP 2009)

3) Issues

There is no ministry which manages transport administration such as the Ministry of Transport in Uzbekistan. Instead, there are some national authorities dealing with administration for roads, air and railways respectively. As for road administration, there is Uzavtoyul which deals with both policy issues as well as road development/maintenance implementation. Uzavtoyul maintains the roads of 42,500km identified by the Road laws. Moreover, Uzavtoyul participates in international road projects as a Contractor in neighboring countries such as Afghanistan. Uzavtoyul has 40,000 employees, which is excessive compared to the total road maintenance length.

Uzavtoyul focuses on the improvement and maintenance on the existing road network. Road construction for a new road network has not been executed. Although budget allocation to the national road network is prioritized because of budget limitations, the allocated budget covers only 55% of total needs of road improvement. There is a Road Fund but it is under the Ministry of Finance and the fund is sometimes used for other purposes than road maintenance/development.

2.1.6.3 Present Situation and Issues on Railway Sector

International trunk railway lines in Uzbekistan connect neighboring countries of Afghanistan, Kazakhstan, Kyrgyz, Tajikistan and Turkmenistan. Its gauge is 1,520 mm, and is 4,014 Km in length including 430 Km of double-tracked section. Concrete sleepers were introduced for 3,700 Km in length, and 594 Km of the sections in the City of Tashkent and from Tashkent to Samarkand are electrified.

International trunk railway lines are as follows;

- RL1 (Russia, PRC, Kazakhstan, Kyrgyz Republic) - Shymkent - Chengeldi (Kazakhstan) - Tashkent - Samarkand - Bukhara - Hodgavlet - Farap (Turkmenistan) - Turkmenabad - (Iran and Azerbaijan)
- RL2 Tashkent - Nou (Tajikistan) - Kanibadam - Andijan - Osh(Kyrgyz Republic)
- RL3 Samarkand - Karshi - Talimarjan (Turkmenistan) - Kelif (Turkmenistan) - Termez - Dushanbe (Tajikistan) / Hayratan (Afghanistan)
- RL4 Samarkand - Navoy - Nukus - Karakalpakiya - Oasis (Kazakhstan) - (Russia, Ukraine and Central Europe)

RL1 is recognized as the North-South international trunk line. Freight transportation from the north consists of 89% from Kazakhstan, and 10% from Russia, from the south of it consists of 74% to Kazakhstan, and 25% to Kyrgyz. RL1 is an important north-bound line to the northern neighboring county of Russia, and it is also important for transportation of the staple of cotton balls to Bandar Abbas Port via Serakhs.

RL2 is recognized as the important international access line from Tajikistan but the amount of freight is low. This route accesses the Uz Daewoo factory in Andijan. Because custom clearance cost and time is too high at the Tajikistani border, a by-pass line is under planning.

RL3 connects to Afghanistan. Traffic is decreasing due to the recent security situation in Afghanistan, also, the amount of transportation of construction materials from Kazakhstan, Russia, Belarus and Kyrgyz have decreased. RL3 was connected to Turkmenistan but the transit via RL3 is no longer required because of completion of the Tashguzar~Boysun~Kamkurgan section in 2007. RL3 is also functioning as the transportation route from Russia, the Ukraine and Kazakhstan to Afghanistan. Freight tonnage bound for the south amounts to 4.2 million tons but it is only 20% of RL1.

RL4 connects between southern Russia and Eastern Europe. It is an international transportation route between Uzbekistan, Turkmenistan, Tajikistan and Russia, and is an alternative route of RL1. To avoid going through Turkmenistan, the Navoi~Uchkuduk~Sultanuizdag~Nukus section has been operated since 2004.

Regarding the modal share between road and railway, railway carries 5% of all passengers transported and 56% of all freight transported. These values are less than neighboring countries.

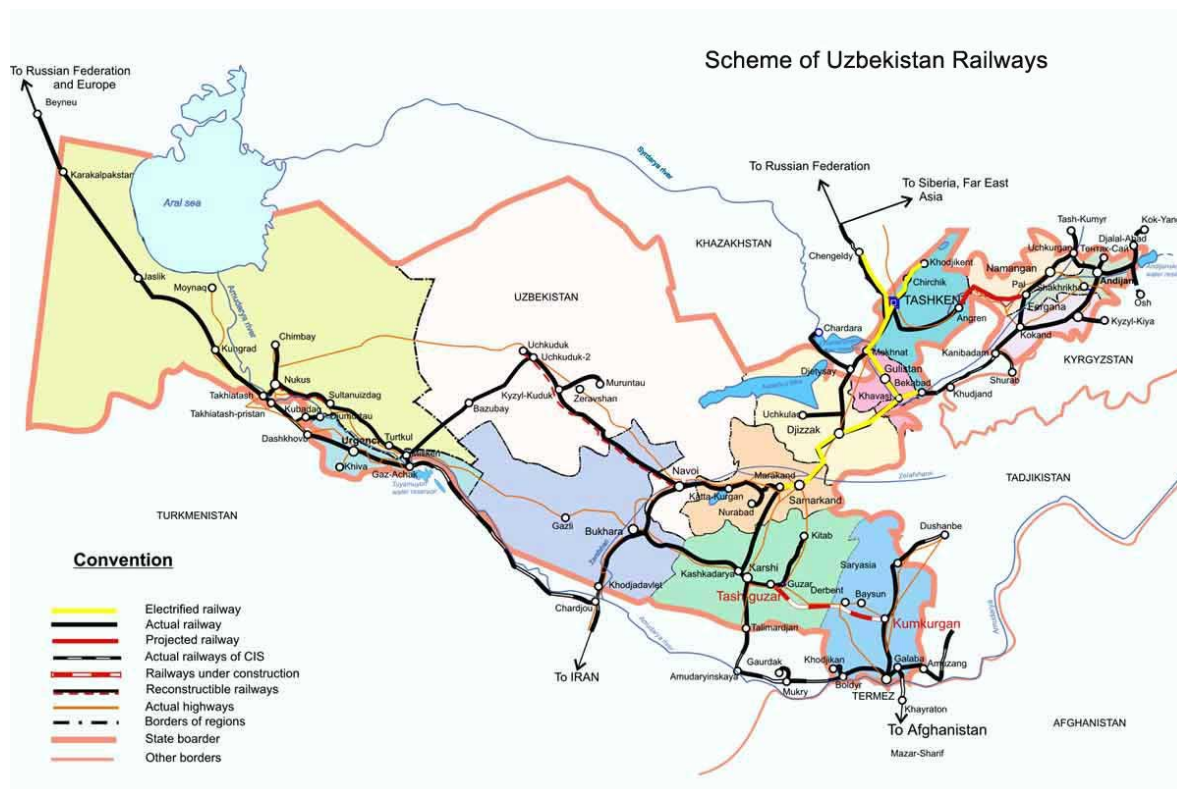


Figure 2.41 Railway Network in Uzbekistan (Source; Uzbekistan Railway)

Railway Facilities (Source; ADB in 2006)

- Line length: 4,015 km
- Number of locomotives: 564
- Number of coaches: 791
- Number of wagons: 25,407

Railway Transport (Source; ADB in 2006)

- Passengers: 16 million
- Passenger-Km: 21,000 million
- Tonnage: 55 million
- Ton-Km: 18,100 million

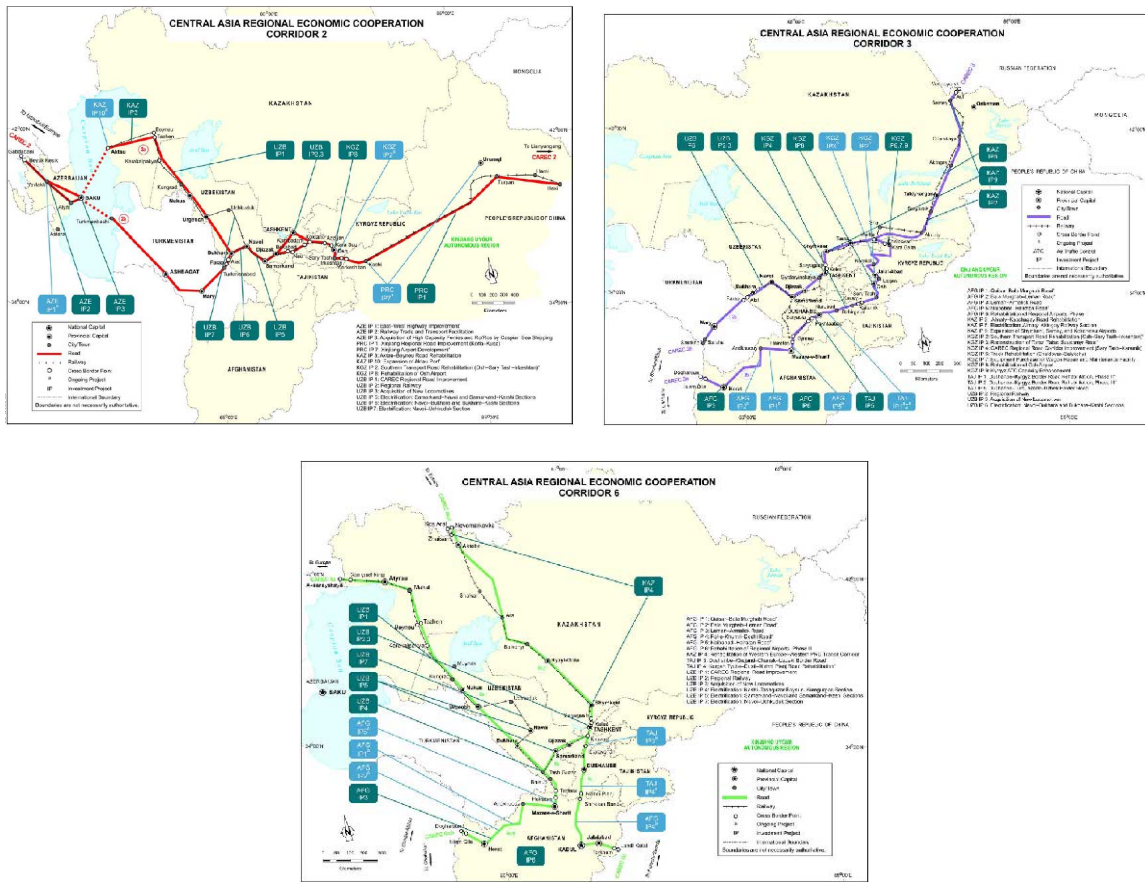


Figure 2.42 3-CAREC Corridors via Uzbekistan Railway Network (Source; ADB)



Tashkent Railway Station (Source; Uzbekistan Railway)

2.1.6.4 Present Situation and Issues on Transport Infrastructure (Summary)

The portion of railway mode for passenger transport is 5% and 56% for that of freight, so the share of the railway mode is low. However, the required budget for road maintenance is limited up to 55%, insufficiently; meanwhile, the financial condition of the road budget is tight due to the excessive number of 40,000 employees compared to the total road maintenance length.