Chapter 3 Future Regional Transport Network

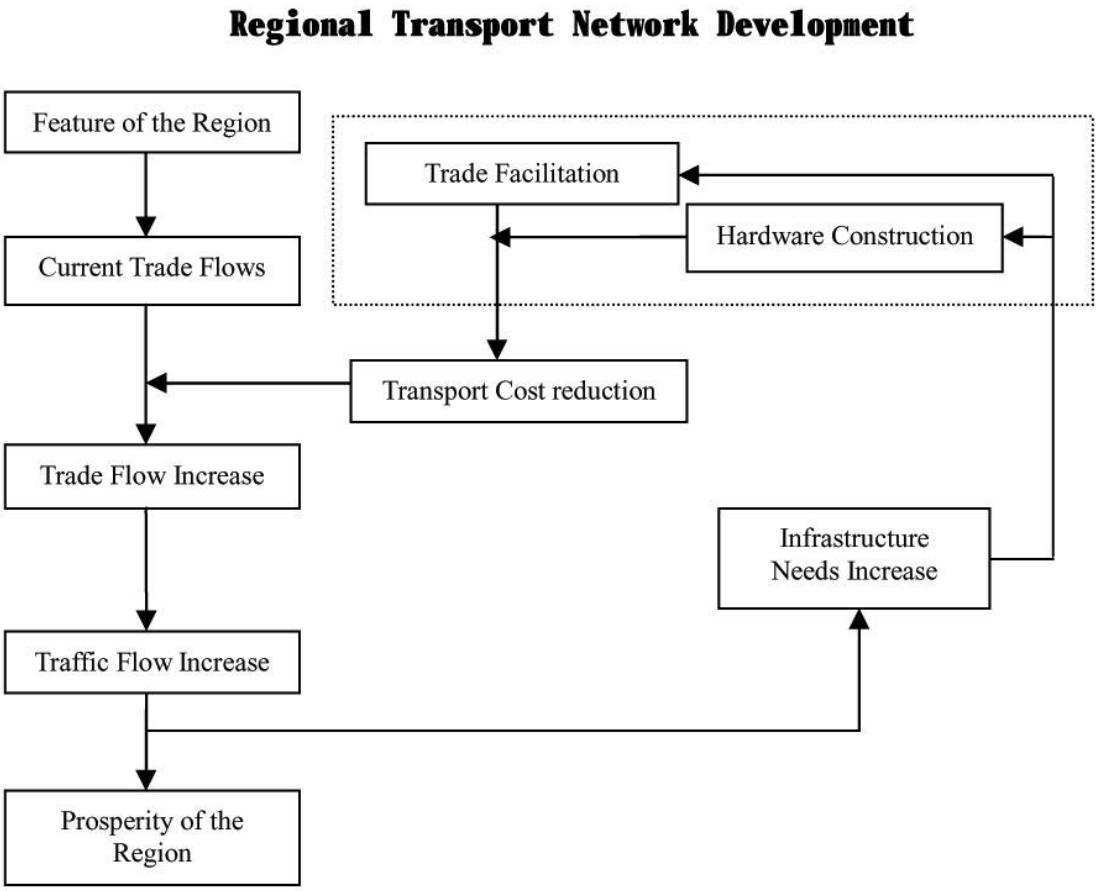
3-1 Overview

Upgrading a regional transport network not only promotes free trade within the region, but also contributes to development of rural areas difficult to be benefited from economic growth. From the viewpoint of a stable economic development of landlocked countries, importance of regional transport infrastructures has become a focal point and international organizations as well actively work to support it.

In addition to capacities and capabilities of shipment ports, distance, cost, time and quality of transportation (timeliness, security, etc.) are determining factors of corridor values, which then define traffic flows and traffic volumes. Within a corridor, these also greatly influence route and transport mode selection.

In particular, a longer transit time and a higher transport cost have long been obstacles to landlocked central Asian countries such as Afghanistan that handicapped local industry development and economic growth, which ultimately has become a constraint in improving quality of lives for people living in this region. This means if once new corridors are developed, trade facilitation is progressed, transportation is improved, and cost is reduced; these will open up greater future possibilities for this region. The effect of transport improvement is not limited to better efficiency of the transport sector; it also remakes the economic map of the region through increased trade flows, development and industrial locations of corridor areas and further enhances exchanges of information and cross border movements of people, as well as private investments.

Figure 3.1 shows how the development of regional transport network, both software trade facilitation and hardware construction, reduces transit cost, increases trade and traffic flows, and then promotes local development. Furthermore, this stimulates additional needs for infrastructure development and is fed back to the regional transport network enhancement, and again promotes local prosperity.



Source: JICA Study Team

Figure 3.1 Regional Transport Network Development and Prosperity of the Region

Researched countries (Afghanistan and neighboring 8 countries; India, Iran, Kazakhstan, Kyrgyz, Pakistan, Tajikistan, Turkmenistan and Uzbekistan) are located in the crossroads of East Asia, South Asia, Russia-Europe, and the Middle East. The researched region has local characteristics as shown below.

- Landlocked central Asian countries (Kazakhstan, Kyrgyz, Tajikistan, Turkmenistan and Uzbekistan) are sparsely populated but abundant in natural resources; India and Pakistan, densely populated and abundant in labor forces but less developed; Iran, oil producing and a medium-developed country. In-between Iran and Pakistan, sparsely populated Baluchistan area, and to the north of it, the landlocked and less developed country, Afghanistan.
- Iran and Pakistan that have ports that have access to the outside world and landlocked Afghanistan and central Asian countries.

- The direction of trade flow potentials is North-South; on the other hand, the direction of infrastructure is East-West.
- The regional axis consists of the Northern East-West corridor, the North-South corridor, and the Southern corridor of the East-West corridor. Historical and cultural background prevents the North-South corridor from fully exploiting its potentials.
- There exists an infrastructure gap between the relatively developed North-West region (former CIS countries and Iran) and the less developed South-East region (Afghanistan, Pakistan and India). Railway mode is particularly well developed in the North-West region.
- It takes time and incurs cost to move within the region. There are many national boundaries and border crossing requires enormous time and incurs cost.
- Poor governance, inferior business environment and higher transport cost cause less international competitiveness and become obstacles to realizing the trade and transit potential of the region.
- There is a dominant informal trade and economy.

In addition to the above, the studied area has security problems in Afghanistan and its neighboring areas, which restricts trade flows in the region. This means, however, that the potential for economic development in the studied region is still high, but not fully exploited.

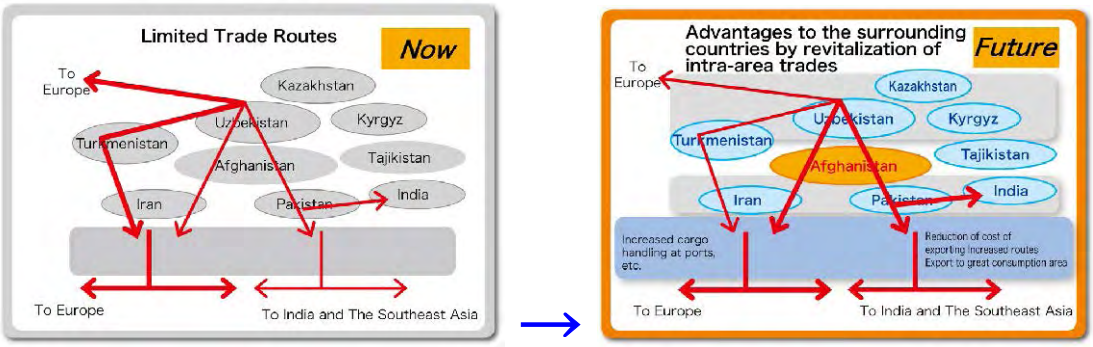


Figure 3.2 Developing Regional Transport Network for Sustainable Economic Growth

This chapter, focuses on Afghanistan and neighboring countries and in an effect to seek means of peace building by means of sustainable economic development throughout the area, studies the feasibility of regional transport infrastructure development as an "Afghan Transit Network"

3-2 Corridors and Routes in Afghanistan and Neighboring Countries

Figure 3.3 shows the transport network connecting key urban centers focused on the Afghanistan land area and neighboring countries. There are two North-South corridors and one East-West corridor which connect Asia and the Middle East, i.e. Delhi in India and Tehran in Iran. The North-South corridor consists of two corridors (the North-South Pakistan corridor and the North-South Iran corridor) connecting cities in landlocked central Asia to sea ports in Iran and Pakistan, the main gates to the outside world.

- The North-South Pakistan Corridor (Red lines in Fig. 3.3)

  A corridor originates from Tashkent in central Asia and provides accesses to Karachi / Qasim and Gwadar ports of Pakistan

- The North-South Iran Corridor (Green lines in Fig. 3.3)

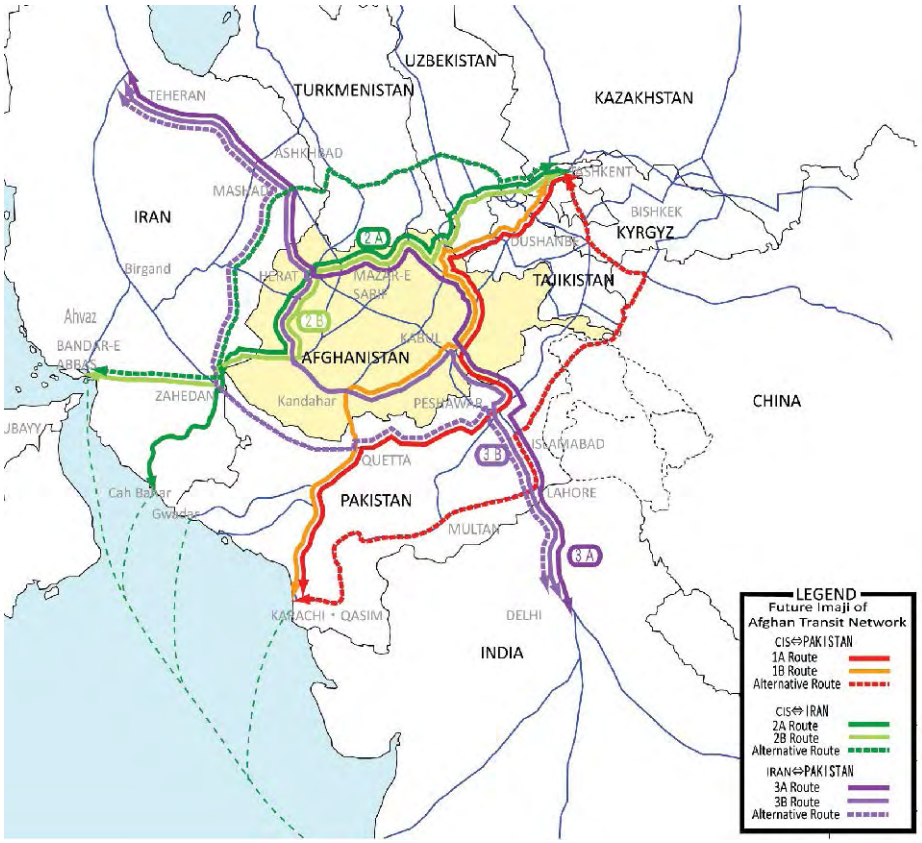
  A corridor originates from Tashkent in central Asia and provides accesses to Chabahar and Bandar-Abass ports of Iran

- The East-West Corridor (Purple lines in Fig. 3.3)

  A corridor connects the population and industry cluster of Delhi and Lahore in south Asia to Iran and farther, the Middle-East and Europe.

As shown in the figure, each corridor consists of three main routes. Two of them transit Afghanistan called the “Afghan Transit” (solid line in the figure) and the other is an alternative route, which does not transit Afghanistan (dotted line in the figure). Presently, because of security concerns and the resulting long time and higher cost in transportation, the transport of the above corridors mainly depends on alternative routes.

To exploit development potential, it is important to create new economic activities by developing and upgrading the logistics network in the area, and revitalizing flows of people and goods. Development of “Afghan Transit” passing through Afghanistan would trigger revitalization of trade in the entire area through development of resources and industries, involving the commodities of neighboring countries. Diversification of trade partnerships of landlocked countries would result in sustainable development of all related countries. As mentioned above, an “Afghan Transit Network”, a logistics network connecting Afghanistan with neighboring countries, would promote sustainable development in the region. These developments thus would be very significant.



Source: JICA Study Team

Figure 3.3 Afghan Transit Network and Alternative Routes

3.2.1 Current Situations in Afghanistan and Neighboring Countries

(1) Intra-regional Trade

Table 3.1 shows a summary of population, income and intra-regional trade of Afghanistan and neighboring countries. Afghanistan's export in 2004 was US$ 140 million, import was US$ 2,240 million and in total 2,380 million. Afghanistan's ratio of intra-regional trade to total trade was 44%, which indicates the country is highly dependent on the intra-regional trade. On the contrary, the ratio in Iran and Pakistan is 2~3%, which shows main trade partners of these countries are outside the region. So far as the central Asian countries such as Uzbekistan, Kazakhstan and Tajikistan are concerned, the ratios are a little higher than those of Iran and Pakistan, but still low such that the highest is 14% in Tajikistan, and only 4% in their average.

From the viewpoint of the ADB research, the above described lower ratios of intra-regional trade represents opportunities for dramatic future improvement in the trade environment, if industries are located and infrastructures are developed within the area, trade facilitation will progress and among other things, access to the four south seaports will be preserved.

Table 3.1 Recent Economic Indicators of Afghanistan and Neighbors (2004)

Country	Population (million)	GDP (billion $)	Per Capita GNI ($)	Total Exports (billion $)	Total Imports (billion $)	Total Trade (billion $)	Regional Trade 2004-5 (billion $)	Intra-region Trade as % of Total Trade
Afghanistan	24	5.5	229	0.144	2.101	2.245	988	44%
Iran	67	155.3	2318	38.8	31.3	70.1	1118	2%
Pakistan	152	90.7	597	16.1	22.1	38.2	996	3%
Tajikistan	6	1.8	300	1.22	1.45	2.67	365	14%
Turkmenistan	5	6.9	1380	4.0	4.2	8.2	479	6%
Uzbekistan	26	11.9	458	4.8	3.8	8.6	694	8%
Total	280	272.1	972	65.064	64.951	130.015	4640	4%

http://www.mof.gov.af/eng/D-cust.asp
http://www.ecosecretariat.org/Statistics/Stat_02_01.htm
http://devdata.worldbank.org/wdi2006/contents/cover.htm
http://www.imf.org/external/pubs/ft/scr/2006/cr06114.pdf
http://www.imf.org/external/pubs/ft/scr/2005/cr05131.pdf
CIA, The World Fact Book; Business News Reports and TA4536 survey.

Source: Afghanistan; Cross Border Trade and Transport Facilitation, ADB

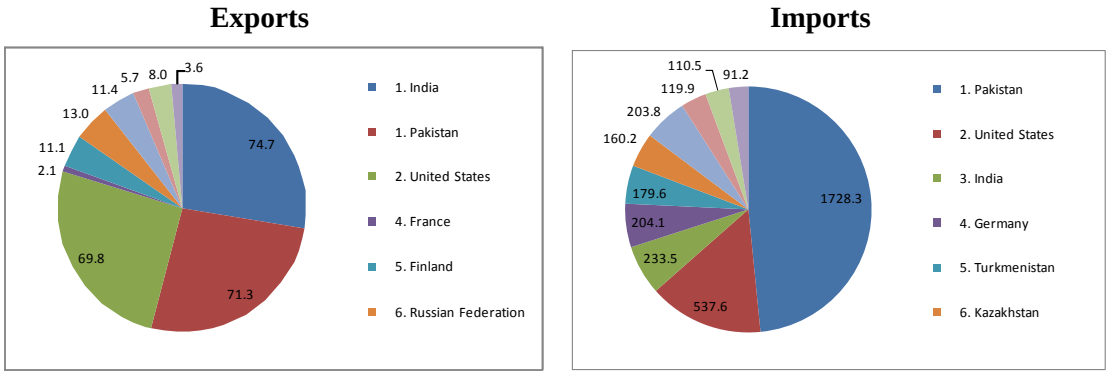
Table 3.2 Intra-regional Trade of Afghanistan with Neighbors 2004-5 (million $)

Country/Trade	AFG	IRN	PAK	TJK	TUR	UZB	Total	Balance
Afghanistan (AFG)	-	280	584	7	26	110	1007	-481
Export	-	3	258	1	0	1	263	
Import	-	277	326	6	26	109	744	
Iran (IRN)	280	-	363	56	241	176	1116	626
Export	277	-	300	26	188	80	871	
Import	3	-	63	30	53	96	245	
Pakistan (PAK)	584	363	-	2	6	41	996	-182
Export	326	63	-	1	1	16	407	
Import	258	300	-	1	5	25	589	
Tajikistan (TJK)	7	56	2	-	42	246	353	-127
Export	6	30	1	-	8	68	113	
Import	1	26	1	-	34	178	240	
Turkmenistan(TUR)	26	241	6	42	-	159	474	-206
Export	26	53	5	34	-	16	134	
Import	0	188	1	8	-	143	340	
Uzbekistan (UZB)	110	176	41	246	159	-	732	370
Export	109	96	25	178	143	-	551	
Import	1	80	16	68	16	-	181	
Total	1,007	1,116	996	353	474	732	4,678	-
Export	744	245	589	240	340	181	2,339	
Import	263	871	407	113	134	551	2,339	

Source: Afghanistan; Cross Border Trade and Transport Facilitation, ADB

(2) Trade Partners

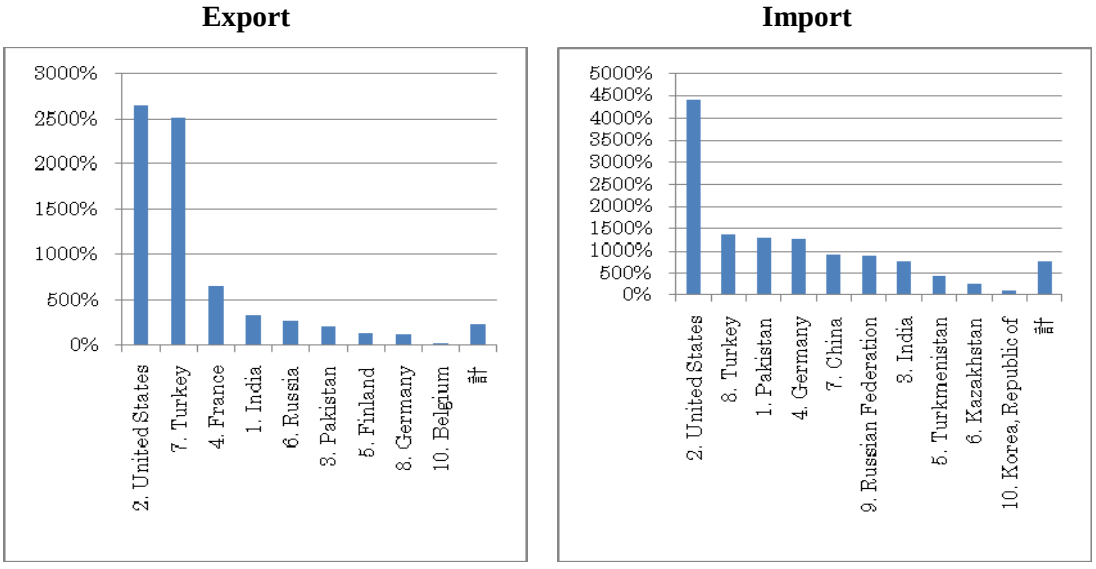
Figure 3.4 shows export partners of Afghanistan in 2007 (formal trade). Of its total US$ 3,210 million exports, the main export countries were India (USD 70 million), the United States (USD 70 million) and Pakistan (USD 70 million). Of its total 4.72 billion imports, the main countries were Pakistan (USD 1730 million), the United States (USD 540 million) and India (USD 230 million).



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

Figure 3.4 Import and Export Countries of Afghanistan (Unit: US$ million)

Figure 3.5 shows percents of trade increase from 2000 to 2007 by Afghanistan's trade partner countries. Exports to the United States and Turkey, and imports from the United States have rapidly increased during this period. Except for Pakistan, however, trade with its neighboring countries is stagnating, especially with the former CIS countries of Uzbekistan, Kazakhstan, Kyrgyz, Tajikistan and Turkmenistan.



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

Figure 3.5 Afghanistan's Trade Increase by Trading Partners from 2000 to 2007

(3) Traded Commodities

Table 3.3 shows custom clearance based on statistics of trade volume and commodity composition from UNCTAD/WTO International Trade Center data. Afghanistan's 2007 export was US$ 470 million and import was US$ 3,767 million and 2008 export was US$ 580 million and import was US$ 2,514. Looking at Afghanistan's trade commodity composition, it mainly exports primary commodities such as fruits and furs, and imports mineral fuels, transport and electric equipment from industrialized or newly industrialized countries.

Looking closely at Afghanistan's exports, Afghanistan exports daily goods such as fruit and vegetables to India and Pakistan, and luxury goods such as furs, carpets and jewelry mainly to developed countries including the United States and EU countries. Goods are exported very few from Afghanistan to Iran as recorded in ITC statistics. Unlike exports, Afghanistan imports remarkable quantities from Iran including mineral fuels, as well as from Pakistan and the former CIS countries. Import of mineral fuels from Pakistan is supposed to be petroleum products refined or processed in Pakistan.

Table 3.3 Afghanistan's External Trade (Unit: US$ million)

	2004	2005	2006	2007	2008
Export	197	268	237	407	580
Import	1,923	3,569	3,487	3,767	2,514

Main Export Commodities (2007)

	Fruit		Not Elsewhere Specified		Electorical equipment		Coffe, tea		Iron and steel	
1	India	54,787	United States	66,693	Sudan	24,583	Bangladesh	12,772	Pakistan	22,383
2	Pakistan	19,492	Russia	1,568	United States	594	Singapore	6,018	Thai	68
3	Turkey	7,391	Egypt	293	France	433	India	2,395	Tunisia	20
4	Russia	7,072	United Kingdom	228	Denmark	305	UAE	1,551	UAE	7
5	Germany	4,229	Denmark	148	Italy	285	Pakistan	217	Mozambique	4
total		99,494		69,354		27,680		23,427		22,489
	Boilers, machinery		Lac, gums, resins		Vegetable		Seed		Cotton	
1	Sudan	17,187	India	17,923	Pakistan	16,518	Israel	3,840	Pakistan	12,921
2	Norway	892	Uae	67	France	268	Turkey	3,635	Thai	537
3	UAE	677	Israel	58	Kuwait	58	Pakistan	2,295	Indonesia	200
4	Mexico	368	Pakistan	9	Turkey	55	United states	1,943	Tunisia	150
5	South Africa	318	Tunisia	1	Germany	31	Jordan	980	Croatia	3
total		20,622		18,058		16,957		15,000		13,813

Main Import Commodities (2007)

	Vehicle		Mineral fuels		Electrical equipment		Boilers and machinery		Aircraft	
1	United States	145,442	Pakistan	248,801	United States	62,016	UAE	77,283	United States	97,972
2	Thai	142,533	Kyrgyz	114,331	China	59,152	United States	39,387	UAE	38,196
3	UAE	86,886	Kazakhstan	62,218	France	45,140	Germany	29,350	Slovakia	30,913
4	United Kingdom	22,467	Azerbaijan	45,333	Germany	40,703	China	20,149	Lithuania	4,207
5	Japan	18,085	Russia	13,392	UAE	36,622	Japan	14,640	Finland	1,525
Total		509,266		498,091		369,714		254,116		175,957
	6		7		8		9		10	
	Milling products		Fats and oils		Articles of iron		Salt		Tobacco	
1	Pakistan	94,054	Pakistan	105,485	Pakistan	56,480	Pakistan	98,899	Korea	66,888
2	Kazakhstan	71,174	United States	19,665	Kazakhstan	20,538	Turkey	68	India	10,686
3	United States	2,472	Russia	4,600	Turkey	13,916	United Kingdom	44	Sigapore	6,247
4	Russia	2,131	UAE	1,949	india	7,315	India	30	Kazakhstan	2,099
5	Germany	334	Kazakhstan	655	Germany	6,070	Germany	15	UAE	1,985
Total		170,264		133,210		131,548		99,069		92,871

Source:ITC http://www.intracen.org/menus/Countries.htm

(4) Afghanistan – Pakistan Trade

Afghanistan's largest trade partner is Pakistan. In 1997, the volume of Afghanistan – Pakistan trade was US$ 50 million, US$ 30 million exported from Afghanistan to Pakistan and US$ 20 million imported from Pakistan to Afghanistan. In 2007, ten years after 1997, the volume rapidly expanded to US$ 1.8 billions, US$ 70 million export and US$ 1,730 million import.

The above statistics refers only to trade volume of formal trade. Between Afghanistan and Pakistan, there exist in fact far more flows of people and goods than the above statistics indicate. Namely, many studies and reports[1] point out that in comparison to the formal trade there are about ten times as much informal (re)export from Afghanistan to Pakistan and several times as much informal import from Pakistan to Afghanistan. Its volume is estimated to have been about US$ 2 billion[2] in 1997 and 8 billion[3] in 2007 (informal trade only).

According to the World Bank estimate, informal export from Afghanistan to Pakistan in 2000 accounts for US$ 941 million, approximately 10 times more than its formal trade value. In a 2000 survey, the main commodities informally (re)exported to Pakistan were electric goods including home electric appliances (US$ 465 millions, 40% of the total), automobile parts (US$ 154 million) and tires (US$ 190 millions)[4] etc.

Another research shows that the trade between Afghanistan and Pakistan is summarized into four different categories by characteristics as described in the following table[5].

Table 3.4 Afghanistan – Pakistan Trade by Category (1996/1997)

Category	Characteristics
Formal trade between the two countries in locally produced goods	Very small and accounted for approximately 2% of the estimated bilateral trade
Informal trade in locally produced goods	US$ 357 million, which comprises 14% of the estimated total Afghanistan – Pakistan trade. The composition is very similar to the official trade but estimated as 13 times the official trade.
Trade under the 1965 Afghan Transit Trade Agreement	Mainly comprised of import bound for Afghanistan. ATTA was expanded in 1997 to include trade with Turkmenistan, from Vladivostok and air routes from Dubai and India
Unofficial re-export of goods from Afghanistan to Pakistan	Estimated as US$ 1.96 billion (84% of the totaltrade) in 1997

Source: The Impact of Afghan Transit Trade on NWFP's Economy

[1] There are some discrepancies in the data among each individual study because of time differences in studies and method of study but each result is consistent as a general tendency.
[2] The Impact of Afghan Transit Trade on NWFP's Economy, Dr. Sayed Hussain Edited by; Alauddin Masood, Area Study Center University of Peshawar and Hanns Seidel Foundation, 2004 dissertation, published in 2008, p48-9
[3] Library of Congress – Federal Research Division Country Profile: Afghanistan, August 2008, p12 lcweb2.loc.gov/frd/cs/profiles/Afghanistan.pdf
[4] The value refers to an unofficial trade estimate via Afghanistan. The amount is supposed to be much larger than this if unofficial trades via India, Iran and China are included.
[5] The Impact of Afghan Transit Trade on NWFP's Economy, ditto.

(5) Afghanistan – Iran Trade

From the viewpoint of Afghanistan, import from Iran was US$ 230 million in 2005[6]. Export from Afghanistan to Iran, on the other hand, is almost nil.

Above figures also refer to custom clearance based formal trade. Between Afghanistan and Iran, there supposed to exist informal trade comparable to the formal trade exploiting free transit agreements (smugglings and unofficial deals including opium and gasoline). Among others, as the government of Iran subsidizes gasoline and sells it in Iran cheaper than the international price, smuggling of gasoline is a lucrative business.

According to research conducted by the World Bank, Afghanistan's informal import from Iran was US$ 95 million (2000) and traded commodities were wheat, cement, iron, sweets, and daily goods, which were imported via Farah and Nimruz, west Afghanistan provinces. The above research as well shows informal export from Afghanistan to Iran was US$ 139 million (2000) and main traded items were tea, ceramics, electric appliances and spare parts[7].

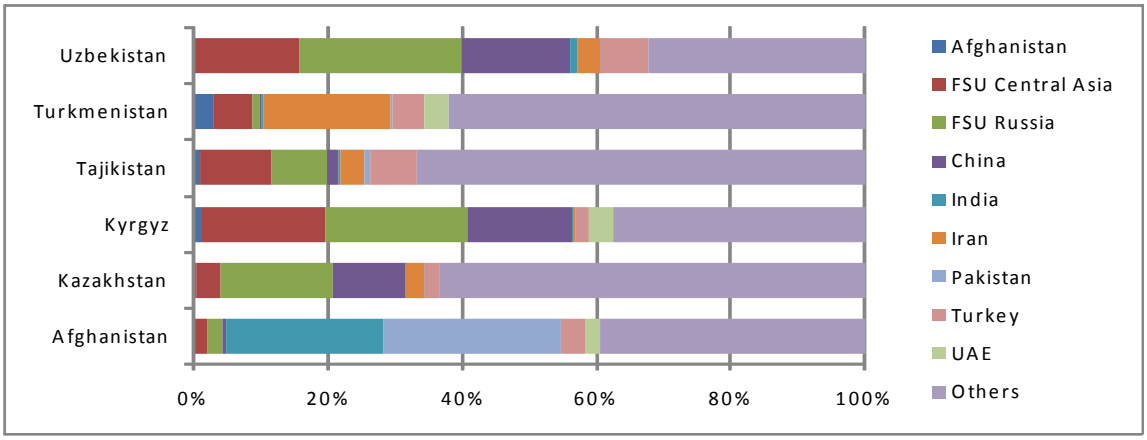
In recent years, the transit trade agreement between Afghanistan and Pakistan (ATTA; Afghanistan Transit and Trade Agreement) was reviewed and it was reported that informal trade via Iranian borders and Arabian seaside areas via Balochistan had rapidly increased[8].

(6) Afghanistan – Central Asia Trade

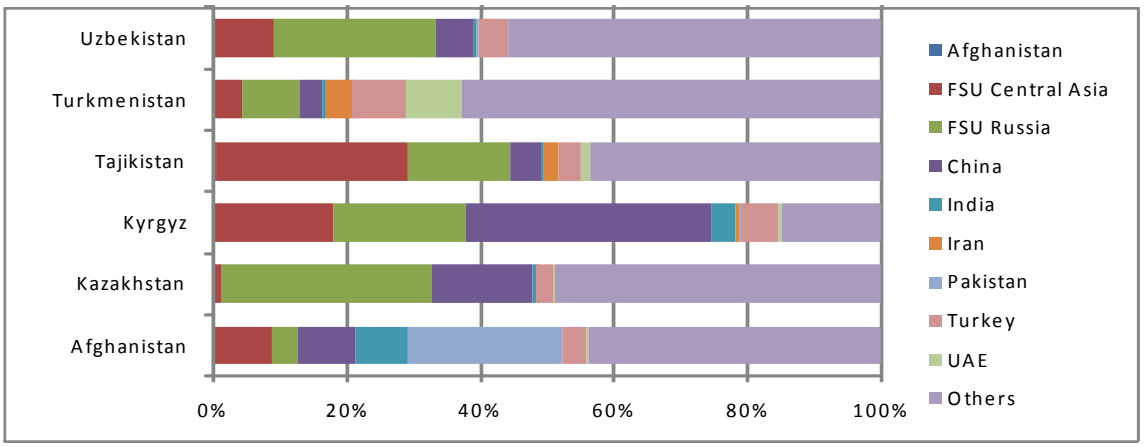
Figure 3.6 shows trade partners of Afghanistan and central Asian countries. The dependence in trade of central Asian countries on former Soviet Union (FSU) countries including the Russian Republic, which once used to be more than 90% just after the disintegration of the Soviet Union, remarkably decreased. Even the trade with the FSU of the most FSU dependent countries such as Kyrgyz and Uzbekistan has now decreased to less than 40% of their previoius levels. In place of trade with FSU countries, trade with China tends to rapidly increase in central Asian countries.

[6] Data from IRICA (Iran Custom Administration), According to the ADB statistics, the amount is 280 million USD (2004/5).
[7] Afghanistan's Trade Environment from the Viewpoint of its Relationships with its Neighboring Countries, Maoka Onishi, IDE-JETRO, Japan Cooperation Center for the Middle East News, 2005, p66. According to this paper, imported items from Iran to Afghanistan are Tea (1.8 million USD), Ceramics (3.2 million USD), Electric Appliances (2.7 million USD) and Spare Parts (6.1 million USD).
[8] 60 Chapters to Understand Pakisan, V. Economics, Oda Naoya, Akashi-Shoten, 2003, p305

Exports (from column, 2004)



Imports (to column, 2004)



Exports (from Column)

	Afghanistan	FSU Central Asia	FSU Russia	China	India	Iran	Pakistan	Turkey
Afghanistan		4	4	1	43	0	49	7
Kazakhstan	71	754	3457	2286	14	588	1	441
Kyrgyz	8	129	150	110	1	3	0	13
Tajikistan	8	97	76	15	4	33	8	63
Turkmenistan	107	221	43	14	10	727	9	176
Uzbekistan	0	398	612	403	29	83	6	179

Imports (to Column)

	Afghanistan	FSU Central Asia	FSU Russia	China	India	Iran	Pakistan	Turkey
Afghanistan		176	76	176	154	0	465	71
Kazakhstan	0	193	4648	2212	78	15	9	356
Kyrgyz	0	242	265	493	46	8	5	75
Tajikistan	4	343	183	54	6	24	0	42
Turkmenistan	0	115	242	85	16	112	1	215
Uzbekistan	0	283	767	172	19	0	3	145

Source: Economic Cooperation in the Wider Central Asia Region

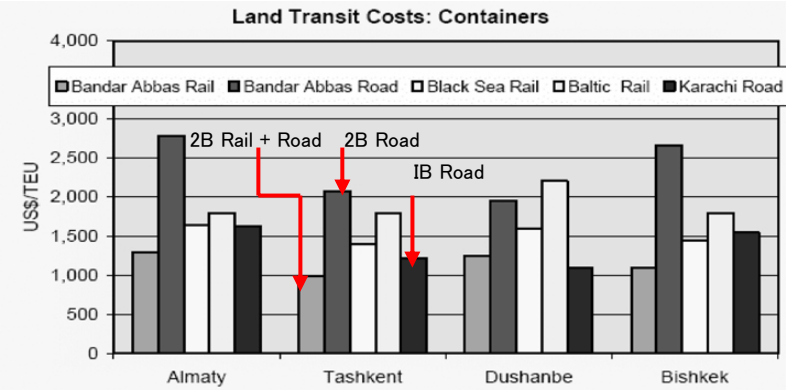
Figure 3.6 Trade Partners of Afghanistan and Central Asian Countries (US$ millions)

3.2.2 Current Situation of Transport in Afghanistan and its Neighboring Countries

(1) Current Situation of Regional Transport

Figure 3.7 shows TEU (twenty-foot equivalent unit) transport costs and distances from major central Asian cities (Almaty, Tashken, Dushanbe and Bishkek) to the Port Bandar-Abbas in Iran, the Black Sea and the Port Karachi in Pakistan, excerpted from ADB's technical assistance report.

With regard to distances, the shortest access route from Tashkent, the largest population city in central Asia, to warm water ports is a route via Turkmenistan (not transiting Afghanistan) to the Port Bandar-Abbas (the North-South Iran corridor route 2B in Figure 3.3) and the route via Quetta in Pakistan (transiting Afghanistan) to the Port Karachi/Qasim (the North-South Pakistan corridor route 1B in the Figure 3.3). The distances of these two routes are almost the same, approximately 2,700km.



	Distance from the Port Bandar-Abbas (km)				Distance from the Port Karachi (km)	
	Turkmenistan (Alternative Route 2B of north-south Iranian Corridor)	Via Afghanistan			Via Afghanistan	
		From Kabul to Kandahar via Herat	From Kabul to Kandahar via Herat and Zaranji	Via Herat (Route 2B of north-south Iranian Corridor)	Via Peshawar (Route 1A of north-south Pakistan Corridor)	Via Quetta (Route 1B of north-south Pakistan Corridor)
Almaty	3,600	4,610	4,020	3,810	4,010	3,380
Tashkent	2,730	3,730	3,175	2,930	3,345	2,720
Dushanbe	2,940	3,730	2,970	2,680	2,660	2,040
Bishkek	3,270	4,330	3,750	3,530	3,730	3,100

Source: "Trade and Regional Cooperation between Afghanistan and its Neighbors" arranged by JICA Study Team

Figure 3.7 Transport Costs of 20 Feet Container Equivalent

With regard to the transport costs of Afghan Transit routes, although the route from Tashkent via Afghanistan's city Herat to the Port Bandar-Abbas (the North-South Iran corridor route 2B in the Figure 3.3; 2,930km) is approximately 10% longer than the route via Kabul to the Port Karachi/Qasim (the North-South Pakistan corridor route A or B in the Figure 3.3; 2,700km), the former TEU cost, on the contrary, is cheaper by 20% than the latter. The above cost structure is partly explained by the difference in modal share. While the North-South Iran corridor route 2B in the Figure 3.3 makes use of the developed railway infrastructure in Iran, the North-South Pakistan corridor route 2B in the Figure 3.3 uses only road transport (in the case of the North-South Iran corridor route 2B in the Figure 3.3, if it makes use of only road transport, the cost is doubled to be approximately US$ 2,000/TEU).

Table 3.5 shows comparisons of transit costs and time for a TEU and 1 ton bulk cargo among routes in Afghan Transit of the North-South Pakistan corridor (route 1A and 1B) and the North-South Iran corridor, referring to a World Bank study (The source is different from the Figure 3.7[9]). In the table, comparison is made for inside the Afghanistan border and for outside the Afghanistan border respectively. While the outside Afghan border transport cost includes port charges and custom costs, the inside Afghan border cost includes Afghan cross border costs.

Here again, the less costly route is route 2B of the North-South Iran corridor (Rail+Road) and its TEU transport cost is approximately US$ 1,500 (total for both inside & outside of Afghanistan).

Costs of the other routes and transport modes are, all in all, around US$ 2,000 (i.e. Road only transit of route 2B, "Rail+Road" transit of routes 1A and 1B, "Road" only transit of routes 1A and 1B). The reason why there is almost no difference in cost between "Rail+Road" transit and "Road" only transit in the North-South Pakistan corridor is that road transport cost in Pakistan is extremely low (US$0.29/TEU-km), lower by almost half than that in Iran (US$ 0.48/TEU-km, US$ 0.02/ton-km).

Table 3.5 Transit Cost (US$) and Transit Time from Ports to Kabul

		20ft container		Bulk Cargo (ton)		Transit Time (days)	
		Outside of Afghanistan (Border)	Inside Afghanistan (Kabul)	Outside of Afghanistan (Border)	Inside Afghanistan (Kabul)	Outside of Afghanistan (Border)	Inside Afghanistan (Kabul)
North-South Pakistan Corridor* (Route 1A, 1B)	Rail+Road	945	1,045	27	24	16	4
	Road	2,030		28	24	10	4
North-South Iran Corridor (2B)	Rail+Road	1,100	400	80	15	15	5
	Road	1,300	700	50	70	7	5

* Costs are only slightly lower on the Karachi – Quetta – Kandahar route.

Source: Trade and Regional Cooperation between Afghanistan and its Neighbors arranged by JICA Study Team

[9] Report No 26769 Trade and Regional Cooperation between Afghanistan and its Neighbors Februrary 18,2004 Povety Reduction and Economic Management Sector Unit South Asia Region, World Bank

On the other hand, time in road transport is much shorter than that of rail transport in general. In the Pakistan routes of 1A and 1B, it takes 10 days if transported by road and 16 days if transported by rail. As cost is the same and time of rail is 50% longer, there is no competitiveness in Pakistan's rail transport comparing to road transport. Unlike Pakistan, while road transport in Iran route 2B reduces travel time by half, from 15 days (rail) to 7 days (road), and road transport is more costly by 33% (USD 500).

Therefore, if a transporter feels it important to reduce cost, "Rail+Road" transport of the North-South Iran corridor route 2B will be chosen and if a transporter prioritizes time over cost, "Road" only mode of the North-South Iran corridor route 2B as well will be chosen. Taking only efficiency into consideration, it seems that there is no advantage in Pakistan. But as a matter of fact, since there exists substantial informal trade flows, especially between Afghanistan and Pakistan, traffic volume is not solely determined by transport efficiency. Careful attention is required to evaluate real route selection.

Table 3.6 shows length, travel time and average speed of sections in the Afghanistan's primary road network (2002). The fact that Afghan Transit takes a very long time implies the most transit time shown in the Table 3.5 is caused by border crossing including waiting time for border processing.

Table 3.6 Length, Travel Time and Average Speed on Primary Road Network

Section	Length (km)	Travel Time (hours)	Average Speed (km/hour)
Kabul - Torkham	227	6.5	35
Kabul - Kandahar	506	20.0	25
Kandahar - Spin-Boldak	105	2.5	42
Kandahar - Herat	560	8.5	66
Kabul - Mazar-e-Sharif	399	15.0	27
Mazar-e-Sharif - Hairetan	57	2.0	29
Pule-Khumri - Shir-Khan-Bandar	164	12.0	14

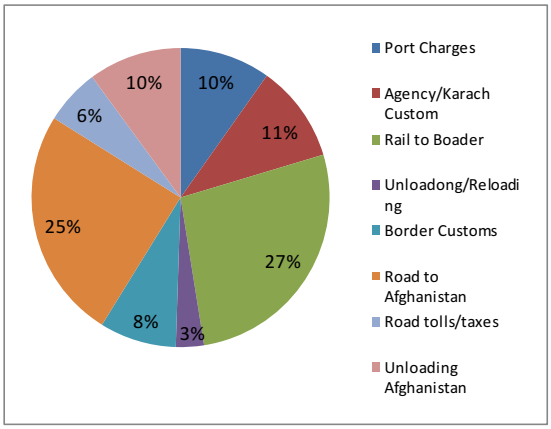
Source: Comprehensive Needs Assesment for Rehabilitation and Reconstruction in the Transport Sector; ADB

Figure 3.8 shows a break down of transport cost from the Port Karachi to Kabul and Kandahar. The transport costs are divided evenly to transit in Afghanistan and Pakistan. However, the fact that travel distance in Pakistan is ten times longer than that in Afghanistan is taken into consideration; the transit in Afghanistan is recognized as very costly.

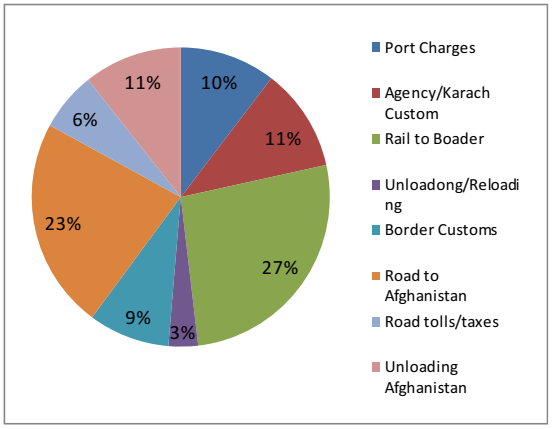
Higher cost of Afghan Transit is explained by higher cross border cost, poor road condition, lower average speed, road tolls/taxes, and a truck hauler cartel, especially in the north-west region of Afghanistan, levying higher charges.

Cost Composition (20ft Container)

Karachi~Peshawar~Kabul (Rail + Road)



Karachi~Chaman~Kandahar (Rail + Road)



Cost Composition (US$/Container)

	Karachi~Peshawar~Kabul A portion of North-South Pakistan Corridor Route 1A		Karachi~Chaman~Kandahar A portion of North-South Pakistan Corridor Route 1B		Karachi~Kabul or Kandahar A Portion of North-South Pakistan Corridor Route 1A or B	
	Rail+Road		Rail+Road		Road	
Port Charges	20ft	40ft	20ft	40ft	20ft	40ft
Port Charges	195	330	195	330	195	330
Agency / Karachi Custom	210	230	210	230	210	230
Rail to Border	540	990	500	960		
Unloading / Reloading	60	75	60	75		
Border Customs	165	180	165	180	165	180
Road to Afghanistan	500	875	430	735		
Direct Road					1140	1850
Road Tolls / Taxes	120	120	120	120	120	120
Unloading at Afghanistan	200	250	200	250	200	250
Total	1999	3050	1845	2880	2030	2960

Source: Trade and Regional Cooperation between Afghanistan and its Neighbors; arranged by JICA Study Team

Figure 3.8 Transit Transport Cost – Container Traffic (US$/Container)

Table 3.7, an excerpt from ADB's technical assistance, shows a detailed comparison of per ton-km transit costs[10] from three main cities in central Asia, Ashgabat, Dushanbe and Tashkent, to warm water ports in Pakistan and Iran via Afghanistan.

The lowest cost corridor is from Ashgabad via Gushgy, a Turkmenistan border city to Afghanistan, then move to Herat, the main city of north-west Afghanistan, then go westward to a border city Islam Qala in Afghanistan, and reach the Port Bandar-Abbas through Iran. The cost of this route is only US$ 40/ton-km. On the other hand, transit routes from Dushanbe or Tashkent to ports in Iran via Afghanistan cost more than US$ 100/ton-km.

[10] Ratio of ton-km and TEU-km is about 1:25.

And with regard to the routes from Tashkent, there appears to be no relationship between cost and distance now, which implies, under the current situation, dominant cost drivers of these transit corridors are security and road condition, rather than distance.

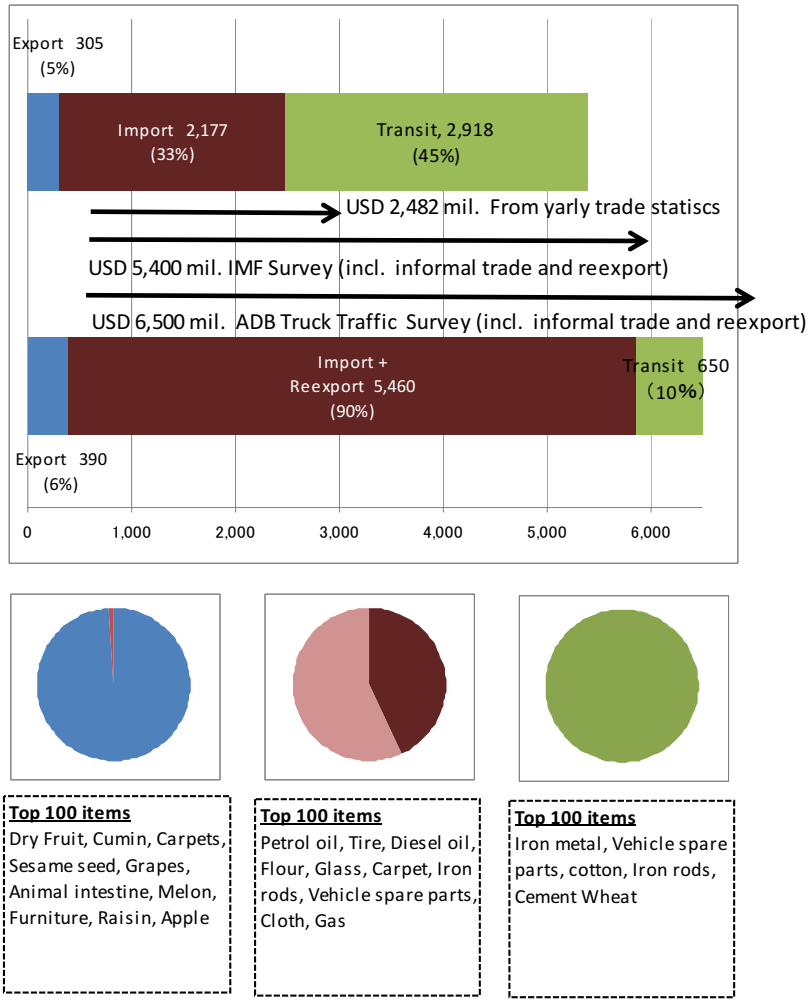
Table 3.7 Corridors Connecting Ashgabat, Dushanbe and Tashkent with Warm Water Ports (US$/ton-km, ranked by cost)

Corridor	Current Truck Tariff ($/ton)	Potential reduced Tariff ($/ton) with all Improvement	Rank by origin and reduced Tariff
Corridors linking Ashgabat with warm water ports			
Ashgabat / Gushgy / Islam Qala / Bandar Abbas	39	32	1
Ashgabat / Imamnazar / Andkhoy / Herat / Islam Qala / Bandar Abbas	65	53	2
Ashgabat / Gushgy / Zaranj / Chabahar	118	103	3
Ashgabat / Imamnazar / Mazare Sharif / Kabul / Spin Boldak / Karachi	147	106	4
Ashgabat / Imamnazar / Mazare Sharif / Torkham / Karachi	137	114	5
Corridors linking Dushanbe with warm water ports			
Dushanbe / Termez / Kabul / Zaranj / Bandar Abbas	115	94	1
Dushanbe / Nizhni Pyanzh / Zaranj / Chabahar	136	116	2
Dushanbe / Termez / Kabul / Zaranj / Chabahar	141	120	3
Dushanbe / Nizhni Pyanzh / Kabul / Spin Boldak / Karachi	161	132	4
Dushanbe / Termez / Kabul / Torkham / Karachi	150	135	5
Corridors linking Tashkent with warm water ports			
Tashkent / Termez / Kabul / Zaranj / Bandar Abbas	111	96	1
Tashkent / Termez / Kabul / Zaranj / Chabahar	134	114	2
Tashkent / Termez / Kabul / Tokham / Karachi	130	115	3
Tashkent / Termez / Kabul / Spin Boldak / Karachi	182	156	4
Tashkent / Termez / Mazare Sharif / Herat / Islam Qala / Bandar Abbas	191	180	5

Source: ADB4536 survey 2005 from "Afghanistan: Cross Border Trade and Transport Facilitation, ADB"

(2) Traded Goods and Destination of International Cargos in Afghanistan

With the limited data availability on informal trade and transit traffic, it is difficult to draw the whole picture of international cargo traffic in Afghanistan. Figure 3.9 summarizes the current situation of the Afghan Transit mainly based on a truck cargo survey conducted by ADB in 2005 at the 16 main crossborder and ring road access points.



Source: Afghanistan; Cross Border Trade and Transport Facilitation, arranged by JICA Study Team

Figure 3.9 Afghan Trading based on Truck Cargo Survey (ADB, Unit = 1 million US$)

Official statistical data shows that Afghanistan's external trade (import/export) was approximately US$ 3 billion in 2005. Besides, data based on a survey conducted by IMF in the same year 2005, which covers both formal and informal trade (including re-export), figures out the total extermal trade volume of Afghanistan is US$ 5.4 billion[11]. Furthermore, other data based on traffic surveys conducted by ADB shows the trade is US$ 6.5 billion, composed of 6% export, 84% import (including import for re-export) and 10% transit. Since the ADB survey was based on a questionnaire method, this number is not supposed to include trade of such goods as weapons and opium in which trading itself is illegal. There possibly exists still more international cargo traffic volume as a matter of fact[12].

[11] According to the IMF study, it is estimated that 1.2 billion USD out of 1.7 billion USD is reexport (the total trade, i.e. export and import, is 5.4 billion USD).

[12] As the ADB survey was conducted not only at the cross bordering points but also conducted at main points on the ring road, extralegal trade (if it were declared, the trade would be legal) is supposed to be included to this value.

Composition of export, import and transit trade commodities are shown in the pie-charts and bottom tables in Figure 3.9. Agricultural goods are the main components of the Afghanistan's export. As shown in the Figure 3.9, Afghanistan's export is composed mainly of agricultural foods, which represent 99% of the total export.

With regard to the import, miscellaneous goods, mainly for daily use, are imported and the top 10 items represent 43% of the total trade. With regard to transit trade, 6 items including iron metal, vehicle spare parts, cotton, iron rods, wheat and cement represent 100 % of the total transit trade.

In short, Afghan Transit trade routes are roughly divided into the following two routes;

(1) Route from (to) three central Asian countries to (from) Pakistan via Afghanistan
(2) Route from (to) Turkmenistan to (from) Iran via Afghanistan

In the transit trade of route (1), cargos from (to) three northern neighboring countries (Uzbekistan, Turkmenistan, and Tajikistan) are transported to (from) Pakistan via Termez and Mazar-i-Sharif. In this route, some cargoes are transported farther north to Kazakhstan but the cargo volume is limited. Since Afghanistan is not functioning as a logistic center of the region these days, the freight volume of this route is small. But cargos through this route are expected to increase once the logistic environment of the countries in the region is improved in the future.

Transit trades of route (2), cargos from (to) Gushgy in Turkmenistan are transported to (from) Iran via Herat in Afghanistan and Isram-Qala, or via Delaram and Iranian Zaranj. As rehabilitation of the section between Gushgy and Herat was completed just recently, as of year 2005 at the ADB traffic survey, the traffic volume of this route seems limited (ADB traffic survey was conducted in 2005).

Besides, the Afghanistan government recently expressed its intention to participate in the TRACECA (Transport Corridor Europe Caucasus Asia), which includes an alternative route via the Black Sea.

With regard to the Black Sea route and the Baltic route, although these land transport costs are high, their supply-chains are connected to less expensive sea transport and this offsets higher land transport costs. In the trade with Europe, the Baltic route is especially attractive as the route saves US$ 825 of cost and 3 days transit time.

Composition of cargo is different between the via Pakistan cargo trade and the via Iran cargo trade. While bilateral cargoes via Pakistan include assistance-supplies and donor-cargoes, cargoes via Iran include petro-products and commercial goods from Iran and the third countries.

Operation logistics of ISAF in Afghanistan results in the cargo being unshipped in the port Karachi and transported to Afghanistan by land transport[13].

Table 3.8 is a summary table of the composition of export, import and transit goods at crossborder points by direction of trade.

Table 3.8 Trade Commodities & Trade Routes between Afghanistan & Neighboring Countries

Direction of Trade	Commodity composition
Export trade: What is exported and through which route?	
1. Exports though Torkham	Apple, Carpets, Dry fruit, Grapes, Melon
2. Exports through Spin Boldak	Cumin, Furniture, Grapes, Medicine, Melon
3. Exports through Zaranj	
4. Exports through Islam Qala	Fresh and dry fruits, medicinal plants, cumin, wool and animal skins
5. Exports through Torghandy	Fresh and dry fruits, animal skins and carpets
6. Exports through Aquina	Animal intestines, Dry fruit, Sesame seed, Animal skins
7. Exports through Hairatan	Dry fruit
8. Exports through Sir Khan Bandar	Fresh and dry fruits, animal skins, handicrafts and carpets
Import trade: What is imported and through which route?	
9. Imports from and through Pakistan via Torkham	Cement, Cloths, Const. Material, Dry milk, Electronics, Fans, Flour, Food items, Fruit juice, Fruits, Poultry meat, Glass, Iron frame, Iron grader, Mixed cargo, Pepsi cola, Petrol oil, Rice, School books, V. Spare parts,
10. Imports from and through Pakistan via Spin Boldak	Stationary, Steel, Steel pipes, Steel rods, Tea, Vegetables, Water, Wood Bicycle, Cattle, Cement, Fertilizer, Flour, Green tea, Milk, Pepsi cola, Poultry meat, Rice, Steel, Steel grader, Sugar, Tea, V. Spare parts, Water
11. Imports from and through Iran via Zaranj	Carpet, Cement, Coco cola, Cooking oil, Diesel oil, Fertilizer, Fruit juice, Gas capsule, Gas cylinder, Iron grader, Mobil oil, Motor cycle, Petrol oil, Shampoo, Tiles, Tire, Varnish, V.Spare parts, Washing powder, Water pump, Zam Zam
12. Imports from and through Iran via Islam Qala	Biscuit, Blocks, Cake, Candy, Carpet, Clothes, Coca cola, Tiles, Tire, Diesel oil, Fanta, Fertilizer, Food, Fruit juice, Gas cylinder, Ghee, Glass, Iron grader, Mobil oil, Motors, Pepsi cola, Perfume, Petrol oil, Rug Shampoo, Soap, Steel grader, Steel pipes, Sugar, Varnish, V. Spare parts, Washing powder, Water, Water pump
13. Imports from Turkmenistan through Torghandy	Fertilizer, Flour, Gas, Iron metal, Rice, Wheat
14. Imports from Turkmenistan through Aquina	Biscuit, Car, Cloth, Cocoa Cola, Cosmetics, Electrical goods, Fanta, Freezer, Ghee, Glass, Hair oil, Motor cycle and spares, Petrol Oil, Pepsi cola, Shampoo, Shoe, Soap, V. Spare parts
15. Imports from Uzbekistan through Hairatan	Beans, Construction material, Fertilizer, Flour, Fresh fruit, Gas, Spices, Tiles, Peas, Iron rods, Medical equipment, Onion, Petrol oil, Potatoes, Water melon, Wood
16. Imports from Tajikistan through Sir Khan Bandar	Cold drinks, Fertilizer, Gas, V. Spare parts
Transit trade: What is crossing Afghan territory to neighboring countries?	
17. Turkmenistan to Pakistan through Torghandy and Spin Boldak	Iron metal
18. Iran to Pakistan through Islam Qala, Herat and Torkham	V. Spare parts
19. Uzbekistan to Pakistan through Hairatan and Torkham	Cotton
20. Uzbekistan to Pakistan through Hairatan and Spin Boldak	Iron metal, Iron rods
21. Tajikistan to Pakistan through Sir Khan Bandar and Spin Boldak	Iron metal
22. Pakistan to Iran through Spin Boldak and Zaranj	Wheat
23. Pakistan to Uzbekistan through Hairatan	Cement
Transit trade: What is crossing into Afghanistan through neighboring countries?	
24. Iran to Afghanistan through Turkmenistan and Aquina	Biscuit, Carpet, Cement, Fruit juice, Furniture, Ghee, Macaroni, Mobil oil, Motor cycle, Pepsi cola, Plastic pipe, Plastic, Ply wood, Shampoo, Soap, Sweet, Sweet and food products, Water

Source: ADB; TA 4536 survey 2005, Afghanistan; Cross Border Trade and Transport Facilitation

[13] Information from an interview with the Karach Chamber of Commerce

(3) Current Situation of Cross-Border Traffic in Afghanistan

Figure 3.10 and Table 3.9 shows traffic volume (AADT) and share (%) of trucks of the road traffic links to borders in Afghanistan. The Traffic on these roads is characterized as heavy volume, there would be very high cost effectiveness for any fund spent on construction and improvement. The distinctive feature of the international access roads is high share of truck transportation. The average share of truck transport is 40%, as much as 100% in some sections.

According to a traffic survey conducted by ADB in 2006, in spite of security exacerbation and stagnated economic activities, the traffic volume is reported as steadily increasing. The Study Mission as well confirmed in the site visit to Afghanistan that traffic volume in 2009 increased more than was expected in 2006.

Information from the Afghanistan visit also shows that the traffic volume at some key international access points, such as Jalalabad with poor road conditions, is more than 4,000 AADT, and if roads are improved, significant impact is expected. The traffic at these points, however, is influenced by very site specific factors. The large amount of the US logistics cargos to airports and bases in Kandahar or from quarry trucks to Herat are some of these examples.

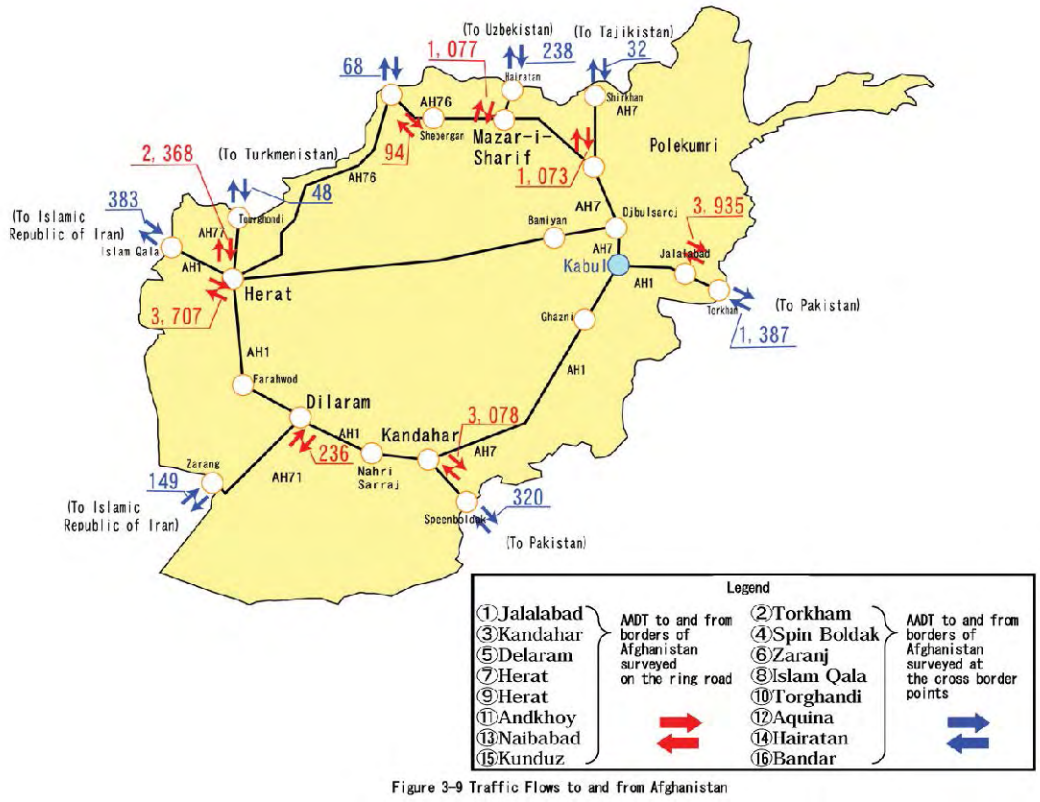


Figure 3-9 Traffic Flows to and from Afghanistan

Source: Afghanistan; Cross Border Trade and Transport Facilitation, arranged by JICA Study Team

Figure 3.10 Domestic Traffic Flow in Afghanistan

On the other hand, the traffic in Delaram, a South-West city on the ring road and in Andhkvoy, a city directly north of the South-West ring road is supposed to be small volume because the former has security issues and poor traffic conditions and the latter also has poor road condition problems. Furthermore, except for in Torkham, most of the traffic is composed of commercial vehicles such as trucks, and non-commercial and passenger traffic is limited.

The apparent difference among the traffic at ring road survey points and border survey points implies that some trucks are crossing borders without border documentation and custom procedures. In fact, it is reported to be witnessed that trucks coming from Jalalabad and Kandahar still disappear at the cross border points such as Turkham or Spin Boldak. The ABD report also indicates that at some borders, trucks waiting for procedures were backing up because of lack of border processing spaces, poor security and short business hours for documentation.

Besides, they commented that the reason why traffic outgoing north was small was that the survey was conducted in the off season for fruit and much more traffic would be observed during fruit high season.

Table 3.9 Domestic Traffic Flow in Afghanistan

Location	Total Vehicles	Trucks as % of Total
Jalalabad	3,935	29
Torkham	1,387	79
Kandahar	3,078	37
Spin Boldak	320	100
Delaram	236	48
Zaranj	149	100
Herat	3,707	34
Islam Qala	383	96
Herat	2,368	28
Torghandi	48	97
Andkhoy	94	72
Aquina	68	100
Naibabad	1,077	39
Hairatan	238	96
Kunduz	1,073	13
Sirkhan Bandar	32	100

Source: Afghanistan: Cross Border Trade and Transport Facilitation

Table 3.10 is an abstract of the top 20 large traffic volume sections among the 111 different points for the origin-destination surveys. Large traffic volume sections are concentrated in the sections of international access roads, which connect with the ring road to neighboring countries. This indicates that the Afghan Transit network is actively used in trade with neighboring countries as a part of the north-south and east-west regional corridors.

Table 3.10 Top 20 Origin-Destination Points by Truck Nos. and Values

Origin	Destination	% number		Origin	Destination	% value
Termez	Mazare Sharif	5.8		Zaranj	Kabul	8.8
Iran	Zaranj	5.8		Islam Qala	Herat	7.5
Sirkhan Bandar	Spin Boldak	5.4		Iran	Herat	5.5
Islam Qala	Herat	5.2		Iran	Zaranj	5.5
Zaranj	Kabul	4.5		Kirky	Mazare Sharif	4.9
Hairatan	Kabul	4.1		Sirkhan Bandar	Spin Boldak	4.2
Torghandi	Spin Boldak	3.2		Hairatan	Kabul	3.5
Kirky	Mazare Sharif	2.8		Peshawar	Kabul	3.3
Iran	Herat	2.8		Termez	Mazare Sharif	3.1
Tehran	Mazare Sharif	2.6		Peshawar	Jalalabad	2.8
Spin Boldak	Kandahar	2.6		Zaranj	Kandahar	2.3
Peshawar	Kabul	2.4		Tehran	Mazare Sharif	2.3
Peshawar	Jalalabad	2.2		Iran	Afghanistan	2.2
Herat	Turkmenistan	2.1		Quetta	Kandahar	2.1
Kurgan Teppa	Sirkhan Bandar	1.9		Karachi	Kabul	1.7
Turkmenistan	Herat	1.7		Herat	Jalalabad	1.6
Karachi	Kabul	1.7		Karachi	Spin Boldak	1.5
Iran	Afghanistan	1.7		Herat	Spin Boldak	1.4
Herat	Jalalabad	1.7		Karachi	Kandahar	1.4
Torghandi	Herat	1.5		Torghandi	Spin Boldak	1.3
TOTAL		**61.6**				**67.0**

Source: Afghanistan; Cross Border Trade and Transport Facilitation

Table 3.11 Main Commodities of Truck Cargo Transport by Import, Export and Transit

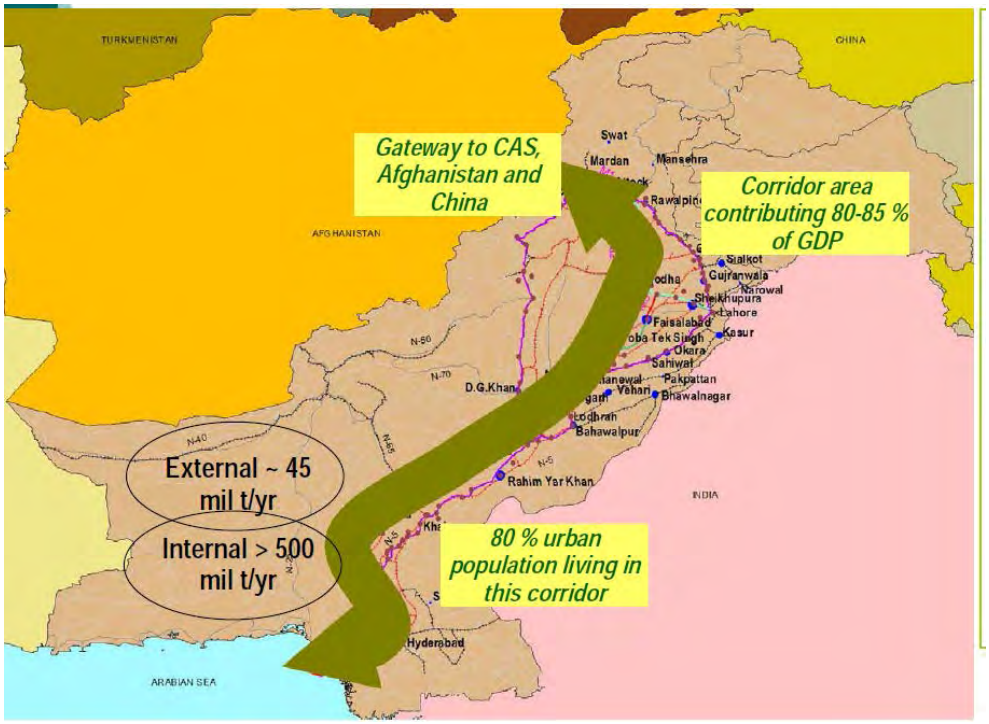
TOTAL (100%)	Import (84%)	Export (6%)	Transit (10%)
Iron metal	Petrol oil	Dry Fruit	Iron metal
Petrol oil	Tire	Cumin	Vehicle spare parts
Carpet	Diesel oil	Carpet	Cotton
Tire	Flour	Sesame seed	Iron rods
Diesel oil	Glass	Grapes	Cement
Flour	Carpet	Animal intestine	Wheat
Glass	Iron rods	Melon	
Iron rods	Vehicle spare parts	Furniture	
Vehicle spare parts	Cloth	Raisin	
Cars	Gas	Apple	
44% of Total	43% of Imports	99% of Exports	100% of Transit

Source: Afghanistan; Cross Border Trade and Transport Facilitation

Table 3.11 shows the main commodity composition of truck cargos by export, import and transit. Most cargo destinations are Afghanistan, not countries farther north. Besides, Afghanistan's export and transit cargos are concentrated on a limited numbers of items. As Table 3.11, however, is based on an on-site questionnaire survey, traffic that avoids border processing is supposed not to be included.

On the other hand, the following description refers to logistics involving Afghanistan from the viewpoint of the Pakistan side, which is mostly consistent with the viewpoint from the Afghanistan side.

Figure 3.11 shows the logistic flow from the Pakistan side. In the figure, there is a strong axis from Karachi to the north, including Afghanistan and 80% of the population and 80-85% of GDP are concentrated along this axis. According to Pakistan's planning commission, the logistics on the axis is mainly for domestic purposes and international logistics account for only about 10% of the total.



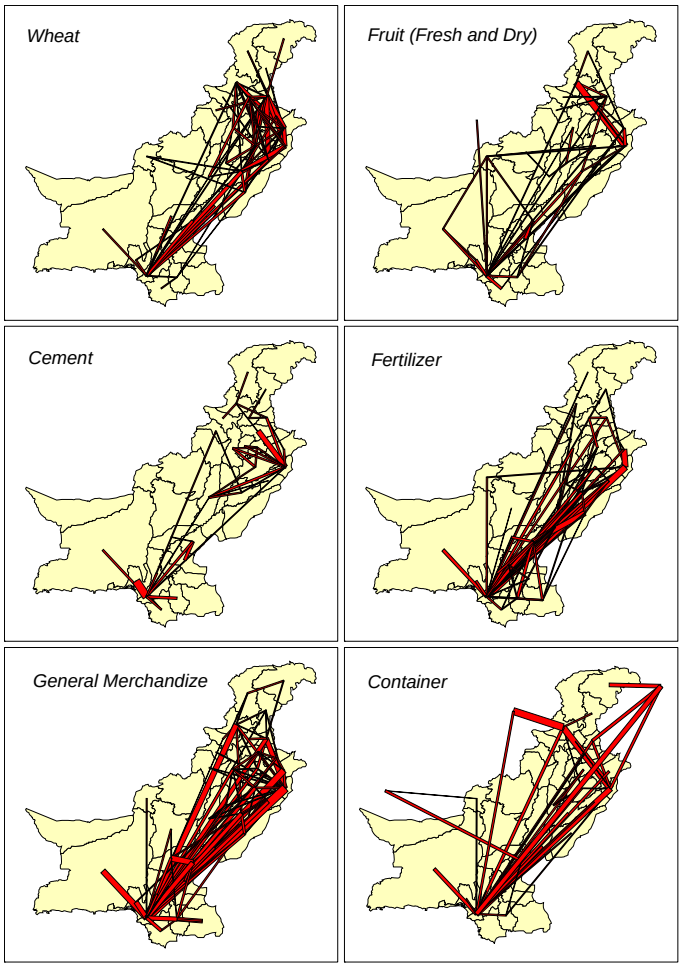
Source: Presentation by Economic Committee of Pakistan

Figure 3.11 Logistic Axis of Pakistan

Additionally, a traffic survey conducted by JICA in Pakistan is consistent with the above and clause "3.2.2 Current Situation of Transport in Afghanistan and its Neighboring Countries" describes the features.

According to the above JICA survey, cargo truck traffic had increased by 12% annually throughout the 1990's, which grew higher than passenger traffic and average elasticity of logistic demand to GDP was 2. Furthermore, the truck transportation share is 95% of total domestic freight traffic at the moment[14].

Figure 3.12 shows O/D map of cargo traffic by commodities. The figure indicates that there is a distinct difference in pattern between locally produced goods and imported goods[15]. In the container cargo traffic, there exists a clear axis from Lahore via Peshawar and farther to Afghanistan.



Source: A Fact Book on Pakistan Transport, JICA May 2006

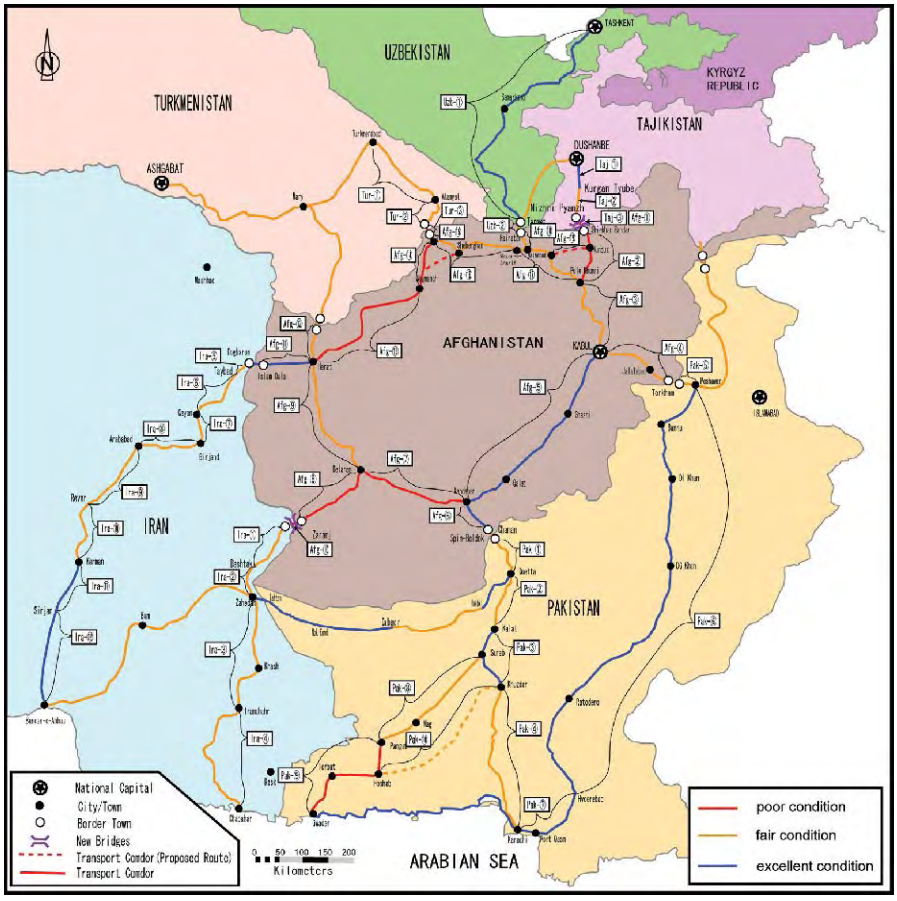
Figure 3.12 O/D Map of Cargo Traffic by Commodities

[14] A Fact Book on Pakistan Transport, JICA, 2006.5,
[15] A Fact Book on Pakistan Transport, JICA, 2006.5

3.2.3 Current Situation of Infrastructure in Afghan Transit

(1) Overview

Figure 3.13 summarizes the current situation of Afghan Transit section by section. The figure is based on 2006 information of Afghanistan and neighboring countries. Currently, the transport network in Afghanistan is highly dependent on road transport and the railway network is not more than 80 km so far, including facilities that are planned to go into service soon. The railway subsector, however, is expected to rapidly develop in the near future.



Source: Afghanistan; Cross Border Trade and Transport Facilitation, arranged by JICA Study Team

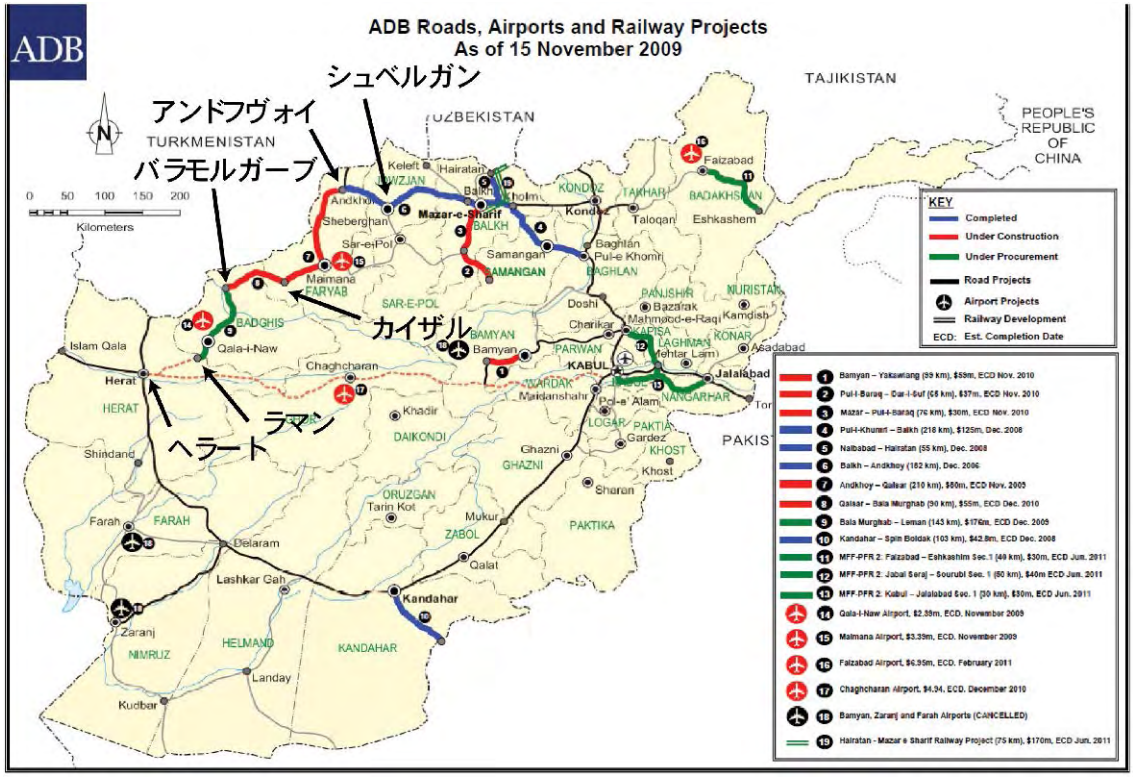
Legend: Poor Condition, Fair Condition, Excellent Condition

Torghandi - Herat (119km): Cement-concrete surface of the subsection from Herat to 70km from Herat is well maintained, the other is poor.
Islam Qala - Herat (124km): 7.3km of upgrade to asphalt-concrete road by Iran's assistance
Delaram - Zaranji (223km): Construction started by Indian assistance
Kandahar - Spin Boldak (104km): Construction is on-going by Japan-ADB/Kuwait.
Jalalabad - Torkham (74km): Rehabilitation is on-going by Pakistan's assistance.
Kunduz - Shirkan (71km): Construction/improvement is on-going by WB assistance. Interrupted by security problems, 11 dead
Naibabad - Hairatan (57km): Asphalt-concrete surface is maintained. Relatively good condition, improvement is on-going by ADB/Japan's assist.
Aquing-Andkoy (37km): Improvement is planned by IsDB.

Figure 3.13 Current Situation of Each Section in Afghan Transit (2006)

(2) Road Sector

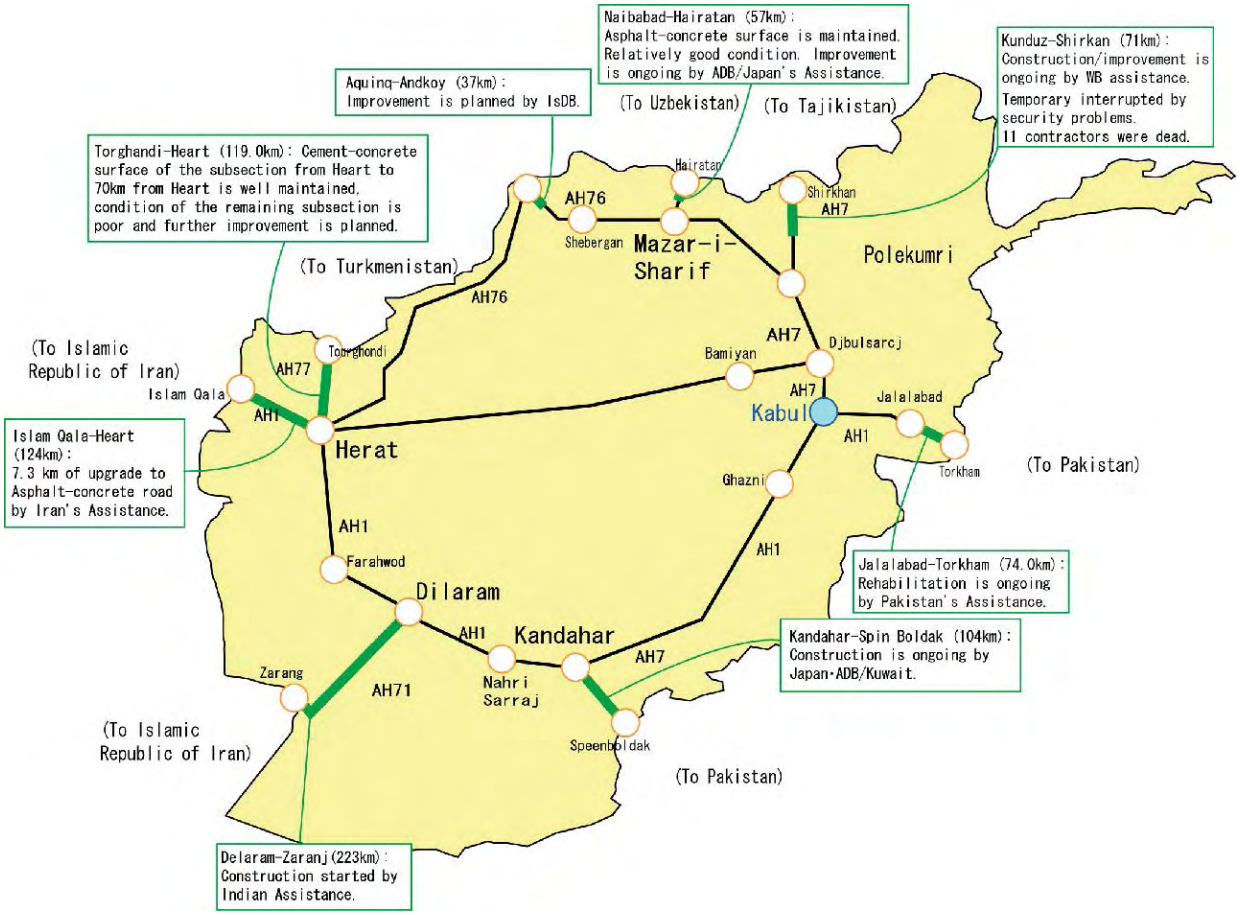
In recent times, development of the highway network in Afghanistan has progressed rapidly. Even in the less progressed 615km section in the northwest portion of the ring road, approximately 90% has been completed, i.e., the Sheberghan~Andkhvoy section has already been completed, and the Andkhvoy~Caesar section (200km) and the Caesar~Bala Morghab section (94km) is under construction. Furthermore, the remaining section of Herat~Amrik~Laman (aprox.100km) has been partly completed by Iran's Assistance and the rest of this section as well is planned to develop within 2 years. There remains, therefore, only about 150km of Bala Morghab~Laman section. More than 90% of the rehabilitation project in the ring road has already been developed or planned to be completed in the near future.



Source: Afghanistan Office of ADB, arranged by JICA Study Team

Figure 3.14 Current Situation of Ring Road

Development of international access roads is as well in progress. The Delaram~Zaranj section, a key junction into which all least cost access routes originated from the three central Asian countries joined, has been in progress by assistance from Iran and India. Furthermore, the Zaranj~Mirak section (320km), a road to the Iranian border village Mirak including bridges, has already been completed by Iran's assistance. Figure 3.15 shows the current situation of international access roads.



Source: JICA Study Team arranging various information and data

Figure 3.15 Current Situation of International Access Roads

(3) Railway Sector

Currently, the railway in Afghanistan is only 80km in total, including about 20km from Hairatan, a northern border town, to Mazar-e-Sharif and about 60km from Islam Qala, a border city of Iran, to Herat. But as future development is concerned, there are many plans, and some sectors have already prepared development procedures and construction is awaited.

(1) The section connecting from northern Uzbekistan and Tajikistan to Herat

This is a 1200~1300km section with a development cost of US$ 12.5~13 billion. Assistance by ADB was already decided, and the feasibility study is underway. ADB decided to assist and USD 170 million was granted. A construction contract was signed for the 75km section from Hairatan to Mazar-e-Sharif (USD 130 million) and it was awarded to an Uzbekistan company.

(2) The Chaman-Spin Boldak section

This runs 26km from Chaman (Pakistan side) to Spin Boldak (Afghanistan side), a border city of the corridor from Kandahar to Quetta. A construction contract was signed (at the end of March, 2008). The construction is scheduled to commence. In the future, it will extend to Kandahar.

(3) Tajikistan border ~ Pol-e-Khomri ~ Kabul ~ Aynak mine

China committed to develop this section in return for a mine exploration and development concession. A section with a total length of 600km is planned to start construction in three years and will be completed in about 5 years of work.

3.2.4 Current Situation of Trade Facilitation in Afghanistan

One of the characteristics of Afghanistan's trade is transit trade under formal agreement between Afghanistan and neighboring countries. While transit trade has existed for a long time, the establishment of transit trade as an institutional system harkens back to the ATTA (Afghan Transit Trade Agreement) of 1965 between Afghanistan and Pakistan, and the Afghan Iran Transit Agreement of 1973[16].

During the operation of the ATTA afterwards, sometimes some stricter restrictions were enforced such as reduction of subject items or tightening controls in main crossborder points in Karachi, Peshawar, Porkham, Chaman and others, responding to the rapid increase in transit trade, and this caused a rapid shrink in transit trade for a while. The trade, however, soon recovered and has increased up to the present day.

The situation of the transit trade with Iran is essentially the same. Afghanistan acquired a route from Dogaroon (Islam Qala), via Mashad that reached to Bandar-Abbas by the transit agreement. The Iranian route is attractive comparing to the other routes because of its good road condition, less cumbersome border procedures, clear custom regulations and cheaper transit taxes and fees.

While the trade with Iran also sometimes rapidly decreased due to border closures etc., it recovered soon after borders reopened, and nowadays, the trade tends to further increase. The route across the border into Iran at Dogaroon and reaching to Bandar-Abbas occupies 93% of Afghan – Iran transit trade and some other routes via Dabriz represent 3.2%, and Bazargan represents 3%.

In addition to Pakistan and Iran, Afghanistan joins into transit trade agreements with all the other neighbors, including India and Kazakhstan except for Turkmenistan. Furthermore, through ECO, a multilateral trade agreement, Afghanistan reached agreements with all ECO member countries including Turkmenistan. Table 3.12 summarizes Afghanistan's status of bilateral and multilateral agreements and MOUs with its neighboring countries.

[16] Earliest demand for transit rights of the landlocked countries was found in 1864, when Switzerland put forward its claim to neighboring France and Prussia. However, it was not found until after the World War I, that the transit right was internationally recognized. After World War II, the UN General Assembly Resolution 1028 of 1957 confirmed the needs of landlocked countries for adequate transit facilities and convenience for their development. Afterwards, the 1965 UNCTAD convention reconfirmed the cooperation between the countries with sea coasts and landlocked neighbors in transit trade. In the context above, ATTA was concluded and came into effect in 1965, which designated two transit corridors of Peshawar-Torkham and Chaman-Spin Boldak.

Table 3.12 Status of Bilateral and Multilateral Agreements/MOUs with Neighboring Countries

Countries/Agreement/MOU	Objective and main feature	Date and current status
Afghanistan/Pakistan 1958 Transit Trade Agreement, Agreement between the Government of the Islamic Republic of Pakistan the Government of the Kingdom of Afghanistan for Regulation of Traffic in Transit	Strengthen economic ties allowing transit facilities through mutual territories.	1958 (date not known) In operation, needs revision or anew treaty.
Afghanistan/Pakistan *Afghan Trade and Transit Agreement*, 1965 between the Kingdom of Afghanistan and the Government of the Republic of Pakistan for Regulation of Traffic in Transit.	Strengthen economic ties. Freedom of transit through two routes without any levy on goods in transit, uniformity in transport charges, simplified Customs procedures and documentation and annual review meeting.	Kabul, 2 March 1965 In operation, needs revision or a new treaty to address concern of both parties such as negative list of goods, block container train services, reciprocal admittance of vehicles, door to door transport operations, restriction to use only rail transport, provincial taxes, slow processing, high rail tariff and slow customs processing and inward flow of non-dutiable goods.
Afghanistan/Pakistan Protocol annexed to Transit Agreement signed between the Kingdom of Afghanistan and the Government of the Republic of Pakistan.	Same as above	Kabul, 2 March 1965 Same as above
Afghanistan/Pakistan Annex on the Customs and Other Procedures to the Agreement signed on the 2nd of March, 1965 between the Kingdom of Afghanistan and the Government of the Republic of Pakistan for Regulating Traffic in Transit.	Same as above	Kabul, 2 March 1965 Same as above
Afghanistan/Iran Two agreements between the Islamic Republic of Iran and Transitional Islamic State of Afghanistan on trade promotion and international transport of goods and passengers.	Promote trade and facilitate movement of passengers and freight between two countries with freedom of transit with no duties on transit goods, no transport permit, no discrimination against traffic and in duties, removal of non-tariff barriers, cooperation between trade bodies, and reciprocal visa.	Tehran December 2002 (Jaddi 15 1381) In operation but certain issues need attention including vehicle standards, transit permits and transit guarantee.
Afghanistan/Iran/India MoU on the *development and construction of transit and transport infrastructure in Chalabar – Milak – Zeranj Delaram route.*	To facilitate road and rail traffic after connecting Islam Qala to Chabahar. India allowed transit via Iran and Afghanistan, Afghanistan to transit through Iran, 90% discount on port fees at Chabahar and 50% on warehouse for Afghanistan, India to get Afghan discounts at Chabahar, Iran building Milak bridge over Hilmand and India Zaranj-Delaram road and Iran to extend railway to Islam Qala.	Tehran 5 January 2003 In operation. India building Delaram-Zaranj road, Iran upgrading Chabahar-Milak road and completed Milak bridge.
Tajikistan/Iran	To promote trade between the	Tehran, June 2003

Table 3.12 Status of Bilateral and Multilateral Agreements/MOUs with Neighboring Countries

Countries/Agreement/MOU	Objective and main feature	Date and current status
Agreement between the Islamic Republic of Iran and the Government of the Republic of Tajikistan on traffic in transit	two countries and encourage Tajikistan to use Iran as transit for exports and imports through Iranian ports.	In operation but bottleneck is difficulties of transit Afghanistan and more so through northern neighbors.
Afghanistan/Uzbekistan Memorandum of Understanding between the Government of Transitional Islamic State of Afghanistan and the Government of the Republic of Uzbekistan on cooperation in railway transport.	This MOU envisages extension and expansion of rail traffic for which work will be done on list of transit stations, regulations for rail transit, training of personnel and drafting of a Railways Agreement between the two neighbors.	Tashkent 16 October 2003
Afghanistan/Uzbekistan Agreement on Cooperation in the field of Transit and Transport between the Government of the Transitional Islamic State of Afghanistan and the Government of the Republic of Uzbekistan.	To expand trade and transit through right of transit, elimination levies on cargo and vehicles in transit, cooperation in transport infrastructure and ensuring security of goods in transit.	Tashkent, 29 August 2004
Afghanistan/Uzbekistan Agreement between the Government of Transitional Islamic State of Afghanistan and the Government of the Republic of Uzbekistan on check points through State Borders.	Facilitate trade and transit.	DRAFT
Afghanistan/Uzbekistan Agreement between the Government of Transitional Islamic State of Afghanistan and the Government of the Republic of Uzbekistan on the international transportation of cargoes by automobiles, river and railways transportation.	Facilitate transport and transit.	DRAFT
Afghanistan/Tajikistan Transit Agreement between the Government of Afghanistan and the Government of the Republic of Tajikistan Addendum No. 1 Concerning Transit routes Addendum No. 2 Customs facilities Addendum No. 3 Transportation of Goods	Increase trade and transit between and through Afghanistan and Tajikistan.	DRAFT. The draft Agreement contains many ambiguities and should be redrafted. Ambiguities include entry of foreign transporters, mutual recognition of driving licenses and issuance of visa, passenger transit and specification of the transport mode.
Afghanistan/Tajikistan/ Iran Agreement between the Transitional Islamic State of Afghanistan, The Government of The Islamic Republic of Iran and the Government of the Republic of Tajikistan for Traffic in Transit.		Tehran 18 June 2003
Afghanistan/ Kazakhstan Agreement between the Government of the Republic of Kazakhstan		DRAFT
Afghanistan/Azerbaijan/Iran/Kazakhstan/Kyrgyz Republic/Tajikistan/Turkey/Turkmenistan/ Uzbekistan ECO Transit Trade Agreement (TTA)	To facilitate trade between two member states when the goods have to pas through other member state/states. Applied to all trade in sealed containers guaranteed by Associations authorized by Customs authority.	March 1995. It has been signed and ratified by all member states except Afghanistan and Uzbekistan. It came into force in December 1997. The Agreement has not been implemented due to procedural impediments though ECO's Trade and Transport Committee (TTC) is reviewing it periodically.

Source: Afghanistan; Cross Border Trade and Transport Facilitation, ADB

3.2.5 Impact of the Afghan Transit Development

(1) Overview

As Afghanistan once used to be a crossroad of the Silk Road, there are many initiatives to rebuild Afghanistan as a land bridge of international trade between central Asia and south Asia, and farther to Europe and East Asia.

Behind these discussions, there is a shared understanding that the greater central Asian region including Afghanistan, Pakistan and Iran, suffers from lack of trade volume both inter and intra-regionally compared to its population and scale of economy and this inhibits regional development.

CSATTF (Central and South Asia Trade and Transport Forum) and CAREC (Central Asia Regional Economic Cooperation) programs by ADB are also based on the above understanding, and after evaluating impacts of corridor development, they work with many regional corridor infrastructure development and trade facilitation programs.

(2) Evaluation of the Potential and Obstacles for Trade

There is an economic model called the “gravity model (of trade)” which quantitatively evaluates trade potential by analyzing gaps between trade potential and actual trade and obstacles. Studies applying this model to the greater central Asian region all confirm that the region has a lower volume of trade than should be expected.

A study, for example, conducted by Ian Babetski, an economist of the Czechoslovakian central bank presented a working paper to the EBRD (European Bank for Reconstruction and Development) which finds that the former CIS countries of Kazakhstan, Kyrgyz, Turkmenistan and Uzbekistan traded much less than the EU countries from 1997 to 2002 according to their relative sizes, GDPs and distances from trading partners.

Table 3.13 shows trade gaps and explaining factors that impact the trade (EU=100), adding variables representing each factor to a baseline model and analyzing their impacts on equations.

According to this simple gravity model, the central Asian region exploits only 49% of its potential and it changes little even when elements of cross-border, infrastructure and trade policy are added.

Table 3.13 Trade Gaps against the EU by Region (between estimations, average country effects, GDP in PPP)

Model	1	2	3	4	5
	baseline model	baseline model +border effect	baseline model +border effect +infrastructure	baseline model +border effect +infrastructure +trade policy	baseline model +border effect +infrastructure +trade policy +institutions
eu_world	100 -	100 -	100 -	100 -	100 -
ac_world	**74** **	**62** ***	**67** ***	139	220 *
see_world	**33** ***	**31** ***	**33** ***	**50** **	117
cis_world	**49** ***	**42** ***	**43** ***	**41** ***	98
nafta_world	88	77	**85** *	96	109
sam_world	130	110	125	86	144
eseasia_world	238	210	170	250	185
sasia_world	**29** ***	**29** ***	**28** ***	**5** ***	**6** ***
nafmeast_world	82	74	91	206	489
oce_world	**269** ***	**221** ***	**273** ***	**578** **	624 *

Source: How deep is your trade? Transition and international integration in Eastern Europe and the former Soviet Union

On the other hand, when an index of institutions (the World Bank governance index) is added, the trade level is assumed to be essentially the same as the EU level, which implies the reason why the central Asian region is lacking trade volume. This is mainly explained by institutional factors such as poor governance rather than cross-border effects (numbers of border crossings), infrastructure (road and rail density) and trade policy (whether or not they participate in the WTO).

In addition also applying the gravity model presented in their IMF research for working paper to evaluate trade potential in the region, Elborgh-Woytec finds that the trade between former CIS countries of Tajikistan, Uzbekistan and Turkmenistan and the EU does not adequately exploit their trade potential. The reasons for the above are the landlocked status, lack of adequate physical infrastructure, poor trade facilitation mechanisms, numerous trade barriers and governance problems influencing custom and transport services.

Further, the United Nations, through a research on human development factors in central Asian countries, points out that if the countries overcome the disadvantage of being landlocked and successfully reduce the cost of trade, larger economical gains will accrue and the GDPs of central Asian Countries could be 50% higher as a result of comprehensive and continuous regional cooperation.

Table 3.14 CIS: Potential Trade with the EU, 2001

	Additional CIS Trade with the EU (In US$m)	(In percent of actual trade)
Armenia	1,828.0	537.6
Azerbaijan	802.0	42.6
Belarus	1,895.8	91.9
Georgia	5,281.0	1,057.1
Kazakhstan	14,275.2	405.3
Kyrgyz Republic	1,917.2	1,114.0
Moldova	1,626.1	438.0
Russia	76,185.1	162.6
Tajikistan	180.8	70.9
Turkmenistan	350.4	92.4
Ukraine	13,326.7	170.0
Uzbekistan	1,740.9	183.2
Total	119,409.2	183.4

Source: Of Openness and Distance: Trade Developments in the Commonwealth of independent States, 1993–2002

The World Bank also finds that in the period of 1960-1992, landlocked developing countries grew 1.5% as an average per year; slower than countries that were not landlocked. The World Bank further points out that it is necessary to clarify the reason, to understand why reduced trade persists and closer intra and inter-regional cooperation is required, which would make it possible to realize enormous gains[17].

The same report[18] shows that Afghanistan has a potential to become a transport hub linking central and south Asia and farther, the Arabian Sea areas.

(3) The Evaluation of Afghan Transit Development

In 2003, ADB took an initiative in the "Ministerial Conference on Transport and Trade in Central and South Asia", when the "Central and South Asia Trade and Transport Forum (CSATTF)" was established.

CSATTF is a forum on regional trade and facilitation to promote regional trade. The participating countries are Afghanistan and its neighboring Iran, Pakistan, Tajikistan, Turkmenistan and Uzbekistan.

The study by ADB relates to the CSATTF and assessed 52 routes connecting former CIS Tajikistan, Uzbekistan and Turkmenistan through Afghanistan with seaports in Pakistan and Iran.

[17] The World Bank Development Report "Reshaping Economic Geography", World Bank, 2009
[18] ibid.

The total distance of the assessed routes in the corridors is about 13,586km. Thirty-one of these routes would link to Pakistan (Karachi-Qasim and Gwadar) ports and the other twenty-one to ports in Iran (Chahbahar and Bandar-Abbas). Table 3.15 shows the distance and evaluation result of ranking of the 52 routes.

Table 3.15 Central-South Asian Road Corridors

Table 1: From Tajikistan (Dushanbe) to Pakistan and Iran Ports

Corridor Number	Road Corridor/Road Section	Distance (km)	Rank
1	Via Nizhni Pyanzh/Kabul/Spin Boldak/Karachi	1990	1
2	Via Termez/Kabul/Spin Boldak/Karachi	2095	2
7	Via Nizhni Pyanzh/Kabul/Spin Boldak/Surab/Gwadar	2246	3
3	Via Nizhni Pyanzh/Kabul/Torkham/Karachi	2251	4
8	Via Nizhni Pyanzh/Kabul/Spin Boldak/Khuzdar/Gwadar	2261	5
47	Via Gushgy/Zaranj/Chahbahar	2304	6
25	Via Gushgy/Herat and Spin Boldak/Karachi	2309	7
9	Via Termez/Kabul/Spin Boldak/Surab/Gwadar	2351	8
4	Via Termez/Kabul/Torkham/Karachi	2356	9
10	Via Termez/Kabul/Spin Boldak/Khuzdar/Gwadar	2366	10

Table 2: From Uzbekistan (Tashkent) to Pakistan and Iran Ports

Corridor Number	Road Corridor/Road Section	Distance (km)	Rank
35	Via Termez/Kabul/Zaranj/Chahbahar	2564	1
30	Via Gushgy/Herat/Spin Boldak/Surab/Gwadar	2565	2
33	Via Termez/Herat/Zaranj/Chahbahar	2569	3
	Via Termez/Herat/Spin Boldak/Karachi	2574	4
31	Via Gushgy/Herat/Spin Boldak/Khuzdar/Gwadar	2580	5
41	Via Termez/Kabul and Zaranj/Bandar Abbas	2632	6
37	Via Termez/Herat and Zaranj/Bandar Abbas	2637	7
52	Via Imamnazar/Islam Qala/Bandar Abbas	3123	8
46	Via Termez/Kabul/Zaranj/Bandar Abbas	3178	9
44	Via Termez/Herat and Zaranj/Bandar Abbas	3183	10

Table 3: From Turkmenistan (Ashgabat) to Pakistan and Iran Ports

Corridor Number	Road Corridor/Road Section	Distance (km)	Rank
15	Via Termez/Kabul and Spin Boldak/Karachi	2641	1
39	Via Termez/Herat and Islam Qala/Bandar Abbas	2666	2
32	Via Nizhni Pyanz/Herat/Zaranj/Chahbahar	2667	3
5	Via Nizhni Pyanzh/Kunduz/Herat/Spin Boldak/Karachi	2672	4
36	Via Nizhni Pyanzh/Herat and Zaranj/Bandar Abbas	2735	5
38	Via Nizhni Pyanzh/Herat and Islam Qala/Bandar Abbas	2764	6
13	Via Termez/Herat/Spin Boldak/Surab/Gwadar	2830	7
14	Via Termez/Herat/Spin Boldak/Khuzdar/Gwadar	2845	8
18	Via Termez/Kabul/Spin Boldak/Surab/Gwadar	2897	9
16	Via Termez/Kabul and Torkham/Karachi	2902	10

Source: Report on the Economic Impact of Central-South Asian Road Corridors (Afghanistan, The New Silk Roads Transport and Trade in Greater Central Asia)

The effects of development of the corridors are summarized below[19].

A. Regional Benefits and Impact of the Road Corridors

Total exports among the participating countries by 2010 will increase by 14% (or US$ 5.8 billion) and total imports will grow by 16% (or US$ 6.7 billion). Impact on GDP as a result of trade via corridors is also noteworthy. According to ADB, once corridors are built, total regional trade will increase by 160% and combined transit trade will grow by 113%. Furthermore, ADB estimates that corridor development enhances combined GDP of the countries in the region by over 5% per year during the initial five years, and total growth would be US$ 5.9 billion. These benefits are derived with a relatively low cost as the corridors require a total investment of about US$ 5 billion for the entire region. This level of investment represents less than 5% of the combined projected total national investments by the countries over the same period.

The region will also benefit from increased employment as a result of the trade. The corridor development is estimated to increase full-time employment in the region by 1.8 million jobs. In addition, the construction of the road corridors will add 12 million person-days of temporary employment for the duration of construction and 15 million person-days of permanent employment for on-going road and infrastructure maintenance.

B. Impact of Road Corridors on Afghanistan

With about 652,000 square kilometers, Afghanistan is a relatively large country and roads are its principal means of transport. Afghanistan's road network comprises about 6,100 km of national roads, 15,000 km of provincial roads, 15,000 to 20,000 km of rural roads, and 3,000 km of urban roads, including 1,060 km in Kabul. The national highways add up to about 3,300 km, the largest part of which -2,300 km- is the ring road that connects Afghanistan's major regional centers of Herat, Kandahar, Maimana, Mazar-e-Sharif, Sheberghan and Kabul. These roads are also the main connectors to neighboring countries. With donor's support, Afghanistan is now undertaking a massive infrastructure investment effort to rebuild this ring road. The target is to double the amount of paved road in the country to 32% of the total by the end of 2010.

C. Trade Growth

Out of the total 13,586 km of roads that are needed for regional trade, 3,657 km has been built in Afghanistan. Their benefit to the country will be significant. ADB estimates that Afghanistan's exports will increase by 202% and imports will increase by 54% over the initial five years. This means the addition of $592 million in exports and $1,318 million in imports.

[19] Afghanistan, The New Silk Roads Transport and Trade in Greater Central Asia

D. GDP Growth

In terms of the economic impact of the road corridors, ADB estimates that by the end of 2010 Afghanistan will add US$ 1.8 billion to its GDP. The annual projected rate of GDP growth is estimated to be 12.7%. In contrast, it would be 8.8% without the road corridors. Afghanistan's per capita GDP has been very low; merely US$ 122 in 2001/2002. With consideration of this, and due to the road corridors, an increase per capita of 36% becomes highly important.

E. Job Creation and Long-Term Employment

Another essential factor in the need for regional cooperation is creation of jobs and job security via increased trade. As many of the road segments will pass through poorer regions, trade will spur more sustained and balanced regional development.

Rural areas along both North-South and East-West corridors will profit from the construction of roads, moreover, market access will expand as transport time and costs are reduced.

The issue of job creation is also vital for Afghanistan's long-term sustainability and its regional security implications. According to the ADB, the development of regional road corridors will add a total of 771,000 full-time jobs in Afghanistan out of the total 1.8 million in the region. The additional jobs in Afghanistan represent about 41% of total job increase, which is projected in the region as a whole, as a result of the transport corridors.

In addition to the creation of full time jobs, road construction and maintenance will create additional employment in Afghanistan. Thus, Afghanistan will additionally gain 4.6 million person days during the 5 year construction period. The road corridors need to be maintained and this will entail the creation of an additional 4.1 million permanent jobs.

F. Increase in Freight

The flow of trade will increase with the development of the corridors. ADB estimated that by the end of 2010, the annual increase in two-way freight would be 4.594 million tons for the two Afghanistan-Pakistan crossings (Spin Boldak and Torkham). In addition, freight would increase by 923 thousand tons at the Uzbekistan-Afghanistan crossing point and 740 thousand tons for the Turkmenistan-Afghanistan point.

G. Travel Time and Travel Cost Savings

Total savings in travel time in Afghanistan would be 71 hours. This is about half the total travel time savings for the entire region. As the road corridors are built, total savings in overall travel costs would be US$ 1.728 billion for all the participating countries. Afghanistan would stand to gain 43% of the total savings for the region. With improvements in both of these, as described above, regional economic growth has a concrete chance of reaching its potential in Central Asia.

H. Impact on State Revenues

Increases in regional trade resulting from the new road corridors would cause governmental revenues to increase substantially. According to the 2005 ADB study, revenue increases based on current tariffs and transit fees would reach US$ 910 million for Afghanistan and neighboring countries within eight years by 2010. Afghanistan will stand to profit relatively and significantly as its revenues would increase by $208 million or about 23% of the region's total.

I. Economic Diversification - Central Asian Countries as a Special Case

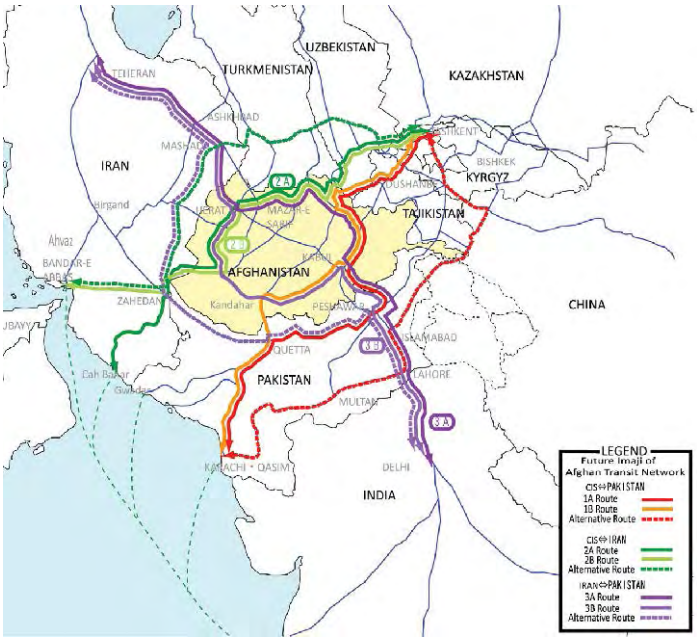
Central Asian countries, because of their legacies from the former Soviet-run economies, continue to have dominance in primary commodities and low value-added manufactured products in their exports. Massive reliance on shipments by rail, coupled with the high cost of road transport, has led to a distorted export structure in Central Asia.

A study by Raballand confirms that the exports of central Asian countries are concentrated in bulk commodities with relatively low value-added manufactured products. The development of road corridors would open new types of trade flows which, in turn, would foster economic diversification for central Asia to the further benefit of the entire region.

3.2.6 Afghan Transit Network

3.2.6.1 Future Vision of Afghan Transit Network

In the analysis of former sections, it becomes obvious that the potential of regional corridor development is huge and huge benefits to the whole area would be generated by the corridor development.



Source: JICA Study Team

Figure 3.16 Afghan Transit and Alternative Routes (also shown in Figure 3.3)

On the other hand, the effect of regional corridor development is not divided equally to the areas. For specifying regional corporation promotions, it needs to make clear which country or region would be burdened and how the effect and profit of corridor development are generated in each corridor, and it is essential to realize well-balanced regional development. This section summarizes the economic features, potentials, issues and socio-economic impacts of development in each corridor by country, looking to the future vision of the Afghan transit network.

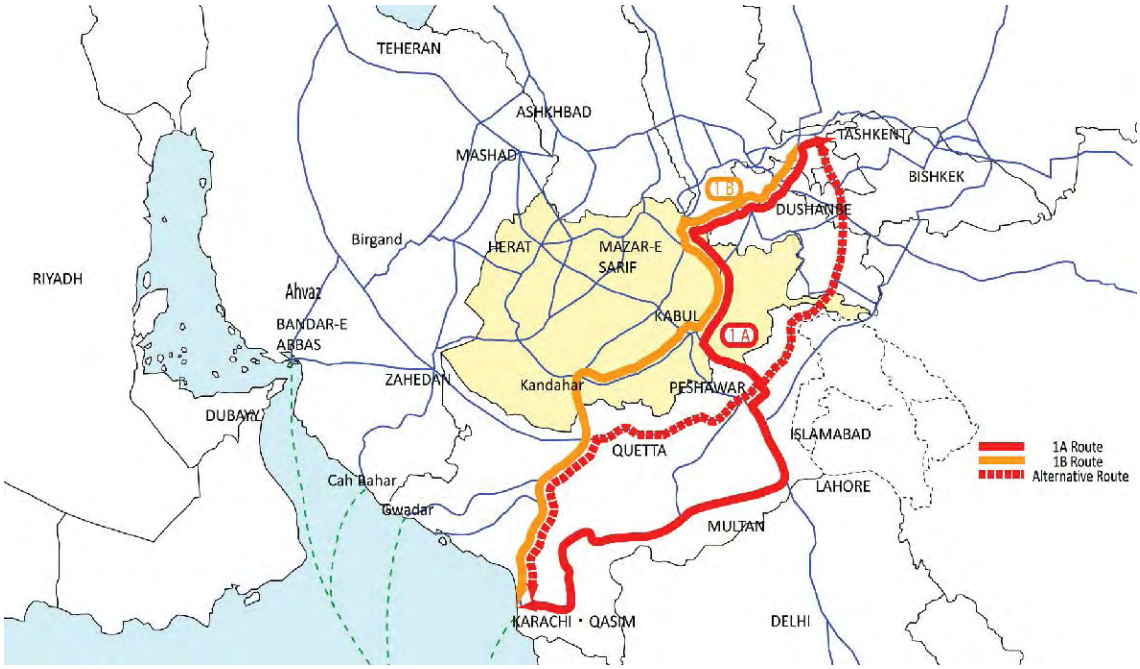
3.2.6.2 Afghan Transit Corridor 1

(1) Brief Summary of the Corridor

This Corridor is mainly for road transportation, which starts from Uzbekistan and Tajikistan, runs through Afghanistan and connects to Karachi/Qasim Port in Pakistan.

The corridor is a transit hub of the trade between Afghanistan and Pakistan, and more than 5,000 trucks, both formal and informal traffic, are supposed to come and go everyday. On the other hand, it is mainly characterized as a local corridor, not functioning as a linkage between the China Land Bridge and central Asian countries to the port Karachi/Qasim or newly developed port Gwadar. The development of this corridor enables 32 hour-long travel, at shortest, for Karachi to Tashkent via Afghanistan (President Karzai)[20]. Moreover, if the relationship between India and Pakistan is improved, the access to the Indian market becomes possible through diverging from Lahore to corridor 3.

In the future, by networking between inland countries depending on monoculture economies and the two populous countries of Pakistan and India, it is expected that new industries, such as processing industries, will be created along the network area and also regional trade of agricultural products in Afghanistan will be expanded as well.



Source: JICA Study Team

Figure 3.17 Corridor 1 and the Route

[20] The New Silk Road Pakistan, p90

Table 3.16 Economic Characteristics, Potential and Advantages in Corridor 1

Country	Economic Characteristic	Potential and Issues	Regional Economic Impacts
Kyrgyz	・Mineral resource (gold, silver, rare mineral resources) ・Mainly agriculture ・Small population (5.4million) ・It was part of the Soviet Union, and had been integrated by Soviet Union's planning economy. ・Money transfer of migrating workers	・Rare mineral resources, potential for agri-business ・Potential for trade and tourism ・Opportunities to process mineral resources in other CIS (metallurgy, refining, construction material) ・Reduction of dependence on Russia, Increase of economic relations with China ・Obstacles in mountains ・Has abundant water resources for energy (hydropower generation) ・Cost of trade and transport due to an inland country accounts for the high cost of goods ・Chinese, Iranian and Turkish companies expand to Bishkek Special Free Economic Zone ・Dependence on value-added trade due to poor supply destinations and consumption areas of raw material in the country. It is necessary for reduction of transit cost and development of transport network in order to develop value-added trade and maintain competing power.	・Reduction of cost in supply of recent mineral resources, textiles and agriculture products to south Asian market. ・Rapid development of national construction due to import cost reduction of construction material costs, machine plants and spare parts. ・Principal transport route for value-adding of abundant mineral resources in Central Asian (Uzbekistan and Kazakhstan) by utilizing abundant water and water energy resources, and exporting to high consumption areas (Pakistan, China and India) (refining Uzbekistan aluminum and supplying to Pakistan) ・Benefit from China Land Bridge transit in a transfer point of cargo transport
Tajikistan	・Poorest country in former Soviet Union ・Agriculture is cotton and fruits. Cotton is about 10% of former Soviet Union levels ・Certain amount of mineral resources ・Agriculture, electricity (water power) ・Small population (7 million) ・Money transfer from migrating workers	・Potential for electricity resource development ・Departure from cotton-centered monoculture economy ・Cost and time of border crossing by bureaucracy of a transitional country, narcotics and illegal trade ・Import of wheat ・Relation to surrounding countries is bad, and trade potential is not utilized. ・Notable scale of illegal trade with China ・Liberalization of trade and domestic market	・Realizing transit cost reduction in order to develop trade of fruits and construction material (marble stone) produced in the country or its value-added trade (heavy products) ・Principal transport route for value-added abundant mineral resources in Central Asian (aluminum) by utilizing abundant water and water energy resources and exporting to high consumption areas ・Trade diversification with Uzbekistan, Kazakhstan, China, Iran and Turkey

Source: JICA Study Team

Table 3.16 Economic Characteristics, Potential and Advantages in Corridor 1 (continued)

Country	Economic Characteristic	Potential and Issues	Regional Economic Impacts
Afghanistan	・Mainly Agriculture ・Potential mineral resources ・Relatively big population (27 million)	・Potential for extraction business and agriculture ・Domestic insecurity, narcotics ・Illegal trade in scale of several times bigger than formal trade ・Independence from foreign aid ・Because population is widely distributed, the benefit does not penetrate by only corridor development in the area.	・If traffic is developed, related industries will develop. Aims for a trading country providing transit-hub functions. ・Opening up closed areas to the region and world (facilitate flow of goods and also people and information) ・Benefit to regional areas as large artery of trade with Afghanistan and Pakistan
Pakistan	・Large population country (200 million), big consuming country ・Agriculture (Wheat is 4th in the world) ・Cotton industry, industrialization	・Corridor extends possibility of new industrial generation such as value-added industry in areas along network through routes producing 90% of Pakistan GDP. ・Intra-industry trade between Central Asia in cotton and textile industry ・Trade volume with Pakistan doubled in past 5 years, but trade with Central Asia did not increase, compared with the mid 1990s after collapse of the Soviet Union. ・The time of route linking Tajikistan, Afghanistan and Pakistan via Wakhan corridor and connecting to Karachi port via Quetta is 32 hrs at earliest. ・Problem is the weak railway operation.	・Expansion of market for products utilizing abundant labor force (cotton textile industry, wheat and chemical products), intra-industry trade (rising added value of Central Asian products by design technology utilizing Pakistan IT) ・Procurement of cheap consumer goods (agriculture products) and intermediate input goods (metal and construction materials) ・Effective utilization of infrastructure such as ports (Karachi/Qasim, Gwadar) ・Importing construction materials for housing widely spilled out to other industries at a low price from CIS and Afghanistan, speeding up national construction and developing supporting industries are expected. ・Effective utilization of highway (No. 5) developing already, development of areas along the highway and improvement of railroad operation ・Development of backward north tribal area and Warizistan area

Source: JICA Study Team

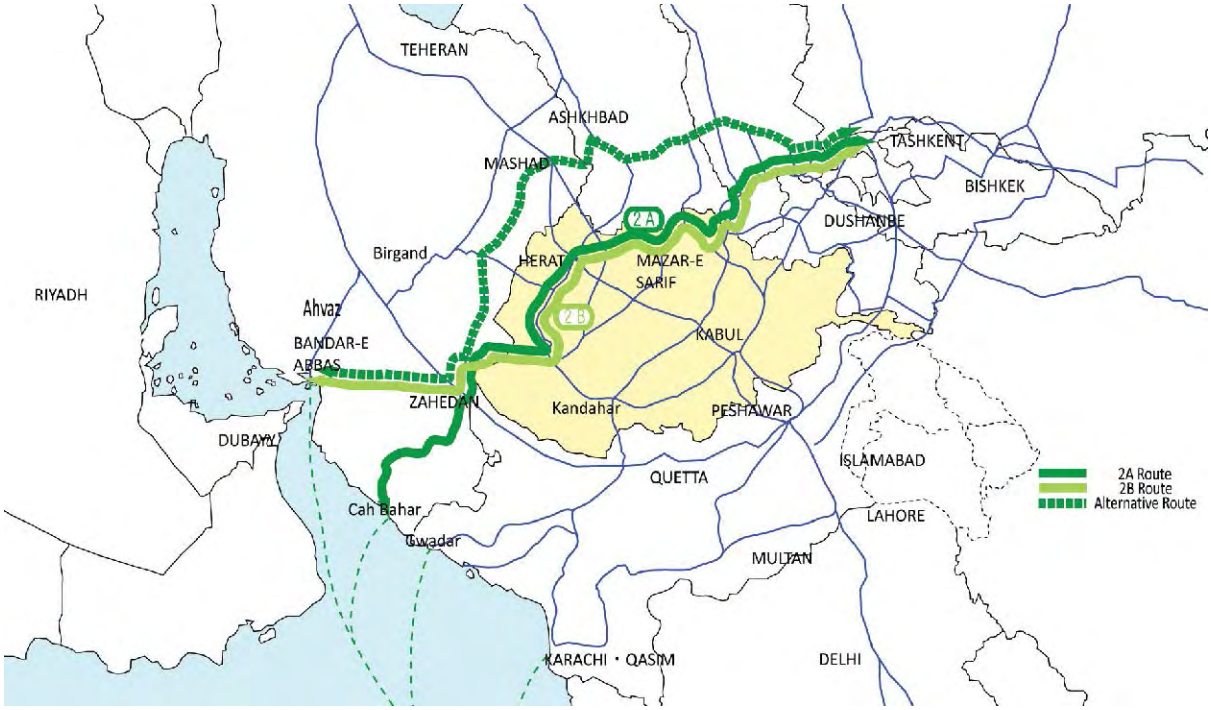
3.2.6.3 Afghan Transit Corridor 2

(1) Brief Summary of the Corridor

This corridor is mainly composed of routes for railways, starting from Uzbekistan, passing through Turkmenistan and Afghanistan and arrives at Bandar Abbas Port and Chabahar Port, India.

The main route of the current corridor is the alternative route. The route 2A connecting to Chabahar through Afghanistan, however, shortens travel distance by about 500km. Utilizing the railway network in central Asian countries constructed in the former Soviet Union period and expanding high developed Iran railway network, the corridor promotes industrialization of central Asian inland countries and regional division of labor and cooperation related to energy and natural resources.

Also, for inland countries that depend heavily on a supply of energy and resources from Russia and other CIS countries, diversification of trading partners and sources of energy can be achieved through development of a corridor connecting international ports such as Bandar Abbas and Chabahar, Iran. This would contribute to sustainable economic development in these countries.



Source: JICA Study Team

Figure 3.18 Corridor 2 and the Route

Table 3.17 Economic Characteristics, Potential and Advantages in Corridor 2

Country	Economic Characteristic	Potential and Issues	Regional Economic Impacts
Uzbekistan	・Abundant natural gas ・Abundant mineral material ・Informal economy accounts for one third of total. ・Import from Russia is 1/4 of total import from China and Korea is 1/4, and the relation with Korea is strong. ・Half of the export is to Europe including Russia and the Ukraine, and exports are to Iran, Turkey and Afghanistan which account for 5% each.	・Potential for metal related industries such as prospecting, mining, purification, refining and processing due to abundant mineral resources ・Metal industry is energy-intensive industry, and there is a plan to bring in petroleum oil from Kazakhstan and natural gas from Turkmenistan by pipe lines. ・Task is to overcome limited economic structure depending on monoculture commodities such as mineral resource and cotton.	・Modernization of cotton industry and metal industry have high potential, route introduced capital goods and technology for contributing the development ・Cost reduction of resources exported by shortening of transit distance ・Export route of goods produced in the country to Afghanistan, Turkey, Iran and world by utilizing Iran port
Turkmenistan	・Natural gas(+petroleum oil) ・No mineral resource ・Construction rush	・Developing resources by further prospecting ・Encouraging chemical complex, plant industry and material industry ・Recent change from isolated trade policy ・Diversification of natural gas exporters recently concentrating on CIS, and planning on extension of natural gas pipeline to China	・
Afghanistan	・Mainly agriculture ・Potential mineral resources ・Relatively large population (27million)	・Potential for extraction business and agriculture ・Internal insecurity, narcotics ・Illegal trade is several times the size of formal trade. ・Independence from foreign aid	・If traffic is developed, related industries will develop. Aims for a trading country providing transit-hub functions. ・Opening up closed areas to the region and world (facilitate flow of goods and people and information) ・Development of the West (Herat)
Iran	・Abundant petroleum oil and natural gas ・Diversification of industries such as cars and home electronics ・High quality of labor force ・Semi developed country having GNI of about 10 thousand dollars ・Deep economic relation with Turkmenistan ・Controlled economy	・Abundant energy resource and high education ・Economic diversification and departure from isolation ・Leadership in areas through ECO, promotion of FTA ・Because Iran products are simple, cheap and cheap to ship compared to west European products, they receive a high evaluation in Central Asia. ・Developed domestic transport network ・There is no interest in export, because of adequate domestic demand.	・Need to develop economy of underdeveloped Baluchistan area ⇒Control and returning of refugees influx, shut-off of narcotics route ・Ensuring supply source ⇒ From self-sufficiency economy (closed economy) to division of labor in region ・Expansion of infrastructure connecting to 8 countries (especially railways), effective utilization and enhancement of competitiveness in Chabahar and Bandar-E-Abbas port ・Exploring business opportunities of products beside petroleum oil (ex. car) for Central Asia ・Impact and support for Tajikistan economy related to ethnic and culture in Tashkent

Source: JICA Study Team

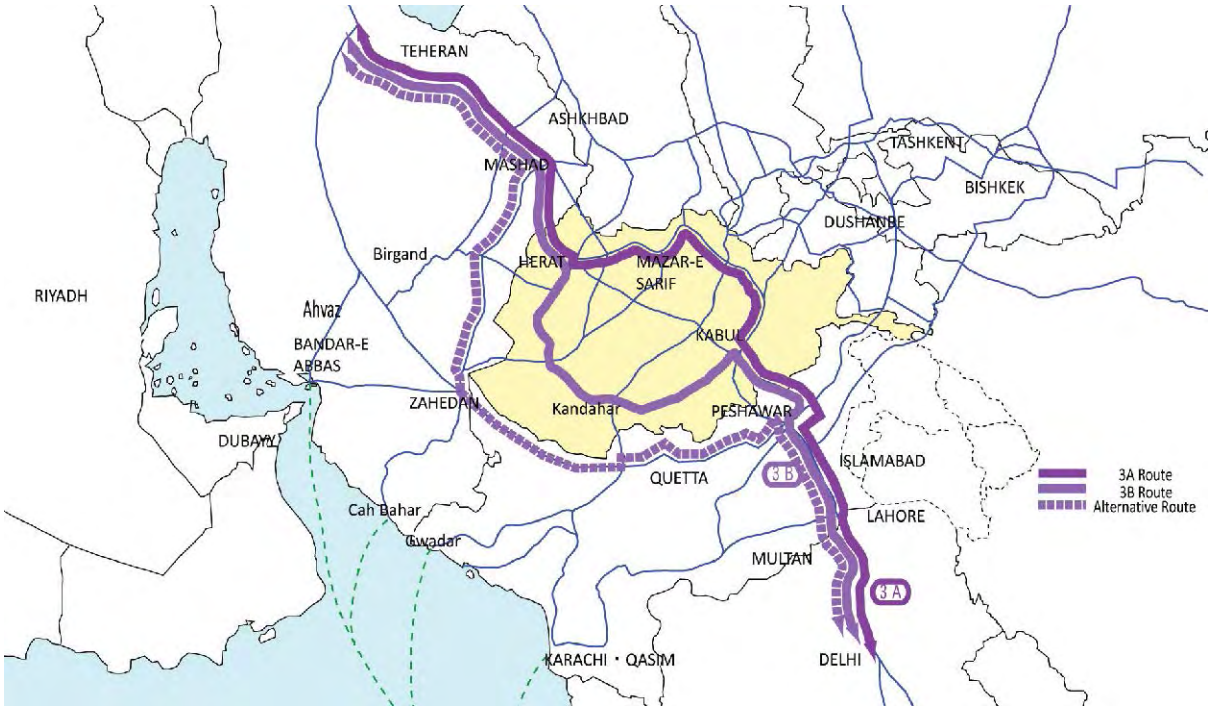
3.2.6.4 Afghan Transit Corridor 3

(1) Brief Summary of the Corridor

This Corridor starts from Iran, via Afghanistan and connects to Pakistan and India.

Recently, sea transportation was mainly used in trade between Iran and India. But building a land transportation network connecting these countries realizes more efficient transportation of industrial products such as medicines and new industrial development along the corridor is as well expected. Furthermore, despite the political tension, the trade between India and Pakistan has rapidly increased recently. In 2009, it was estimated that there was USD 1 billion in formal trade and at least two times as much in informal trade. Although the current main route is the sea route, it is expected that 10 billion-dollar-scale-logistics will develop between India and Pakistan if the border would be opened.

In the case of connection between Delhi, India and Teheran, Iran, about 500km (about 25 % of total distance) of logistics will be streamlined compared with the sea route via Mumbai. This can utilize road and railway infrastructure in Iran, Pakistan and India, which is a land route and has already been developed for about 2/3 of the corridor.



Source: JICA Study Team

Figure 3.19 Corridor 3 and the Route

Table 3.18 Economic Characteristics, Potential and Advantages in Corridor 3

Country	Economic Characteristic	Potential and Issues	Regional Economic Impacts
Iran	・Abundant petroleum oil and natural gas ・Diversification of industries such as cars and home electronics ・Semi developed country with GNI of about 10 thousand dollars ・Economic center is in Northwest.	・Abundant energy resource and high education ・Economic diversification and departure from isolation	・Potential for vertical trade with Pakistan (heavy industry products and light industry products) ・Export of high value-added products and medicinal drug ・Transport of supply (machines, vehicle parts) to Pakistan conflicting with India
Afghanistan	・Mainly agriculture, Weak manufacturing, Affected by drought ・Distributed population ⇒ Possibility to promote rapid urbanization ⇒ Urban construction demand (schools, hospitals, clear water/sewage) ・Informal economy sector is too large.	・Potential for transit of 10 times as much as nation in corridor (45millions) ・Half of export is for Pakistan and India ・Domestic security, Trade deficit, Dependence on aid, Task of governance and narcotics	・Transit industry as transit hub, value-added service ・Exploring of business opportunities to periphery. Great market for agricultural products and high value-added agricultural products ・Rationalization of national construction and material transport for resource development ・Construction material (marble stone), export of mineral resource in the future (undeveloped now)
Pakistan	・Main agriculture products are wheat, cotton rice and sugarcane. No progress of diversification on agricultural products ・Half is foods, fiber processing industry, Mostly dependent on agricultural processing goods ・Trade structure is export of light industrial products and import of heavy chemical industrial products	・Tension in relations with India ・Potential for IT and outsourcing ・Task is balanced development because now 90% of GDP concentrates along highway 5 (Karachi, Lahore, Islamabad/Rawalpindi, Peshawar) ・Equipment of supply and demand and horizontal trade with India (fiber and agricultural products)	・Vertical trade with Iran (light industry and resource, heavy industry), possibility of horizontal trade (fiber and agriculture) with India ・Population (only main cities) is at 10 million level. ・Effective utilization of existing infrastructure and upgrading incentive ・Service employment creation and stabilization according to development as merchant city of Peshawar, NWFP
India	・Growth of domestic demand of 1.1 billion population unlike China (Especially individual consumption by growth of middle-tier) ・Big country for IT outsourcing ・Deficit of trade balance, Surplus of capital balance from capital inflow	・Tension in relations with Pakistan ・Rapid expansion of trade with Pakistan ・Potential driven by domestic demand as a world growth center ・Half of population is in poverty. ・Infrastructure (electricity, port, road) is bottlenecked ⇒ High demand for construction	・Effective utilization of existing infrastructure ・Transport of relatively high value-added spare parts, chemicals and medical goods ・Main transport route when illegal trade estimated as 3 times as much as existing formal trade is normalized. ・Shortage of energy and energy-related product routs can be more easily obtained.

Source: JICA Study Team

3-3 Issues for Future Vision in Afghan Transit

3.3.1 Short-term Issues

(1) Issues on Development of Hardware Contents

(i) Road Sector

The ring road has been completed except for the 176km section from Bala Morghab to Laman section. Furthermore, 8 access roads to neighboring countries have been completed except for the Herat~Torghandy section, from Herat to Turkmenistan and Andkhvoy~Aqina section, and a part of the route from Sheberghan to Uzbekistan.

Future development emphasis is on trunk national roads inside the ring road. Afghanistan's Ministry of Public Works, therefore, intends to prioritize in the ring road sections in the populated east, such sections as from Bamiyan to the north and the east.

These roads should be developed in such a manner that the impacts of the ring and international access road development lead to enhancement of socio-economic infrastructure, as well as improving accessibility in cooperation with community based secondary and tertiary road development by World Bank[21] and UNDP[22].

With regard to road development, the security problem is an obstacle[23]. The ultimate solution to the above problem is security improvement by job creation and economic development. There is, thus, an approach named the "Kandahar Model"[24] in which UNDP implements infrastructure development such as roads, bridges and schools under community participation in poor security areas.

[21] World Bank approved 112 million dollars in order to support Afghan government's effort trying to supply full-year accesses to fundamental services and facilities in rural areas. The project is to reconstruct and repair about 2,000km of secondary and tertiary roads, which shortens access time to go to schools, hospitals and administrative services. And a pilot program on maintenance in regional roads is being conducted through community development council. "The lack of access is one of the reasons for poverty in rural areas. This project helps so that Afghan people in rural areas can access important services. At the same time, it leads to better distribution of resources, technical transfer and higher productivity by integrating rural economy to regional and national markets." About 9,333km regional roads and 8 runways/airports in 293 districts of 34 provinces in Afghanistan have been repaired since 2002. Also, training based on practice of road construction and technology has been implemented. They have been implemented through a national emergency employment program for "demobilization, disarmament and social rehabilitation" and the "program on livelihood support in rural areas" (HP of Embassy of Afghanistan in Japan, December 2007)

[22] UNDP commenced the National Area-Based Development Program as a joint initiative of MRRD (the Ministry of Rural Rehabilitation and Development) with the goal of contributing to a sustainable reduction of poverty and an improvement of livelihoods in rural Afghanistan. Currently the third phase of NABDP began in 2009 has been promoted. The program's activities in this area have included farm-to-market roads in order to improve physical infrastructure to promote agricultural productivity and rural economic development. A total of 28 million dollars, about 28% of the 100 million of total project cost implemented until 2009, was used for the traffic sector. (UNDP National Area-Based Development Program, Fact Sheet Dec 2009, Success Stories, offered by UNDP Afghanistan office)

[23] For example, in Delaram-Zaranj section with a total 200km completed in 2009 by Indian aid, it has been reported that 11 Indian workers and 137 Afghanistan security guards/soldiers guarding the construction work were killed by Taliban attack, and people died at the rate of 1 person per 1 mile.

[24] The program includes a project called the "Kandahar Model" which constructs infrastructure such as roads, bridges and schools under community participation in rough areas. The project completed a bridge over Arghandab River (length of 180m and construction cost of 880 thousand dollars) by Canadian aid. (UNDP National Area-Based Development Program, The Kandahar Model, offered by UNDP Afghanistan office)

(ii) Railway Sector

Although the total length of rail is less than 100km, rapid development of railway construction is expected in the future. As railway is a mode suitable for heavy, lower value goods transportation for long distances, it is suitable for transport of mineral resources which are abundant in Afghanistan and the countries in central Asia located north of Afghanistan. The railway development to the Aynak mine is to be planned from the same standpoint as above.

Iran, one of the Afghanistan's neighboring countries, has developed a railway network although with some problems in operation and maintenance.

In the 8 international access routes in Afghanistan, railway extension from neighboring countries was planned and some sections have already been developed or constructed. If these developments of railway accesses are completed and linked to major cities in the ring road, shipment to border crossings and forwarding for distribution centers will be carried out simultaneously, which leads to a remarkable cost reduction. For this purpose, it is necessary to develop smooth custom clearance, IDC for switching to the road mode and facilities with cargo terminals and custom systems in order to realize cost reduction.

Moreover, rail transport in central Asia and Pakistan has serious problems in operation. In the case of Pakistan, in particular, deterioration can not be stopped without drastic reform. There also exist tasks for integration of gauges within the region, as well as smooth switching among rails with different gauges.

(iii) Port Sector

Improvement in port potential has a huge impact not only on countries with ports, but also on neighboring countries using these ports, especially for landlocked countries. When competitiveness is small, countries with ports tend to under invest because port development is determined only based on the benefits to the port countries. Port development should be done, however, taking regional benefit as a whole into consideration.

There exist 4 ports in the studied region, i.e., Bandar Abbas, Karachi/Qasim, Chahbahar and Gwadar. The latter 2 ports are deep water ports developed relatively recently. They however have problems such as lacking in hinterlands and poor security with regard to port facility development, strengthening port functional efficiency, developing hinterlands and facilitating access roads and railways for smoother mode switching.

In addition, comprehensive planning and networking of the above four ports for cooperation and coordination are necessary, with clear role sharing the reflecting individual characteristics of each of them.

(2) Software Development

(i) Institutions and Funds for Operation and Maintenance

In Afghanistan, rocky mountainous terrain and fast deterioration of infrastructure including roads caused by the harsh climate raises maintenance cost. In the road section, the trunk road development has almost been completed; therefore, the principle task ahead is road maintenance. To that end, creation of a toll road system and Road Fund are major tasks ahead. Furthermore, with regard to the future development expected in the railway section, as more sophisticated operation skills and technologies are required, operation technology transfer, as well as organizational and institutional development will be highly necessary.

(ii) Standard Development, Training and Procurement System

In the past Afghanistan's road development, the United States has constructed roads to link to Pakistan and additionally, the former Soviet Union constructed road links to the north. As these roads, however, were constructed by different design standards, there are some tasks on standardizations including a uniform design standard. Training for engineers and development of procurement systems are also necessary.

(iii) Establishment of Multilateral Cooperation Framework on Border Crossing

Because Afghanistan is a landlocked country, coordination with neighboring countries on border crossing material procurement and product export is indespensable. On the other hand, Afghanistan is often in a disadvantaged position reflecting relations between benefactors and beneficiaries. As a result, discriminatory contents in cross border agreements are often found such as Afghanistan's trucks are not allowed to drive in its neighboring countries, although neighboring countries' trucks are allowed to enter Afghanistan. One way to solve this problem is supposed to be a promotion of trade facilitation including transit procedures, custom, inspection, quarantine, documentation and system integration under a multilateral cooperation frame work.

3.3.2 Mid- Long Term Issues

Table 3.19 shows mid-long term tasks. The key word in the mid-long term tasks is "seamlessness" in logistics. In addition to "seamlessness" in border crossing, "seamlessness" in modal switching between road mode and rail mode will be important when railways are developed. Furthermore, "seamlessness" between regional transport and national transport is necessary for local development.

In the software aspects, introduction of private funds and know-how including PPP are tasks that lie ahead once job opportunity is created and security is improved.

Table 3.19 Mid – Long Term Tasks

Hardware Tasks	Software Tasks
● Organic linkage between intra and inter regional transport ● Construction of transport service related facilities ● Road development inside the ring road coordinated with national trunk road network development	● Creation of job opportunities and improvement in security ● Introduction of private funds and PPP

Source: JICA Study Team

3-4 Future National Transport Network

3.4.1 History of Afghanistan's National Transport Network Development

The road mode still bears most of the transport in Afghanistan, together with very limited air transport and railways of less than 100km.

Afghanistan's road network was formulated mostly after World War II. With substantial foreign assistance by 1966, Afghanistan had installed a relatively well developed major highway system. After that, however, because of scarce local expertise and labor, as well as domestic funds, delays became apparent in the large on-going projects, which disturbed efficient use of resources, and productivity of agriculture still remained at a low level.

Although the new road network quickly reduced transport costs, which stimulated domestic trade, the economic beneficiaries were limited. Firstly because the country's primary and secondary industries' surpluses were so small and little capital was accrued, and secondly because the principal beneficiaries of the road network development were traders and transport entrepreneurs, rather than the great majority of people who lived in the rural areas. The government put little emphasis on secondary and tertiary roads connecting to the rural provinces, towns, villages and farms with the major highways. The majority of Afghans were located in rural areas and they still had poor access to outside markets as well as government services.

During the above period, the government of Afghanistan put emphasis on road construction for heavy industries, especially for the mining industry. From the late 1970s to the early 1980s, the government targeted construction of highways linking to Iran and Pakistan, which however were soon frustrated without completion because of the influence of the revolutionary movement in Iran.

In 1980s, the war was prevailing in Afghanistan. While Afghanistan was still one of the poorest countries, its agriculture and handcraft manufacturing centered economy was severely damaged by war, which caused the decline of productivity in transport infrastructures.

In the 1990s, there was anarchy after the collapse of the Soviet Union and the Najibullah government, disintegration of legitimacy as a nation and central government's authority, regional and local economies controlled by military commanders and armed forces emerged. This is referred to as "peripheralization", whereby key resources flew to neighboring countries rather than Kabul. Thus, the timber of Kunar moved into the Northwest Frontier Province of Pakistan; the opium fields around Kandahar provided resources that flew south to Quetta; the economy of Herat was linked into Iran; and the northern economy centered on Mazar-e-Sharif linked into Uzbekistan and the transport network was developed along these lines. The mineral wealth was exploited by General Massoud and Rabbani, and timber by Pashtun/Pakistan merchants for example. These commodities were transported to other countries by trade, which once again reaffirmed Afghanistan's historical role as a transit nation and realized the great opportunities for profit making activities by transporting opium, weapons, timbers and consumer goods.

3.4.2 Current Situation in Afghanistan's National Road Network

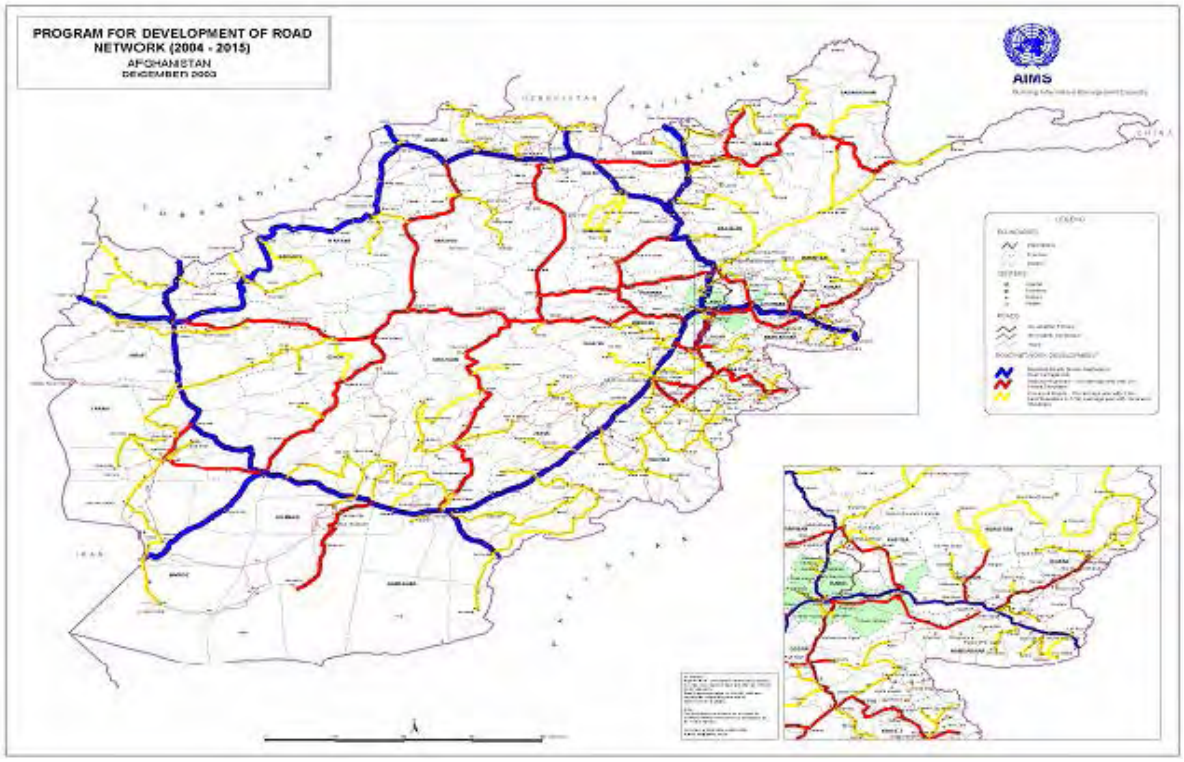
The dispersion of the Afghan population requires low cost and low volume roads. Transport in Afghanistan, especially a road network which carries the most part of the logistics, has been formulated with the ring road avoiding mountainous terrain in the center and international access roads from the ring road to neighboring countries.

Afghanistan's road network consists of approximately 3,300km of primary national roads and approximately 2,700km of secondary national roads, about 6,000km of national roads and about 15,000km of local roads in all. Approximately 3,300 km of primary national roads mostly consist of the 2,100 km of the ring road and international access roads linking the ring road and national borders, for which construction has been almost completed.

Lower class roads below secondary road still remain as unpaved roads which lead to higher transport costs and have hindered transport from development. Although roads in Afghanistan are poor, upgrading has been underway in recent years and the estimated freight transport of 23.7 million ton-km in 2010 is projected to increase to 34.8 million ton-km in 2015.

On the other hand, most of the local roads still remain unpaved. In the future, increase in road pavement ratio and road density of local roads as capillaries spreading in populated areas in the North and South-West will be necessary. In addition, with regard to the already developed roads, such issues as security and maintenance also need to be solved.

The following Figure shows a domestic transport (road) network map by MPW of Afghanistan.



Source: Ministry of Public Works in Afghanistan

Figure 3.20 Domestic National Road Network

3-5 Issues for Future Vision of Domestic Transport Network

There exist poverty issues behind the worsening internal security, foreign aid dependence, poor governance and opium problems, and development of the domestic transport network could play an important role for poverty reduction. Tasks for realizing the future transport network vision are listed below.

- Improved accessibility for local development
- Cooperation with community development projects
- Links to sustainable development
  - Rising income levels
  - Local job creation
  - Balanced local growth
  - Formalization
- Improvement in governance

3.5.1 Current Situation and Issues in Regional Transport Network

A series of figures on the next page shows the current situation and issues regarding development of i) corridor development links East / South - East Asia to Europe, ii) corridor development links China to Europe, iii) transit trade network development in Afghanistan and neighboring countries and iv) logistic system development in Afghanistan including rural areas. And Table 3.20 summarizes issues and infrastructure development necessities in the regional corridors.

Table 3.20 Issues and Infrastruture Development Necessities in Regional Corridors

	Issues	Necessary Infrastructure Development
Immediate Tasks	Extraordinary cross-border time is required to (from) former CIS countries.	Construct railway access from northern borders to main cities on the ring road, which enables one stop procedure of border transshipment and domestic forwarding
	Afghanistan's trade dependency on international aid and informal trade, which distorts both domestic and cross-border traffic flows (biased to Pakistan)	Long term traffic plan should take normalized circumstances into consideration.
	Rigorous nature, poor security condition and no hinterland in Baluchistan area	Integrated development of Gwadar and Chabahar Ports, not limited to shipment function
	Unilaterally disadvantageous to Afghanistan transit trade agreements, e.g., Afghan trucks are not allowed to drive in neighboring countries.	Utilize multilateral schemes as ECO and trade facilitation by international aid organizations
	Economic dependency on informal sector	Improvement in market access, Job creation in formal sectors, Networking of rural villages and bazaars
	Peripheralization; cities are absorbed into neighboring countries' economies, weakness as a national economy.	Develop nationally unified credit and transaction system
	Deterioration of living environment and security, and unemployment resulted from concentration of population into urban areas	Absorb population by rural development, improve accessibility to areas inside the ring road, and develop suburban cities through reduction of commuting time and distances
	Underdevelopment of infrastructure caused by regional countries merely taking their own benefitinto consideration (not regional interest)	Coordinate interests through multilateral scheme and international aid organizations and establishing burden sharing mechanism (e.g., even in such a case that to increase Uzbekistan's trade, port development of Karachi is more cost benefit efficient than road development in Uzbekistan, Pakistan has no incentive to take Uzbekistan's benefit into consideration.)
Tasks for Vision Achievement	Improvement of poor road maintenance	Create toll road system, road fund and highway trust fund
	Regional potential enhancement through strengthening ports	Introduce private funds through approaches such as PPP and institutional development for it
	Security strengthening. The biggest reason why Afghan transit is not selected as an international transit is lack of security.	Better accessibility of areas inside the ring road for stabilization of rural villages, rural prosperity and rural employment
	Transport cost reduction	Programs for transport volume increase (strengthening port functions, etc.) and shift to more cost effective transport mode (i.e. railway development)
	Human resource development in logistics	Technical assistance and training, especially OJT, training center and educational institutions in the third countries
	Better connectivity between international and domestic transport, better mode switching	Technical assistance including institutional facilitation, especially assisted by neighboring countries
	Creation of multilateral coordination scheme	Utilize existing multilateral scheme, especially ECO
	Share common objectives between neighboring countries (including China and India), and international donors etc.	Develop multimodal comprehensive transport plan

Source: JICA Study Team

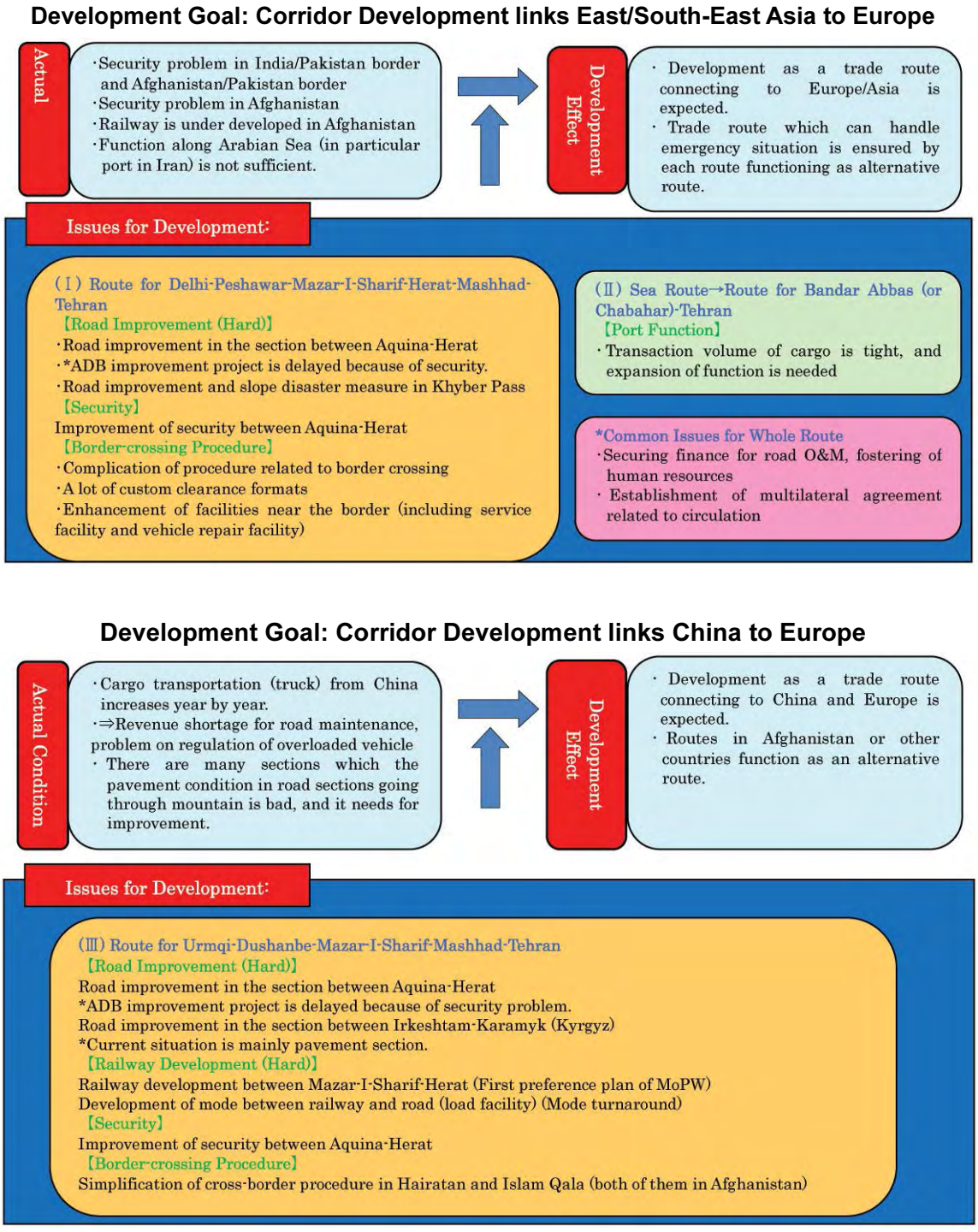
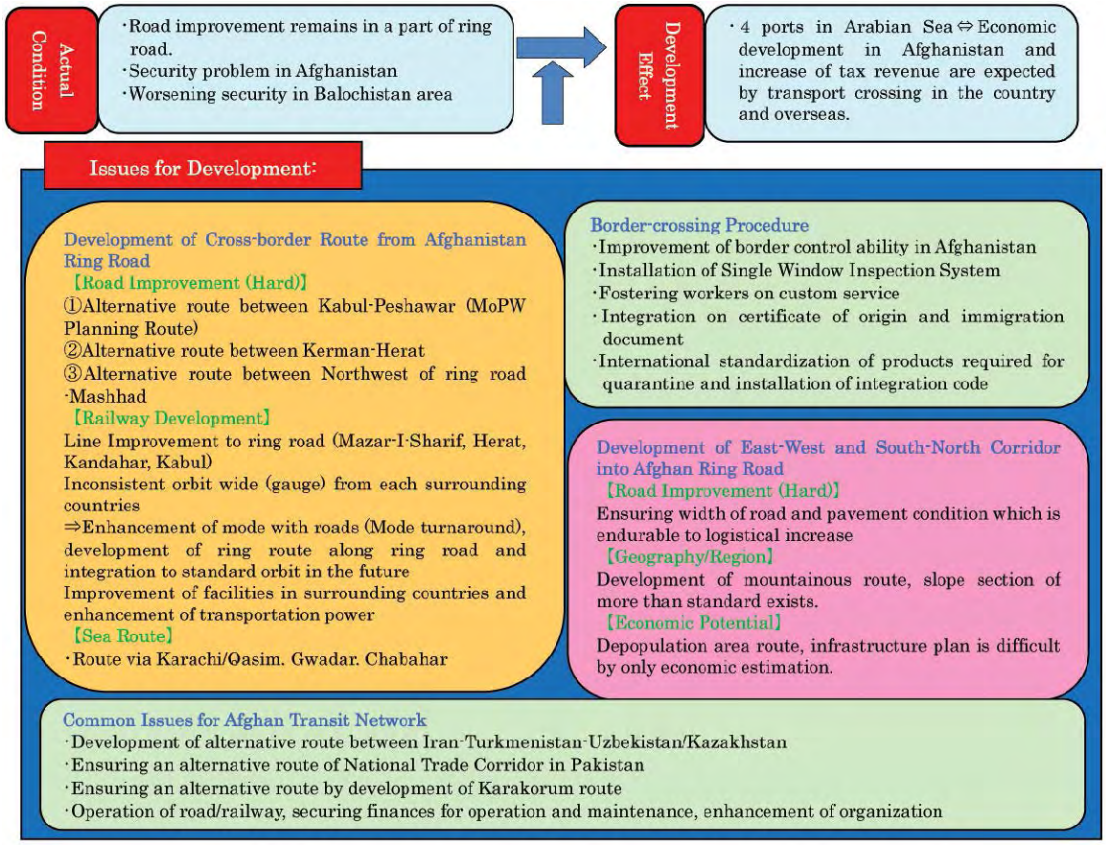


Figure 3.21 Current Situations, Issues and Impacts in the Regional Network Development

Development Goal: Transit Trade Network Development in Afghanistan and Neighboring Countries



Development Goal: Logistic System Development in Afghanistan including Rural Areas

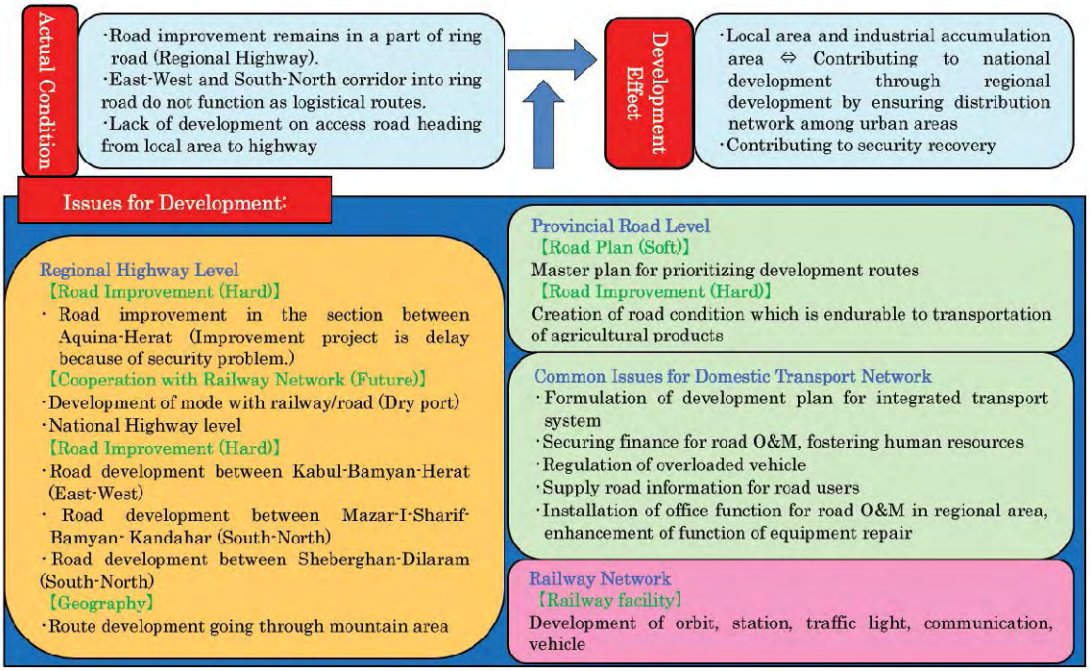


Figure 3.21 Current Situations, Issues and Impacts in the Regional Network Development

3-6 Conclusion

As pointed out in the "History of Afghanistan's National Transport Network Development", structural factors affecting the transport network still remain even today. The lessons from historical development of Afghanistan's national transport network development is that in studying future vision and challenges, not only reduction of transport costs but also facilitation of mechanisms to distribute outcomes, and to distribute to a wider range of people as a result of national economy development in general, should be taken into consideration, and the same mistakes will be repeated unless balanced development is realized to lead to improving national integration and unity. To advance the above, it is necessary to implement programs and projects with multilayer coordination among interregional, intraregional and national transport network development. Figure 3.22 shows this multilayer logical framework among interregional, intraregional and national transport network development.

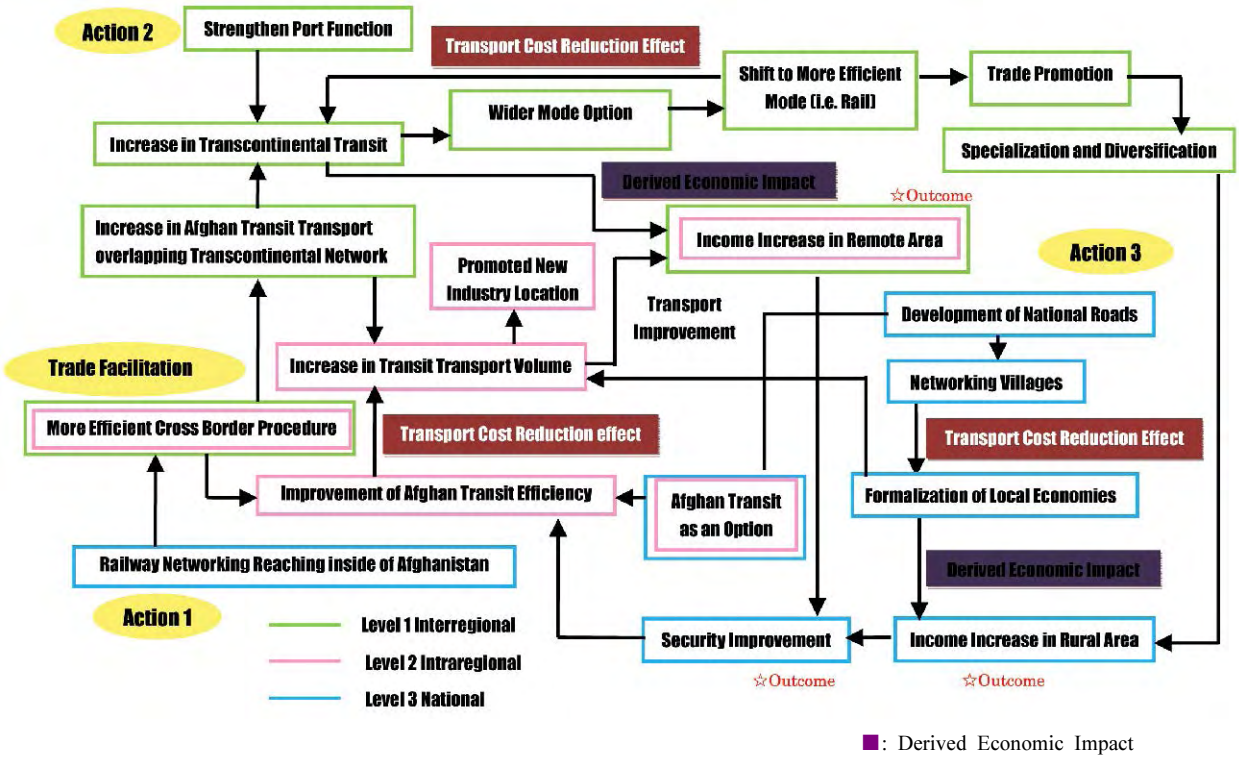


Figure 3.22 Tri-layer (Inter-regional, Intra-regional and National) Logical Framework of Transport Network Development

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