

Hashemite Kingdom of Jordan

**Hashemite Kingdom of Jordan
Data Collection Survey on Logistics
Improvement in Jordan Valley**

Final Report

July 2014

Japan International Cooperation Agency (JICA)

Yachiyo Engineering Co.,Ltd

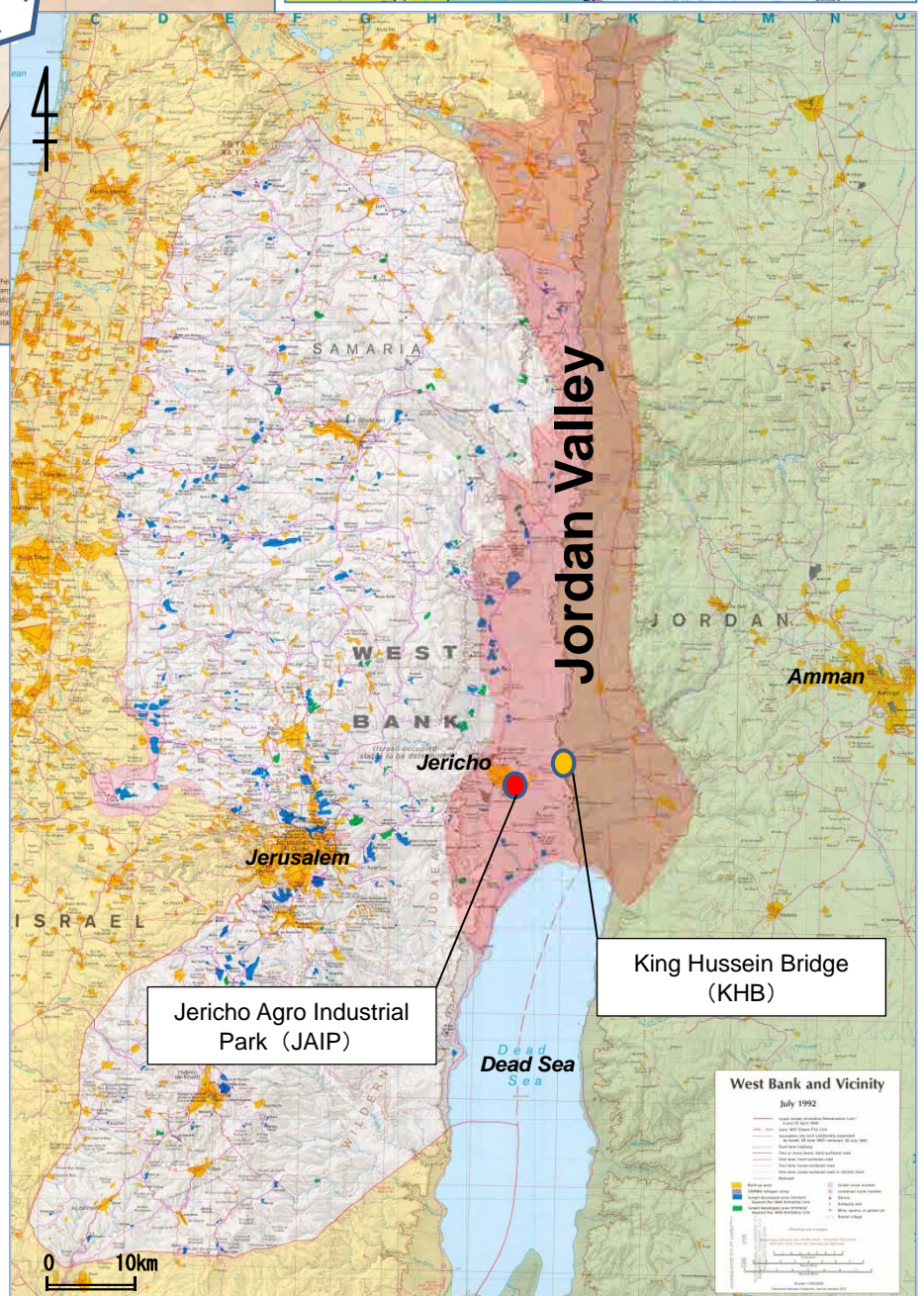
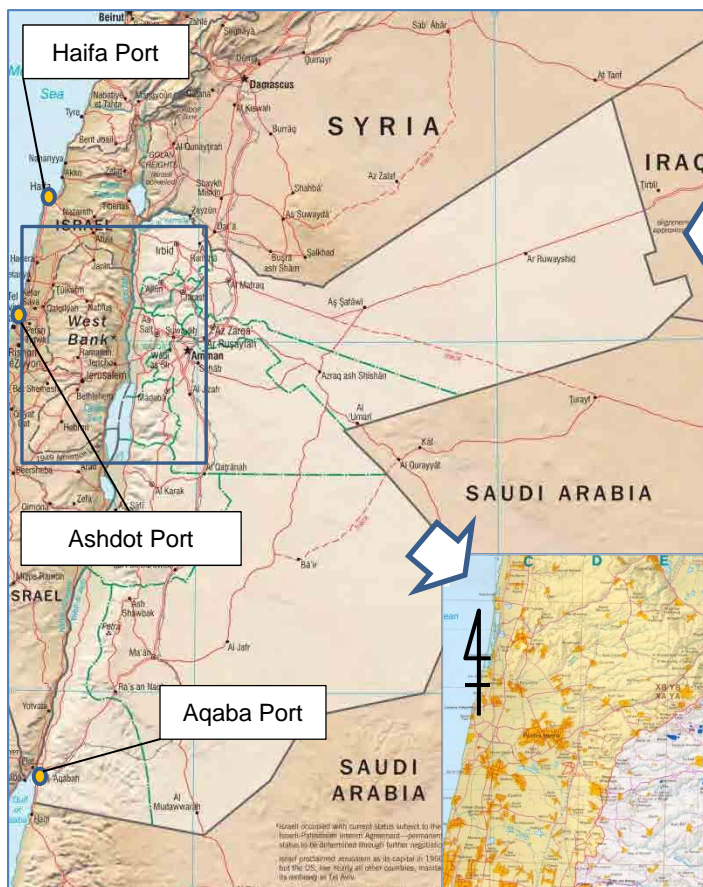
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Exchange Rate: March 2014 (Monthly Currency Conversion JICA, 2014)

1.00 JOD = ¥144.909

1.00 LSI = ¥29.111

Project Location Map



Source :
<http://www.lib.utexas.edu/maps/jordan.html>

Picture No.1
KHB Border Crossing Terminal (Jordan Side)



Trucks are waiting to enter the truck terminal



Trucks are waiting for customs clearance in the terminal



Quarantine facility in the terminal (Sample keeping)



Electronic tracking system for the transit traffics

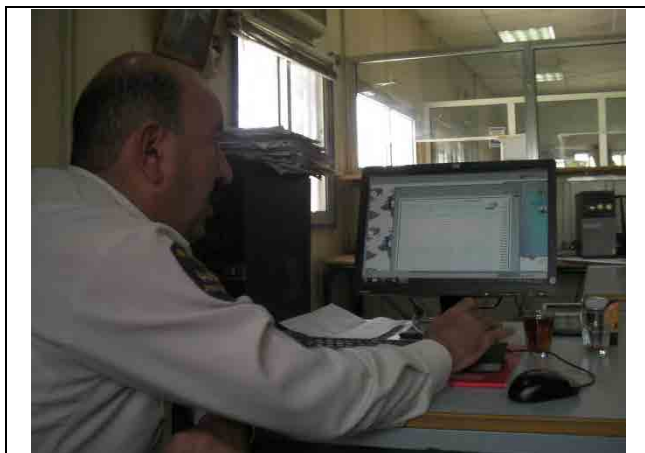


Stone carried from Palestine (major imports)



Cement exported to Palestine (major exports)

Picture No.2
KHB Border Crossing Terminal (Jordan Side)



Collation and input of customs clearance data



Depository area for the scraps imported from Palestine



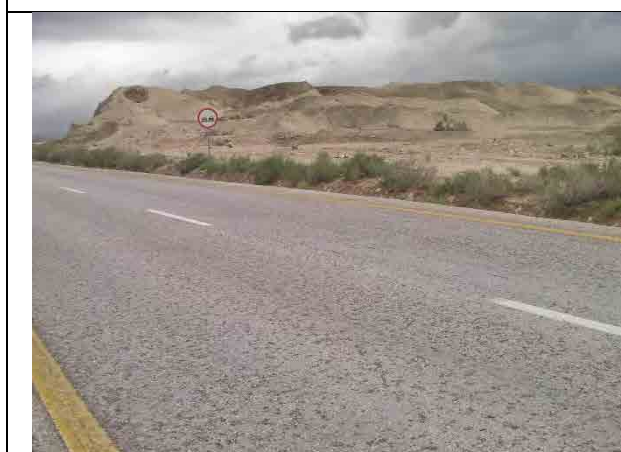
Customs clearance office and agent office



Faulty X-ray inspection apparatus



Deposited drivers' passports at the immigration office.



Candidate site for the new border terminal on the way to KHB

Picture No.3
KHB Border Crossing Terminal (Jordan Side)



Departure terminal for foreigner



VIP service vehicle



Departure waiting room for Palestinian



Entry waiting room for Palestinian



Exit of arrival hall for Palestinian



Long-distance bus terminal that is adjacent to arrival hall

Picture No.4
KHB Border Crossing Terminal (Israel Side)



King Husain Bridge (KHB)



Transshipment place for cargo trucks



Palette scanner administration building



Inspection place only for import car



Sand imported from Jordan (major imports)



Waiting transshipment trucks that come from Jordan

Picture No.5
Queen Alia International Airport • Freight terminal inspection place



External of large-scale X-ray inspection (scanner) building



Truck park



X-ray inspection (scanner) apparatus



Analysis system for scanned image



Management Office in cargo inspection place



Mobile scanner apparatus (for emergency)

Picture No.6
Arterial Roads near KHB (Jordan Side)



Bad road section on the KHB access road



Measurement place on the road which connects between Amman and Dead Sea



Vegetable market near the KHB



Four lane road that passes near the Dead Sea



On the way to KHB access road



South Shuna Intersection
(KHB is to the left side)

Picture No.7
Arterial Roads near KHB/Allenby Bridge (Palestine Side)



Palestine Route 90 (Border terminal is to the left)



Inside Jericho Agro-Industrial Park (JAIP)



Jerusalem street in Jericho City



Near the Musa Alalami Gate



Information signboard of area A (Jericho)



Direction to JAIP from the Route 90

Picture No.8
Survey Scene (Jordan Side, Palestine Side)



OD interview survey on the road along the Dead Sea



Rasydiyya terminal survey point near the Aqaba Port



Training to the surveyors



Traffic survey on the Route 90 in Al'auja



Traffic survey near the Mousa Alalami gate,
Palestine



OD interview survey on the gate of Allenby Bridge

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ABBREVIATION

Abbreviation	Description
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ASYUCUDA	A kind of electronic custom system, Automated SYstem for CUstoms Data
Back-to-Back	Transportation with transshipment
Door-to-Door	Transportation by one owner Truck
EFTA	Europe Free Trade Agreement
GDP	Gross Domestic Products
HS-Code	Harmonized commodity description coding System
JAIP	Jericho Agro Industrial Park
JICA	Japan International Cooperation Agency
KHB	King Hussein Bridge
KHBT	King Hussein Bin Talal
OD	Origin – Destination
PALTRADE	Palestine Trade Center
PCBS	Palestine Central Bureau of Statistics
PCU	Passenger Car Unit
PNA	Palestine National Authority
QAIA	Queen Alia International Airport
QIZ	Qualified Industrial Zone
ROW	Right of Way
SHB	Sheikh Hussein Bridge

Executive Summary

1. INTRODUCTION

1.1 BACKGROUND

The freight volume through the Jordan Valley, which is located between Jordan and Palestine (West Bank), has been increasing in both regions. Some border crossing issues in this area, however, have been recognized as critical bottleneck, the issues include complicated custom clearance procedures, insufficiency of sophisticated logistics centers, and so on.

Japan has been discussed among the four-party consultative unit comprised of Palestine, Israel, Jordan, and Japan. In the process, Japan has promoted the development of the JAIP to support the program. For JAIP to export its goods to the Gulf countries, especially via Jordan, it is vital to improve the distribution system within Jordan. It is recognized that this survey is to gain a foothold for the achievement of the above task.

1.2 OBJECTIVE AND STUDY AREA

1.2.1 Objective

The objective is, 1. To know the actual logistics conditions of Jordan Valley, 2. To identify the problems and issues for logistics infrastructure in Jordan Valley through the future demand analysis, and 3. To propose the improvement project of logistics infrastructure.

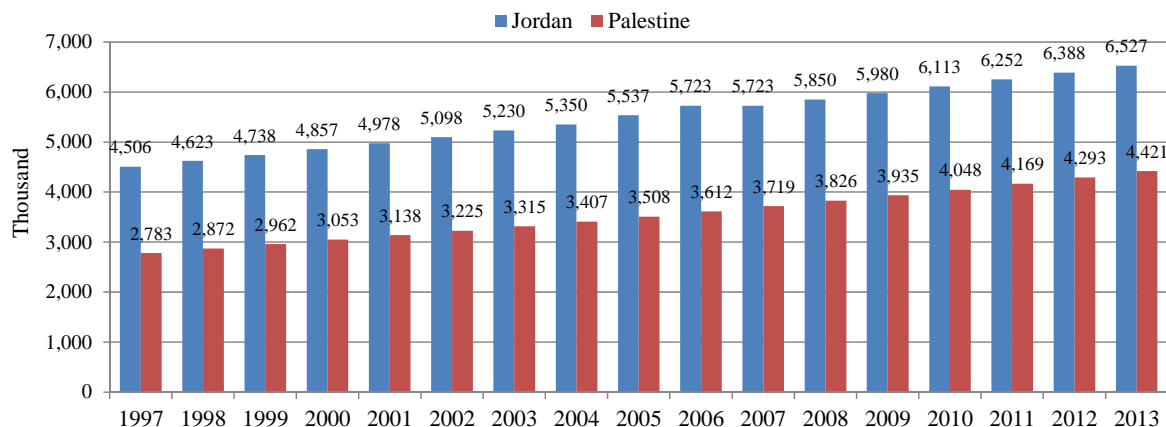
1.2.2 Study Area

The study covers Jordan, Palestine (only West Bank was focused as Palestine without Gaza strip), and Israel, and also especially focus on the KHB.

2. SOCIAL AND ECONOMIC CONDITIONS

2.2 POPULATION

As of the end of 2013, Jordan had a population of about 6.5 million, of which 2.5 million, or about 40%, live in the State of Amman. Meanwhile, the population of Palestine was about 4.4 millions, comprised of 2.7 million on the West Bank and 1.7 million in Gaza strip. The annual growth is around 2.2% in Jordan, 2.5% on the West Bank, and 3.4% in Gaza strip.



Source: Statistical Yearbook 2012, Department of Statistics, Jordan

Figure 2-1 Demographic Changes of Population

2.2 ECONOMICS

GDP of Jordan shows a high rate of economic growth of 7 to 8% from 2004 to around 2008. With the decline of the U.S. economy from around 2009, however, the growth started slowing and, what with the Arab Spring that arose in neighbouring Arab countries in 2010 to 2012 with waves of pro-democracy demonstrations and protests and the civil war breaking out in Syria in 2011, the country's economic growth has been declining due to damage to the tourism and other sectors.

The Palestinian economy kept negative growth as it was severely impacted by the blockade of the Palestine territory and restriction on movement after the conflicts with Israel that happened in this period. Later, the Palestinian economy significantly recovered, but, as Israel imposed economic sanctions after Hamas won the Palestinian legislative election suspending customs reimbursement, etc., the regional economy deteriorated again, especially in Gaza strip. Since 2009, however, the regional economy has recovered and shown a high rate of growth despite restriction on movement and other difficulties.

3. EXTERNAL TRADE CONDITION

3.1 EXTERNAL TRADE OF NATIONAL/STATE LEVEL

3.1.1 Export and Import

In Jordan, as its steady GDP increase at an annual rate of 8% or more for five years since 2004, for the past 20 years, the annual growth of imports and imports has stayed around 10% on average.

As to Palestine, it has been running a large trade deficit, with total imports by far exceeding the total exports. In the beginning of 2000s, as the country's economy was severely impacted by restriction on movement by Israel, both exports and imports of Palestine significantly decreased. The economy has recovered from 2003, but the trade deficit has been increasing every year. For the past 20 years, the annual growth rates of imports and

exports have stayed at a little more than 5%.

3.1.2 Commodities

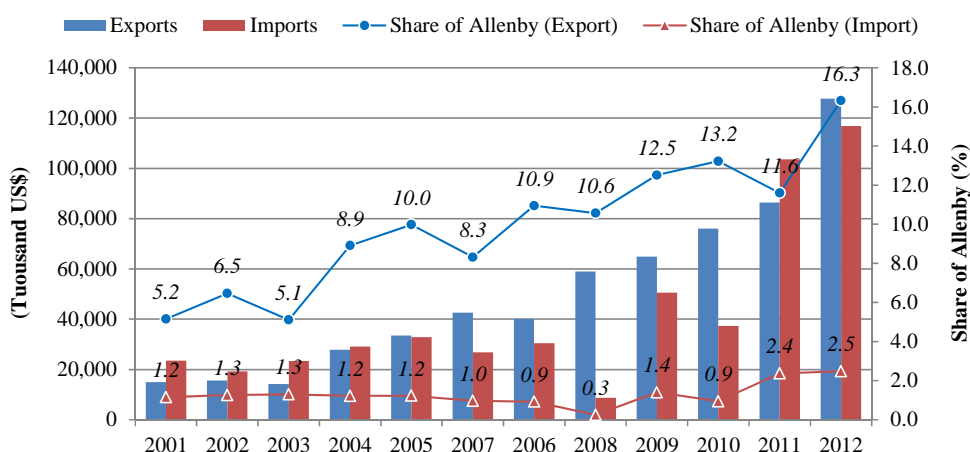
Articles showing larger shares in recent exports from Jordan are vegetables and root crops, chemical raw materials such as sulphur, lime, cement, rare metals, chemical fertilizers, textile and apparel, etc. As to imports, natural resources have a dominant share.

For Palestine, major exports are mineral-related products, which account for nearly 20% of the total exports. As to imports, energy-related products hold top shares, with crude and refined products, electricity and gas, etc. all showing large shares. Other products showing higher shares include cereals, automobiles, iron and steel materials, and electric appliances.

3.1.3 Border Crossing Points

For the Jordan, the volume of goods passing through KHB, both in imports and exports, remain less than 1% of the total volume.

For Palestine, the share of goods passing through KHB in the total volume of transport is 16.3% for exports and 2.5% for imports, with the percentages increasing year by year.



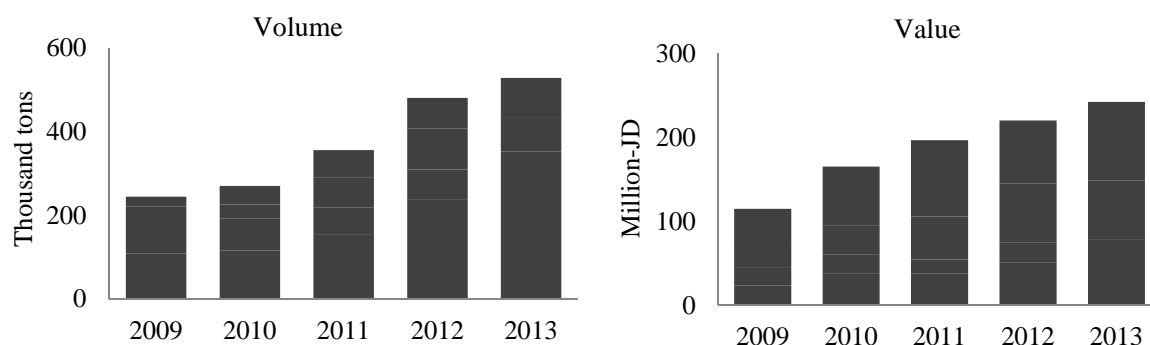
Source: Palestinian Central Bureau of Statistics, Palestine

Figure 3-1 Position of KHB for Palestinian Export and Import

3.2 PRESENT CONDITION OF EXTERNAL TRADE AT KHB

3.2.1 Freight crossing KHB

Freight volume of 528 thousand tons, equivalent to 242 million JD (339 million US\$), crossed KHB in 2013. The trade volume crossing KHB increased by more than a double in the last five years.

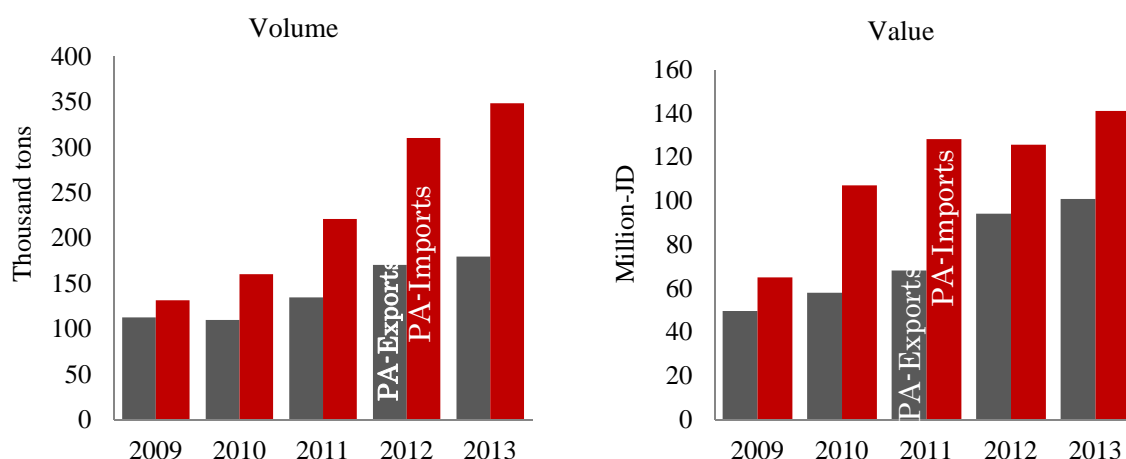


Source: Jordan Customs

Figure 3-2 Freight Crossing KHB

3.2.2 KHB freight by PA export and import

PA imports more than it exports through KHB. Moreover, the proportion of the PA export volume through KHB has been decreasing consistently since 2009. Currently PA export volume through KHB Bridge is just about half the import volume through the bridge.



Source: Jordan Customs

Figure 3-3 PA Exports and Imports through KHB by Volume and Value

3.3.2 Exports from Palestine through KHB

The Palestine exports destined for Jordan account for 56% of the total volume on average. The increasing rate has been increasing for the last five years at a rate of 13.0% and 19.9%.

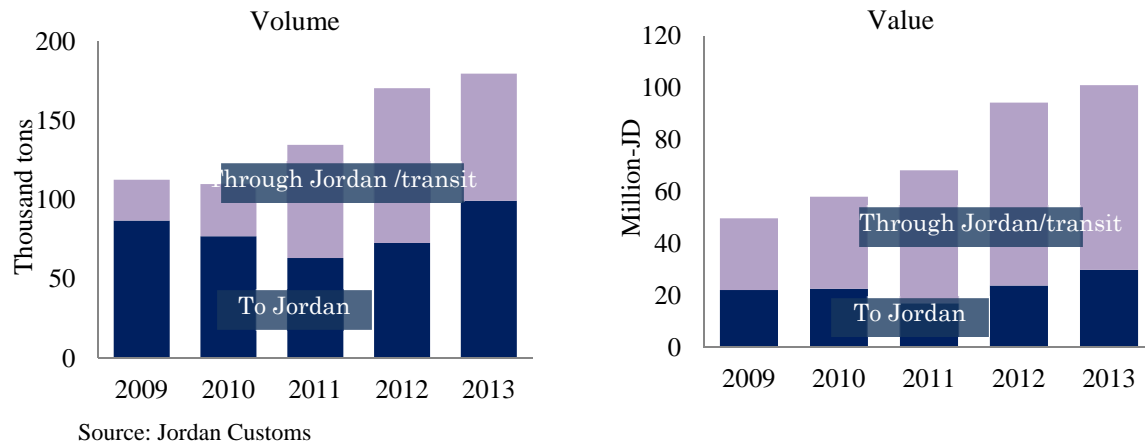


Figure 3-4 PA Exports through KHB

The stone and iron make 69.2% of the all the commodity volume, and 32.9% of the value that the PA exported through KHB. Vegetables and fruits make small proportion, just 1.8% and 2.3% of the volume, in spite of the potential of PA to export agricultural products.

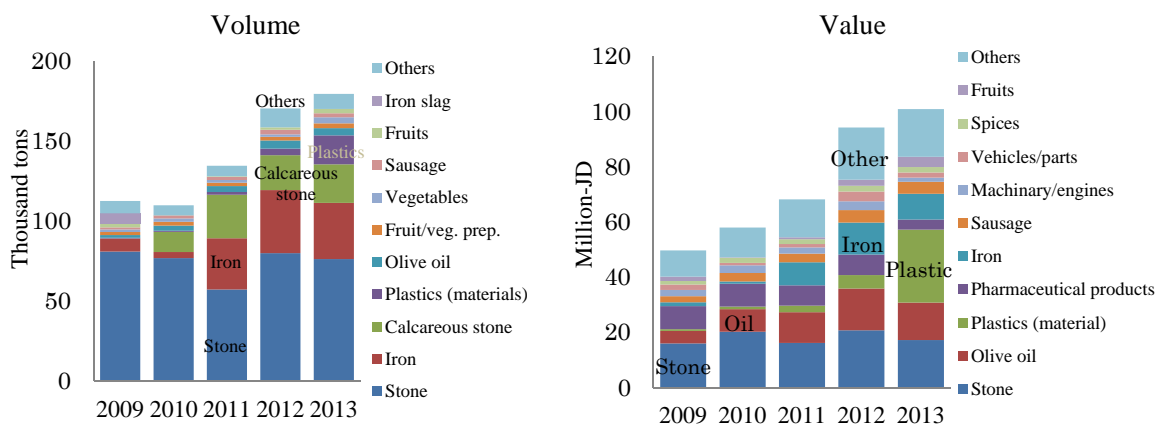
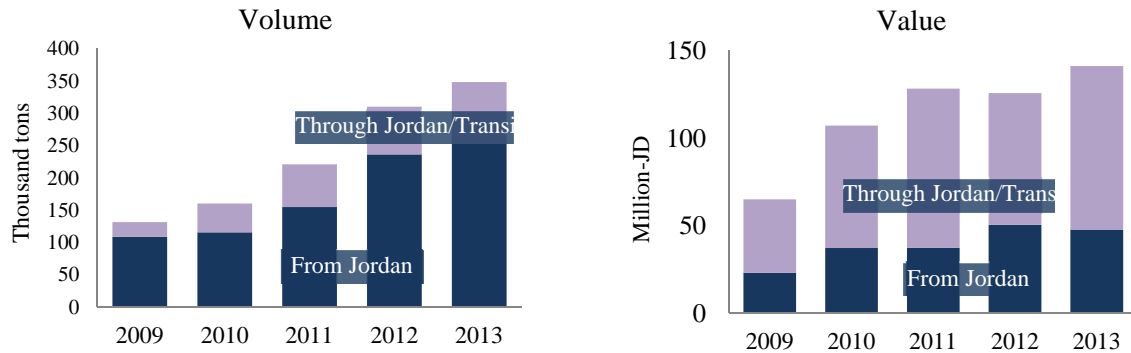


Figure 3-5 Commodities PA Exports through KHB

3.2.4 Import to Palestinian through KHB

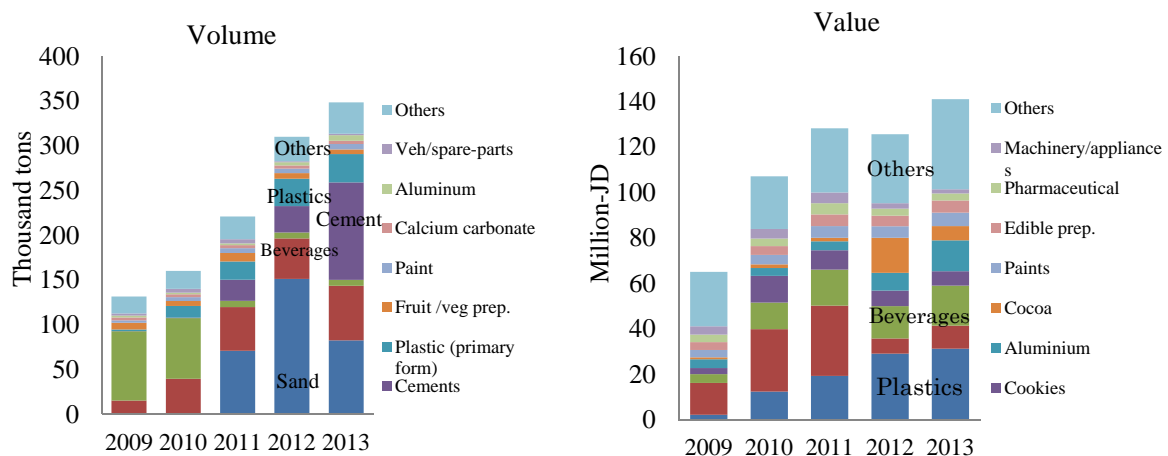
Similar to the exports, about 65% of the value of goods the Palestine imports through KHB are transit goods through Jordan. In terms of volume, however, Jordanian exports make about 75% of the total goods the PA import through KHB.



Source: Jordan Customs

Figure 3-6 PA Imports through KHB

Palestinians import mostly construction materials, cookies and beverages (water and juice). Sand comes at the top in terms of volume followed by beverages, cookies and cement, respectively



Source: Jordan Customs

Figure 3-7 PA Imports through KHB by Commodity

4. LOGISTICS INFRASTRUCTURES IN JORDAN VALLEY

4.1 LAND BORDER CROSSING POINTS

The land border crossing points in Jordan are located near to four countries (Syria, Iraq, Saudi Arabia, Israel) and one state government (Palestine). Total nine (9) borders are currently used. There are two (2) land crossing borders in Jordan Valley, i.e. SHB and KHB. It regards the KHB as border operated for Palestinians from/to visit Jordan.

4.2 KING HUSSEIN BRIDGE

(1) Outline

It is the only border crossing between Jordan and the West Bank. The KHB is opened

mainly for Palestinian tourists. Forbidden to Israeli by Israeli authority, the bridge is mainly used to pass foreign tourists, Palestinians, and commercial freight from/to Palestine.

(2) Passenger Terminal and Cargo Truck Terminal

Currently, the border crossing facilities for Passengers are comprised of an administration office and passenger arrival and departure facilities. The total area of the passenger facilities is about 49,700 m². They are made up of an immigration facility for Palestinians, an immigration facility for foreigners, and a facility for border crossing.

The cargo truck terminal is comprised of a visual inspection hall (iron scrap), a visual inspection hall (non-iron scrap), a quarantine (agricultural products), and an office. The total area of the cargo terminal is about 20,400 m². The size of the facility, just enough to handle 30 – 40 or so large trucks at once, is too small for current traffic volume and cause of delay on cargo transportation.



Figure 4-1 Location Map of Passenger / Truck Terminal at KHB

(3) Customs and Quarantine

The customs procedures are very inefficient, taking much time and money for check and inspection. The quarantine services also available at the terminal, however, since it has no full scaled quarantine facilities (labs, washing station, office, etc.) there, sampled pieces are temporarily stored in a small size fridge and then sent to labs in Amman for quarantine inspections. The method for quarantine is random sampling and takes five to ten minutes for checking documents and goods. Goods once quarantined may continue their travel without being kept at the crossing, but an agreement is signed that they not be put on the market until the result of quarantine is released. This system, which significantly differs from the practice of standard border crossings and risks missing right samples and goods being put on the market before approval is given, should be improved without delay.

4.3 SHEIKH HUSSEIN BRIDGE

(1) Outline

The SHB is a border crossing located in the north of the Jordan Valley at 90 km from Amman and being open 24 hours. The SHB is an official border crossing between Jordan and Israel. As at the KHB, the customs services are jointly handled by the Jordanian Customs and the Public Security Directorate, Ministry of Interior. Goods are checked with mobile scanners. The terminal offers also a quarantine service, but, in the absence of quarantine facilities (labs, washing station, office) there, sampled taken are sent by post the same day to labs in Amman. Goods once quarantined may continue their travel without being kept at the crossing.

(2) Passenger Terminal and Cargo Truck Terminal

The total area of the tourist and freight facilities is about 500,000 m², more than seven times larger than that of the KHB (70,100 m²). The current facilities are comprised of a passenger terminal and a cargo terminal as other standard border crossings. Differently from the KHB, the passenger terminal is not divided by user's nationality. The crossing allows also the passage of private vehicles and has vehicle check sheds.



Figure 4-2 Layouts of Passengers and Cargos Terminal of SHB

(3) Customs and Quarantine

The customs services are jointly handled by the Jordanian Customs and the Public Security Directorate, Ministry of Interior. In inspection, certain goods are X-rayed with mobile scanners.

The terminal offers also a quarantine service, but, in the absence of quarantine facilities (labs, washing station, office) and stations to store test pieces, sampled taken are immediately sent to labs in Amman for inspection. An inspection takes one week to ten days to give the results. Goods once quarantined may continue their travel without being kept at the SHB, however, just as at the KHB, an agreement is signed between Jordanian government and the shippers/transportation companies that the goods not be put on the

market until the results of quarantine are released.

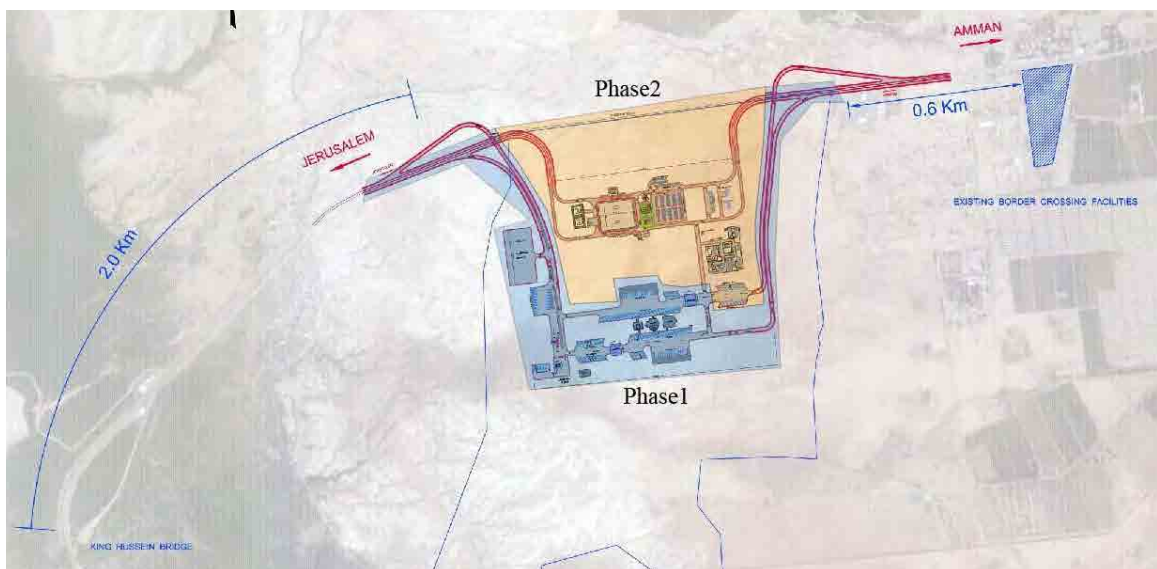
5. RELEVANT DONORS' SUPPORT PROJECT

5.1 KING HUSSEIN BRIDGE UPGRADING PROJECT (JORDAN SIDE)

(1) Outline

Currently a border facility upgrading project for KHB has been carried out by the Quartet. Four parties, comprised of the Quartet, Jordan, PNA, and Israel, have already agreed upon the containerization of the border facilities for logistics improvement.

As to the upgrading project on the Jordanian side, the country plans to newly build a passenger terminal and a cargo terminal at a location 600 m away from the current cargo terminal to meet future containerization.



Source: KHB Border Crossing General Master Plan Drawings, Ministry of Public Works and Housing

Figure 5-1 Layout Drawing of KHB Border Crossing (Jordan Side)

(2) Problems

The policy of transshipment, i.e. same policy as existing system (Back-to-Back in Israel) or additional Back-to-Back in Jordan side as well, is not decided yet.

Besides transshipment policy, although the outline of the new facilities is roughly agreed upon, nothing is planned as to the facilities and equipment for quarantine and container stock yard, which makes the facilities as currently planned insufficient as a full scaled border crossing.

The outlook of funding is also supposed to be discussed at donors meetings, but still remains a blank slate.

5.2 KING HUSSEIN BRIDGE UPGRADING PROJECT (ISRAEL SIDE)

Israel has already started working on the upgrading of the border facilities to meet the requirement for containerization policy and increase of future cargo volume. The detailed

design has already finished and civil work will start soon. The plan is to upgrade groups of facilities in phases on the existing premises without bothering border crossing operations.



Figure 5-2 Layout Drawing of KHB Border Crossing (Israel Side)

5.3 JERICHO AGRO INDUSTRIAL PARK (JAIP)

(1) Concept of Development

The objective of development of JAIP is to position JAIP as an economic growing post for Palestine through the improvement of agricultural production in the Jordan Valley, promotion of agri-business, and strengthening of the competitiveness of export industries of Palestine. The basic concept is to collect agricultural products from the areas around Jericho of Palestine, to make

(2) Forecast of the Generated Cargo Volume

The generated cargo volume in each stage was predicted in the previous study.

Table 5-1 Forecast of the Cargo Volume Generated from JAIP

		Phase 1	Phase 2	Sub Total	Phase 3	Total
Yearly Cargo Volume		38,000	152,000	190,000	231,000	421,000
Dairy Cargo Volume		125	502	627	762	1,389
Number of Trucks	5t	5	21	26	32	58
	10t	7	25	32	39	71
	20t	11	45	56	68	124
	Sub Total	23	91	114	139	253

Source: Feasibility Study on Agro-industrial Park Development in the Jordan River Rift Valley

6. ANALYSIS FOR TRANSPORT AND LOGISTICS MOVEMENT

6.1 CARGO TRAFFIC VOLUME CROSSING THE KHB

The cargo transportation volume crossing the border at KHB on the both Jordan and Palestinian side was summarized according to the dairy time period. The maximum number of incoming or outgoing trucks ranges approximately 20 and 25 vehicles per hour, this figure is presumed to be the maximum number of vehicles handled per hour.

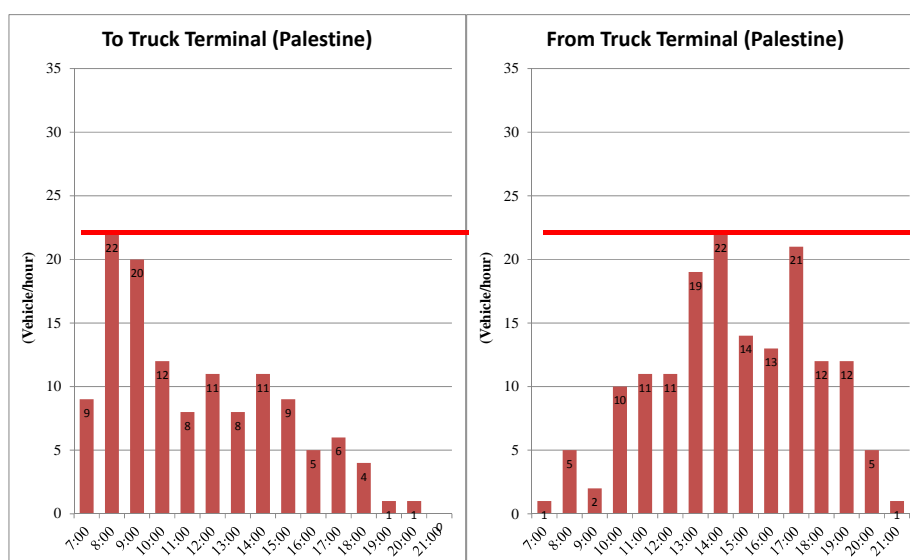


Figure 6-1 Nos. of Trucks at the KHB Border (Israel Side)

6.2 CROSS BORDER TRAFFIC

Based on the results of Roadside OD Interview Survey, 70% to 80% of cargo flow passing through KHB is only between Jordan and Palestine, while the remaining cargo is between Palestine and the Gulf area.

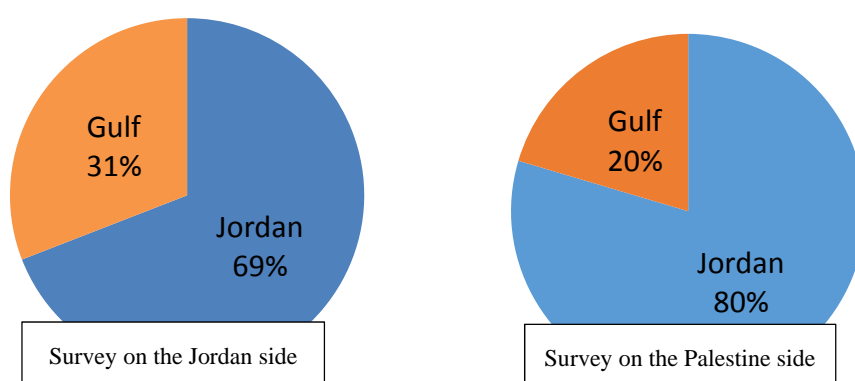


Figure 6-2 Share of the trade partners of Palestine

The average time to process for export and import is as follows.

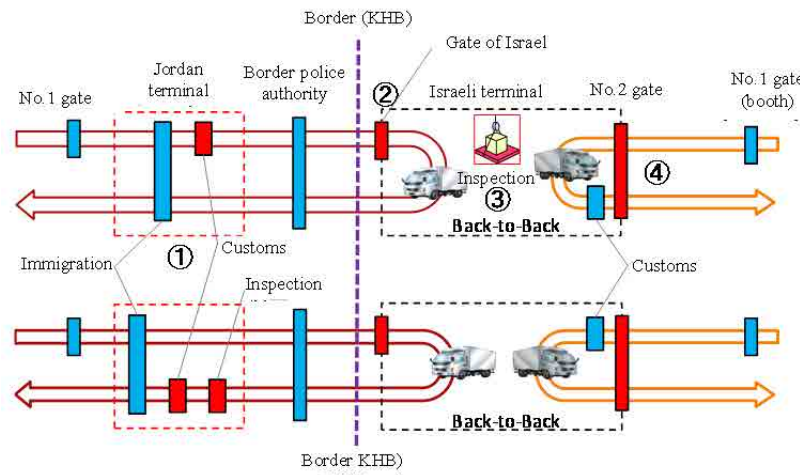
Table 6-1 Process Time for Export and Import Procedure

Process Category	Jordan side	Palestine side
Export	323 min. (5 hrs 23 min.)	405 min. (6 hrs 45 min)
Import	393 min. (6 hrs 33 min.)	101 minutes (1 hr 41 min.)

Source: Summary by Study team

6.3 BOTTLENECK

Concerning bottlenecks at KHB, there are multiple locations and factors correlated in the composite manner and it is not easy to present any unequivocal definition in this respect. In other words, bottleneck points and their degree vary from day to day. Main bottleneck points are shown in next Figure.



Source: Summary by Study Team

Figure 6-3 Bottleneck for Import/Export at KHB**Table 6-2 Bottleneck State**

No.	Bottleneck	Condition
1.	Size of Truck terminal on the Jordan side	<ul style="list-style-type: none"> The facility size is as small as about 2 ha, so that the sufficient space for truck is difficult to secure. There is no equipment necessary for cargo inspection. Originally, all of cargoes must be inspected visually. Actually, sample inspection is being made because of the time required for such inspection. Immigration and customs offices are not enough space. Capacity of data processing at office is insufficient due to limited space for relevant agent offices and PC hardware. Backup in case of emergency is not sufficient.
2.	Entry gate of truck terminal for incoming from Jordan side	<ul style="list-style-type: none"> Due to only one entry gate, cargoes and passengers (trucks and buses) are mixed and cause more traffic jam.

		<ul style="list-style-type: none"> • Due to only one entry gate, there is no detour space in case of stop of faulty or dubious vehicles.
3.	Inspection equipment on the Israel side (pallet scanner)	<ul style="list-style-type: none"> • There is only one small pallet scanner, so that inspection of all cargoes takes time. • As the scanner is for pallets, there is no other way but to unload individual pallets from the truck for inspection. It is impossible to perform efficient inspection of truck as a whole.
4.	Entry 2nd gate of truck terminal for incoming from Palestine side	<ul style="list-style-type: none"> • In order to enable reloading of cargoes, it is necessary to match the timing between Jordanian and Palestinian trucks. Since Jordanian trucks have to come to the facilities on the Israel side while crossing the border, Palestinian truck must wait, at No.2 gate, for Jordanian trucks to arrive. Since there is no space available for waiting at present, vehicles are parked on the road.

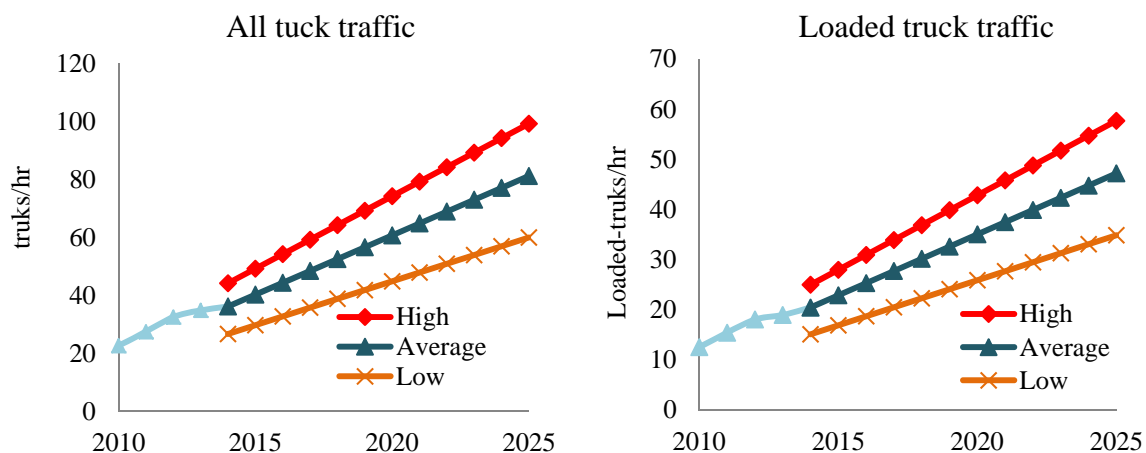
Source: Summary by Study Team

7. FUTURE FREIGHT DEMAND ANALYSIS

7.1 FUTURE KHB VOLUME

According to the result, 252 trucks will cross KHB on average in 2016, out of which 144 are loaded in both direction. In 2020 the number of the trucks through KHB will reach 346 and reach to 462 trucks in 2025.

Trucks volume at peak hour is 44 trucks in 2016, 61 trucks in 2020, and 81 trucks in 2025 on average.



Source: Study Team projected

Figure 7-1 Peak hour total and loaded truck traffic of KHB

7.2 VERIFICATION OF THE FACILITY SIZE

Based on future freight demand as calculated previous section, verification on the new

truck terminal has been conducted which is potential bottleneck for the existing truck terminal at KHB. Specifically, verification has been performed in terms of the Size (Truck parking capacity) and cargo inspection system. The newly planned facility scale of the Jordanian truck terminal is as follows.

Table 7-1 Projected Parking Scale in new Truck Terminal at KHB

Truck Parking Space	Option 1 (Door-to-Door)	Option 2 (Back-to-Back)
Departure	130	107
Arrival	116	55
Transshipment	-	20
Sub Total	246	182

Source: KHB Design Paper, Ministry of Public Works

(1) Parking Capacity

For the truck demand at peak hour during high season in 2025 based on the required time of process, the required parking capacity is calculated to be 163 lots. The number of required lots by calculation is within the projected number in both option 1 and 2 in KHB upgrading plan.

Table 7-2 Jordanian KHB truck terminal utilization time

Process	Time Required
Immigration and customs clearance for export trucks	114 min.
Immigration for import trucks	82 min.
Customs clearance of import trucks	100 min.
Average	99 min.

Source: Prepared by Study Team

(2) Inspection System (Scanner)

The inspection capacity of large scaled scanner or mobile type scanner which is operated in QAIA and others by the Jordan customs is more than 100 vehicles per hour. This inspection ability could cover the truck demand in 2025.

8. LOGISTICS PROBLEMS AND ISSUES FOR JORDAN VALLEY

8.1 PROBLEMS ON LOGISTICS IN JORDAN VALLEY

8.1.1 Inefficient Transportation System

The inefficient system causes high cost structure on Fare and Time. Such a system makes regional products (Jordan and Palestine) high and it highly decrease competitiveness of local products. This is the one of the key factors by which regional economic growth has been refrained.

(1) Back-to-Back System at Border Crossing

Jordanian and Palestinian (Israeli) vehicles cannot entry into other territory. This system is extremely constraints on smooth transportation and quite opposite policy against the common Door-to-Door system over the world. When shippers order the transportation of goods, for example, the cost is likely to be high since additional process for coordination with a couple of logistics companies is required. Besides additional cost, back-to-Back system has a risk of damage and spoiling the goods due to careless check at opening and/or loading/unloading activity.

Since large scaled forwarders who have own transportation network cannot control the distribution route, market prices of transportation in region also remain to high level.

(2) Movement Restriction for Palestinian Vehicles

The Palestine-registered vehicles are obliged to have many inspection at temporary check points even when traveling within Palestine territory. The fact also causes time loss and damage to cargoes in the course of inspection, etc. in the similar manner as described in the previous paragraph.

8.1.2 Competitiveness as a Wide-area Logistics Route

The KHB located in the Jordan Valley points to the Mediterranean and Red Sea, and is at the strategic position of the traffic route connecting to Europe, Africa, Middle East, etc. Most of cargoes passing through the Jordan Valley, however, are short trip transportation flow between Jordan and Palestine. It means that geographical high potential is not made practical use fully at all, and the fact became an obstacle to restrain the regional economic growing.

8.1.3 Incomplete and Insufficient of Quarantine Facilities

Not only the KHB but also all of other land border facilities in Jordan have no quarantine facilities. It is confirmed by interviewing by organization concerned that such situation is negative effects as shown below.

- ✓ The quarantine system at KHB is to take the sample of quarantine objects and to send it to the quarantine facilities of Agriculture Center, Ministry of Agriculture in Amman. It takes about one week till the inspection result is certified.
- ✓ Usually, quarantine inspection is covered by random sampling method at rate of about one every 10 vehicles in average. But the global standard is, of course, 100% inspection.
- ✓ The KHB upgrading plan studied by Quartet and Ministry of Public Works and Housing does not contain any study on the quarantine facilities. It is quite normal consideration according to practice so far, but miscommunication with MoA about quarantine system at KHB is also one of the reasons to missing.
- ✓ The existing quarantine office at KHB is in the poor condition. Actually, the office has only the refrigerator (same as home use) for storage of samples and two office

buildings.

- ✓ The quarantine operation is highly demanded practically that sampling must be done approximately every day. It is about 50 samples in a day at high demand season.
- ✓ Trucks are allowed to release and go for the destination even if the quarantine inspection in Amman is not completed. However, the agreement is exchanged between the shippers and custom office in Jordan that commodities inside trucks could not be opened unless the quarantine result is certified. Actually, it is not confirmed that shippers always keep the rule about quarantine guideline.

8.2 PROBLEMS ON UTILIZATION OF KING HUSSEIN BRIDGE

8.2.1 Shortage of the Capacity of Truck Parking Space and Cargo Handling

The scale of truck terminal in Jordan side, especially truck parking lot and office spaces for handling cargo, is insufficient to deal the demand. As stated in Chapter 7 result of field survey, parking space of truck in Jordan side, entrance gate for Jordanian trucks at Israel side, and cargo inspection equipment (scanner) in Israel side are probable bottleneck.

8.2.2 Complicated Procedure of Passenger (Israel and Jordan) and Long-time process (Jordan)

For passengers of Palestine nationality, crossing the border requires immigration control, security inspection on each of Jordan, Israel, and Palestine. For this purpose, both Jordan and Palestine have buildings different from the ordinary facilities for foreigners and have the separate shuttle buses to travel between facilities and to cross the border. The procedure and system have become troublesome, coercing inconvenience to the users.

8.2.3 Poor Coordination in terms of the Contents and Progress for KHB Upgrading between Two Countries (Jordan and Israel)

It is favourable that improvement plan of the border facilities at KHB is being implemented on both Jordan and Israel sides. On the other hand, however, hearing of the authorities concerned had made it clear the details of Israeli improvement project, which is ahead of that of Palestine, are not thoroughly known to the Palestinian authorities concerned and not in step with those of the Jordanian side project.

8.2.4 Necessity of accommodation for the Israeli KHB Improvement (containerization) (Jordan)

A focus in the KHB improvement concept is to accommodate the facilities capable of handling the passage of containerized cargoes. It was known from the hearing of authorities concerned of both countries that they agreed in this respect.

At present, the Israeli border improvement work is scheduled to be completed in 2016. On the Jordan side, however, the improvement is not yet even on the design stage (that is, the procedure is still on the gross review level with the concept paper).

In principle, the containerized cargoes are to be transported through the seamless transportation system, without being opened in the way. Namely, an efficient container transportation requires an introduction of the system enabling inspection of the container

contents without opening. Unless such system is introduced, increasing cargo congestion, worse than the present, may be expected on the Jordan side in the situation where the future cargo demand is expected to grow as estimated in the previous chapter.

Accordingly, by the time of completion of Israeli improvement in 2016, the system (scanner) must be introduced for inspection of containers. However, development of a new terminal on the Jordan side is delayed and any specific development policy and preparation, including the measures to be taken up to introduction of the scanner, have not been completed.

8.2.5 Congestion caused by Unbalanced Passenger Demand due to limited Operation Hours (Jordan, Israel)

The operating hours of the KHB are not 24 hours, but varies from day to day. Accordingly, the users demand tends to concentrate in the morning because they want to pass the border as early as possible.

8.3 TECHNICAL AND POLITICAL CONSIDERATION FOR THE ISSUES

Assuming to solve the issues related to the Jordan Valley as a whole and KHB as summarized previously, the issues may be classified into technical and political. Since the situation among the relation of target counties are too complicated to propose good solution. It is necessary to hold the discussions and coordination on the national level through like the four parties meeting upon the Corridor of Peace and Prosperity. Consequently, it is difficult to show the concrete project to improve for political issues at present. It is important, however, to solve such issues someday, and sustainable monitoring and support from the Jordan side and/or Palestine side through the continuous data collection survey is required.

Table 8-1 Classification of Problems and Issues

Issues	Issue Classification and Action for Solution
① Decline of transport efficiency and quality maintain of goods due to Back-to-Back system	●System change is Political issue
② Decline of transport efficiency due to movement restriction of Palestine-registered vehicles	●System change is Political issue
③ Sluggish regional economic growth because potential of wide-area logistics route is not fully used	○Promotion of containerization will prove helpful. Various measures for early achievement necessary.
④ Risk of import of cargoes concerned due to incompleteness of the quarantine facilities	○Inclusion in KHB improvement review items necessary
⑤ Long process time due to insufficient scale of KHB truck terminal	○Improvement of the facilities to the adequate size necessary
⑥ Deterioration of passenger services and long process time due to	●System change is Political issue

complicated passenger process	
⑦ System inconsistency due to insufficient negotiation between two countries in line with KHB improvement	○ Confirmation of the contents of the leading Israeli improvement work and identification of the Jordanian terminal configuration necessary
⑧ Concern about delay in measures of containerization due to delay in improvement of Jordanian KHB	○ Study on temporary measures up to completion of improvement of Jordanian terminal necessary
⑨ Congestion promoted due to unbalanced demand of users in line with restrictions of KHB operating hours	● System change is Political issue

Legend: ○ Technical Issues, ● Political Issues

Source: Summary by Study Team

9. POLICY FOR THE LOGISTICS IMPROVEMENT IN JORDAN VALLEY

9.1 POLICIES FOR SOLUTION

Efficiency improvement of logistics planned at the KHB, the greatest bottleneck of logistics in the Jordan River Rift Valley, through its improvement is considered the authentic and most effective measure conceivable at present. The reasons are as follows:

- ✓ The policy of containerization for the King Hussein Bridge has been agreed upon among three countries of Israel, Palestine, and Jordan, so that the environment and conditions for development are already in place.
- ✓ The improvement project on the Israel side is one step ahead of other countries, and Jordan is expected to put into practice the improvement project without delay.
- ✓ All of land border facilities in the Jordan Valley are those requiring reloading, and it is expected that containers itself are to enable transfer to the door to door system for transportation of containerized cargoes. This is the first undertaking ever attempted on the border in the Jordan Rift Valley and will also be the critical pilot project determining the trends of logistics in the region as a whole in the future.
- ✓ Efficiency improvement of the logistics through containerization is expected to contribute to increase in the current trade volume between the West Bank of Jordan and Arab countries. In addition, marine container transportation will be easier, which is expected to help increasing the trade volume via the West Bank of Jordan and Aqaba Port.
- ✓ This project has a potential of encouraging increase in the export from the West Bank of Jordan and thus will support JAIP that will be started to operate soon. This will be the project meeting the concept of the “Corridor for Peace and Prosperity” as Japan has proposed.

9.2 LONG LIST AND SCREENING FOR PROPOSED IMPROVEMENT PROJECT

The candidate measures conceivable when viewed according to the policy described above are as follows.

Table 9-1 List of Improvement Facilities for Logistics (Related to Improvement of KHB)

Proposals	Contents	Issue for implementation
KHB introduction of mobile scanner (inside the existing facilities)	<ul style="list-style-type: none"> It is necessary to introduce the mobile scanner for containerized cargoes on the Jordan side by 2016 when handling of containerized cargoes starts after completion of the improvement project on the Israel side. Currently, development of a new terminal is under way at the initiative of Ministry of Public Works and Housing. Though it is necessary to introduce a scanner by 2016, it is planned to introduce a mobile (vehicle mounted) scanner that can be moved later. The stationary scanner is to be introduced for a new terminal and a mobile type will be operated for vehicles of cargoes other than those containerized. 	<ul style="list-style-type: none"> If the scanner is to be introduced by 2016, preparation study should be started soon.
Detailed Design of the KHB improvement	<ul style="list-style-type: none"> The structural detailed design will be implemented on the basis of the concept plan for improvement of the Jordan border facilities currently implemented by the Quartet. Cargo and passenger terminals are included. 	<ul style="list-style-type: none"> Coordination with other donors (Germany, Netherlands), including feasibility of the design by Jordan herself. It is afraid that the time for design may require long time due to wide scope of works. It is necessary to proceed with the review efficiently to keep pace with the improvement project of Israel that is ahead of others.
Implementation of KHB Truck Terminal (Land Preparation, Inner Roads, Access Road, Parking, Container yard)	<ul style="list-style-type: none"> In an intention of promoting export via the West Bank, Israel is preparing for improvement of facilities to cope with containerization. This idea meets our proposed concept of "the corridor for peace and prosperity." In this context, promotion of efficiency improvement in step with the above activity is indispensable on the Jordan side on the same border. This project plans development of the truck terminal (container yard and clearing for the yard) for the above purpose. In addition, the space and route will be established for introduction of the stationary scanner that is higher in performance than the mobile type planned for the existing terminal. 	<ul style="list-style-type: none"> There is no adequate scheme as JICA assistance. It is necessary to check the possibility to cover the development of proposed facilities by the Grant Aid program of JICA.
KHB scanner introduction	<ul style="list-style-type: none"> The mobile scanner has an X-ray output lower than fixed scanner, so that it may not 	<ul style="list-style-type: none"> Two times installation of x-ray is not realistic.

(In the new facilities)	<p>demonstrate sufficient transmission for arms or weapons of mass destruction. In such an event, visual inspection by opening the cargoes will be necessary. Mobile scanner may be said to be inferior more or less in terms of ensuring efficient inspection.</p> <ul style="list-style-type: none"> • Increase of the cargoes is expected in the future. It is necessary to implement cargo inspection with short time. It is, therefore, also expected to install large scanners such as a fixed type or a re-locatable stationary type. 	<ul style="list-style-type: none"> • It is necessary to check the possibility to install multiple x-ray equipment at once time.
KHB quarantine facilities development	<ul style="list-style-type: none"> • By developing the quarantine facilities (laboratory, cleaning facilities, administrative building), which are not included in the existing facilities, the currently incomplete quarantine system which is not undertaking 100% inspection now can be strengthened. • At present, the administrative building, though small in size, the sample storage facilities, transport of the samples to Amman for inspection are makeshift measures. In consideration of increase in cargoes along with improvement of KHB and the capacity of inspection facilities in Amman, the above facilities will be introduced along with development of KHB new facilities. 	<ul style="list-style-type: none"> • The concept paper prepared by the Quartet does not contain the quarantine facilities.

Source: Prepared by Study Team

9.3 CONTENTS OF PROPOSED IMPROVEMENT PROJECT

9.3.1 Installation of the Mobile Type Scanner into the Existing Terminal

In 2016, containerized cargoes will pass through Jordan. It is known that, as compared with the conventional open truck cargoes, cargoes loaded in containers require substantial time for inspection covering the inside of containers. This reflects the contemplation of the similar cases occurring in Aqaba Port. Namely, there was no container scanner in those days, so that the staffs suffered extremely inefficiency because they had to open all of containers for inspection. In consequence, the Jordanian custom authority, which practically introduce scanners, request strongly the introduction of either type of scanner by 2016 for efficient execution of the inspection. Considering these conditions and in the current situation where development of a new terminal is expected, introduction of the stationary scanner in the existing facilities is considered not practical in terms of the cost and trouble though possible physically. It is therefore desirable to introduce an easily-transferrable large mobile scanner compatible with containerized cargoes. The custom authority requires the scanner for containerized cargoes to have three performances as follows. They are approximately similar to those for scanners introduced in the Queen Alia International Airport and Al Karama border facilities.

- ✓ Transmission capacity: 300mm or more of steel plate
- ✓ Inspection rate: 100 units or more per hour
- ✓ Type: Compatible with the drive-through mode

Table 9-2 Cost Estimation of Mobile Type Scanner

Item	Estimate cost (Million US\$)		
1.Construction	0.0	—	
2.Equipment (Mobile scanner)	2.6	~	3.1
3.Soft component	0.0	~	0.1
4.Construction Supervision	0.5	~	
5.Other	0.0	~	—
Total :	3.1	~	3.7

Source: Sturdy Team projected

9.3.2 Detailed Design of the KHB (Jordan Side)

Since the matters as listed below are not well justified, verification becomes necessary at a time of detailed design. As the detained design covers wide-varying design review as described below, it is considered necessary to take at least 12 months for the review.

- ✓ Addition of the container yard (loading facilities, yard for containers with/without loads)
- ✓ Review of the access road type and intersection type

- ✓ Addition of the quarantine facilities

9.3.3 KHB Improvement (Jordan Side) Phase I

Phase I improvement includes the following details, which is based on the assumption of development under Japanese Assistance. The details of improvement are limited to the scope based on consideration relative to the scheme feasible in Jordan.

- ✓ Land development (ground levelling for the truck terminal)
- ✓ Development of the access road (the section connecting the main road to the truck terminal)
- ✓ Development (pavement) of the road within the truck terminal
- ✓ Inspection facilities (large stationary scanner, visual inspection space, detailed inspection space)

Table 9-3 Cost Estimation of KHB Improvement Phase I (Jordan Side)

Item	Estimate cost (Million US\$)		
1.Construction	9.8		11.5
2.Equipment (Large size scanner)	3.1	~	3.7
3.Soft component	0.5	~	1.0
4.Construction Supervision	0.7	~	1.0
5.Other	0.0	~	—
Total :	14.1		17.2

Source: Sturdy Team projected

9.4 IMPACT OF THE PROPOSED IMPROVEMENT PROJECTS

9.4.1 Impact on Installation of the Mobile Type Scanner

- (1) Inspection rate of security and customs inspection

The inspection rate of large cargo vehicles by the X-ray inspection system with high output and material identification capacity can be improved from 0% (reference of 2011) to 100% (at project completion). The sample compatible inspection rate including visual check can be improved from about 10% (the hearing result of 2014) to 100%.

- (2) Time required for security and customs inspections

The time required per one X-ray inspection of large cargo vehicles, which is currently around three to 15 minutes (hearing result of 2014) can be reduced to 0.5 minutes (at project completion). The inspection time required for containerized cargoes is expected to be about twice that for open trucks at present (hearing result as above). The time required at present for one inspection, which will be as long as six minutes to 30 minutes without the scanner, can be reduced to 0.5 minutes if this is introduced.

9.4.2 Impact on KHB Improvement Phase I (Jordan Side)

(1) Securing of the sufficient truck parking capacity

The existing facilities are so narrow in the site area that it occurs frequently that trucks overflow out of facilities and are waiting outside the facilities. For the truck terminal to be newly developed the facilities of the scale compatible with the existing cargo demand are planned and truck congestions could be improved.

(2) Efficiency improvement of the QIC service

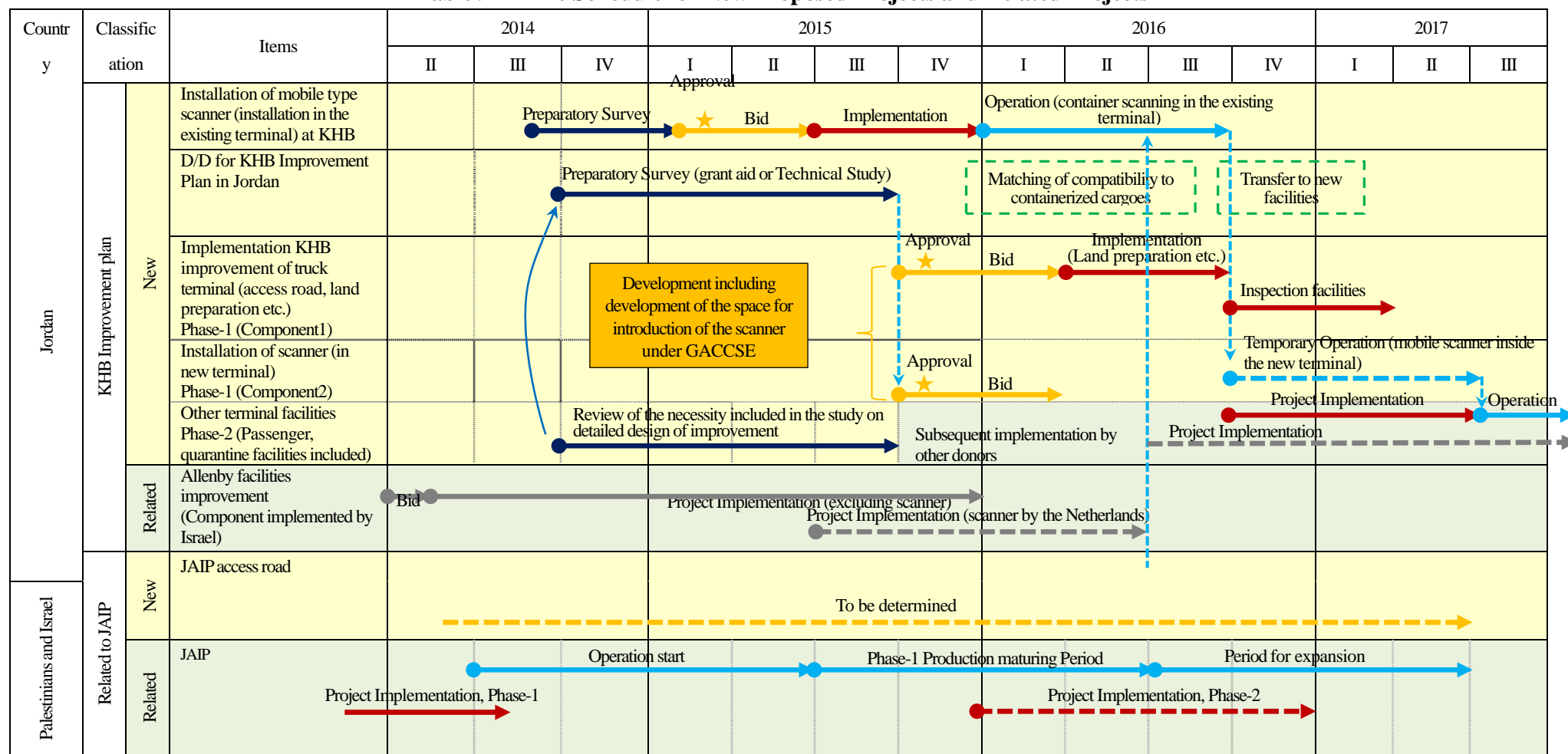
As the quarantine facilities, which have not existed from the beginning, are provided and included in the truck terminal, the procedure of transporting the extracted sample to Amman becomes unnecessary. In addition, the inspection time, that is to be one week in average including the sample transportation, can be reduced to enable obtaining of the result in the same day or the next day.

The offices for immigration and for customs clearance are currently limited in available space in the existing building, which presented constraints in terms of the number of agents that can move in as well as in terms of backup functions. Once the improvement is completed, more agents can move in and more PC terminals and other can be installed. This in turn is expected to enhance the processing rate substantially.

9.5 IMPLEMENTATION PLAN

For the implementation plan (draft) summarized preciously, the development schedule is planned. The key to control the situation in this case is the KHB improvement project on the Israel side, which is scheduled to be opened for service by the middle of 2016. The inspection system (scanner) whose operation for containerized cargoes will be permitted along with project completion will be introduced into a new terminal position on the Jordan side in 2017 and after at the earliest time when considering the preparation state at present. Accordingly, the schedule was assumed to allow introduction of mobile scanner for the purpose of temporary compensation by 2016.

Table 9-4 Time Schedule for New Proposed Projects and Related Projects



10. CONCLUSION AND RECOMMENDATION

10.1 CONCLUSIONS

The following improvement policy could be summarized based on these fact findings on study.

- ✓ The most significant problem in terms of logistics in Jordan Valley is an obstacle to the regional economic growth in spite of high logistics potential of the international competitiveness because transportation becomes highly expensive (time and expenses) due to restriction in vehicle movement as agreed upon among Jordan, Israel, and Palestine as well as inconveniences for border crossing.
- ✓ The biggest bottlenecks in terms of the cross border transportation in Jordan valley are border facilities between Jordan and Israel (SHB) and between Jordan and Palestine (KHB). In particular, the terminal facilities on the Jordan side are as small in scale as to cause extremely difficult situation to meet the demand requirement.
- ✓ For the Palestinian export except for Israel, the most share of trade is covered by the route via KHB. The percentage of passing KHB for Palestine is growing year by year as the export gate and corridor from the Palestine.
- ✓ The cargo volume passing through KHB amounted to 528 thousand tons in 2013. This is equivalent to about two times in the last five years. As the result of summarizing trends of future logistics demand, further increasing is expected in the future; 705 thousand tons in 2016 (1.3 times increase from 2013), 976 thousand tons in 2020 (1.8 times increase from 2013), and 1,314 thousand tons (2.5 times increase from 2013).
- ✓ The bottleneck at the KHB border terminal exists on both Jordan and Israel sides. On the Israel side, the upgrading project of KHB border terminal will start soon and the bottleneck is expected to be removed by 2016.
- ✓ Containerization for border crossing will prove extremely effective in improving the logistics efficiency by supplementing the Back-to-Back system that has caused the greatest transfer constraint. For this purpose, introduction of the efficient container inspection system on the Jordan side is mandatory.
- ✓ There exists the agreement on containerization for the process at KHB among Jordan, Israel, and Palestine. Namely, any political subjects concerning introduction have been cleared.

11.2 RECOMMENDATIONS

Concerning the measures for logistics improvement of the Jordan Valley, the attempt for improvement of the KHB terminal may be currently the most realistic measure; the KHB terminal that is the biggest bottleneck in the region and at the same time the most important export gate and corridor for Palestine. To implement such measure, the recommendations to be put into practice in the future are summarized below:

- ✓ The KHB border terminal improvement project is already under way ahead of others in Israel and is expected to be completed by the middle of 2016. The improvement plan on the Jordan side is delayed and must not be delayed further.

- ✓ In this context, review of the detailed design of the KHB terminal improvement project in Jordan should be pushed forward in line with the procurement project of the mobile container scanner to be introduced tentatively in the existing terminal facilities. It is essential to set about preparation as early as possible.
- ✓ It is told that the Ministry of Public Works and Housing of Jordan and the Quartet engaged in improvement of the Jordanian KHB terminal are scheduled to hold the donor meeting for allocation of development of the border terminal in near future. After the donor meeting, it is essential to establish the scope of improvement as soon as possible, to coordinate allocation of facility development among donors, and to implement the decision as soon as possible. In this event, it is expected that each donor shall make commitment in concerning introduction of the mobile scanner to be developed early and concerning detailed design of KHB.
- ✓ It is recommended that truck terminal shall be developed prior to passenger terminal. Especially, the following component to facilitate smooth traffic flow of container, i.e. truck lane in terminal, parking space, inspection equipment (scanner) and access road to the terminal shall be developed as phase 1 stage.
- ✓ It is recommended that sustainable monitoring for latest situation on Back-to-Back system and vehicle movement restriction in Palestine, which is one of the most significant factors to affect logistics condition in Jordan Valley. In order to that, continuous discussion with organization concerned from Jordan, Palestine and Israel.
- ✓ It is highly recommended that further data collection survey from the viewpoint of Palestine as well as Jordan shall be covered so that new project on logistics improvement in Jordan Valley shall be always timely proposed at such event.

Main Report

1. INTRODUCTION

1.1 Background

The freight volume through the Jordan Valley, which is located between Jordan and Palestine (West Bank), has been increasing with the stable economic growth in both regions. At King Hussein Bridge (hereinafter referred to as “KHB”), one of the border in the Jordan Valley, the number of trucks has been increased 1.8 times from 13,014 in 2009 to 23,951 in 2012 (Refer to Chapter 3). Some border crossing issues in this area, however, have been recognized as critical bottleneck, the issues include complicated custom clearance procedures, insufficiency of sophisticated logistics centers, and high transportation cost. Besides, all immigration and customs duties in Jordan Valley, even those inside the Palestinian territory, are controlled by the Israel, and users are facing the risks of closing the border at any time.

JICA has been promoting the Jericho Agro Industrial Park (hereinafter referred to as “JAIP”) as one of the Palestine support programs and regards exporting from JAIP to the Gulf area through Jordan as important/key for JAIP program success.

The concept of the “Corridor for Peace and Prosperity” initiated by the Japanese Government is that Palestine’s independence from the Israel is the only solution for the peace and stability in the region and something mid-term and/or long-term efforts shall be contribute for the mutual harmony. A sustainable economic growing is necessary to realize the independence issue and supports form the neighbouring countries including Jordan and Israel are required to make it reality.

Under such political concept, Japan has been discussed among the four-party consultative unit comprised of Palestine, Israel, Jordan, and Japan. In the process, Japan has promoted the development of the JAIP to support the program. As the construction has advanced, it has been found that, for JAIP to export its goods to the Gulf countries, especially via Jordan, it is vital to improve the distribution system within Jordan. We position this survey as a survey to gain a foothold for the achievement of the above task.

1.2 Objective and Study Area

1.2.1 Objective

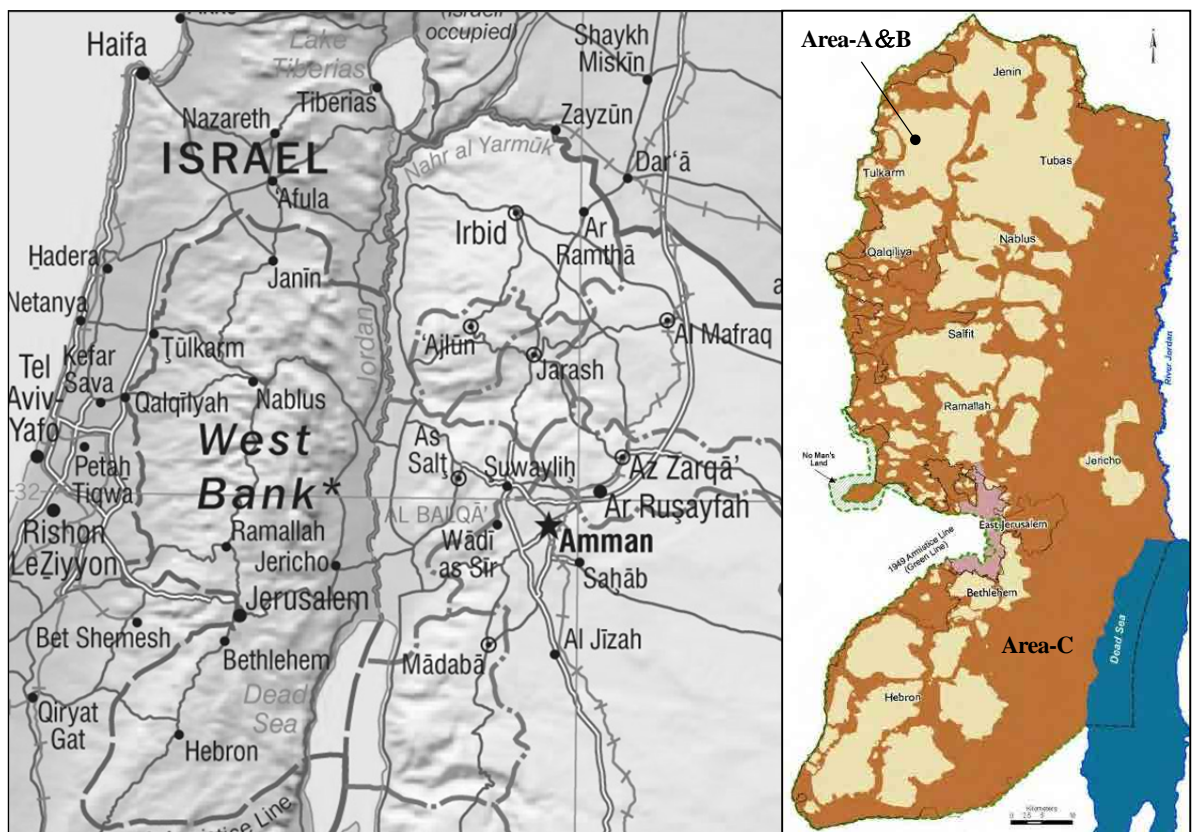
1. To know the actual logistics conditions of Jordan Valley
2. To identity the problems and issues for logistics infrastructure in Jordan Valley through the future demand analysis, and
3. To propose the improvement project of logistics infrastructure.

1.2.2 Study Area

The study covers Jordan, Palestine (only West Bank was focused as Palestine without Gaza strip),

and Israel, and also especially focus on the KHB which is border crossing infrastructure between Jordan and Palestine. The Jordan Valley has a high development potential on advantages as warm weather with good rainfall, unique cultural heritages, Hub cities connecting neighbour countries across the borders. The area has an advantage, especially, on agricultural production and its processed products in case of exporting to neighbouring countries. On the other hand, approximate 60% of the areas in West Bank are under the administration or security rule of Israel (those called *Area C*; See the map below). In particular, 95% of the areas along the valley are under the control of Israel.

Currently, there are three border crossings between Jordan and Israel (Wadi Araba, KHB, Sheikh Hussein Bridge (hereinafter referred to as "SHB"), of which two, KHB and SHB, located in Jordan Valley (there had been a border crossing of Damya between the said two crossings, but the bridge has been closed since 2002). Some sources say that, according to Israel, only one of the two crossings, SHB, is official crossing, KHB being an unofficial border facility for the Palestinian people. Both bridges crossing the border in Jordan Valley were developed by the Japanese grant aid program.



Area-A: Controlled by Palestine on Administration and Security, Area-B: Share Controlled by Palestine and Israel on Administration and Security, Area-C: Controlled by Israel on Administration and Security
Source: UN-OCHA, 2011

Figure 1.2-1 Border crossings in Jordan Valley and administrative area category in West Bank

1.2.3 Study Organization

(1) Study Team

The study was conducted by a team comprised of five core members dispatched from Japan, and coordinators and assistants of local staff in Jordan and Palestine.

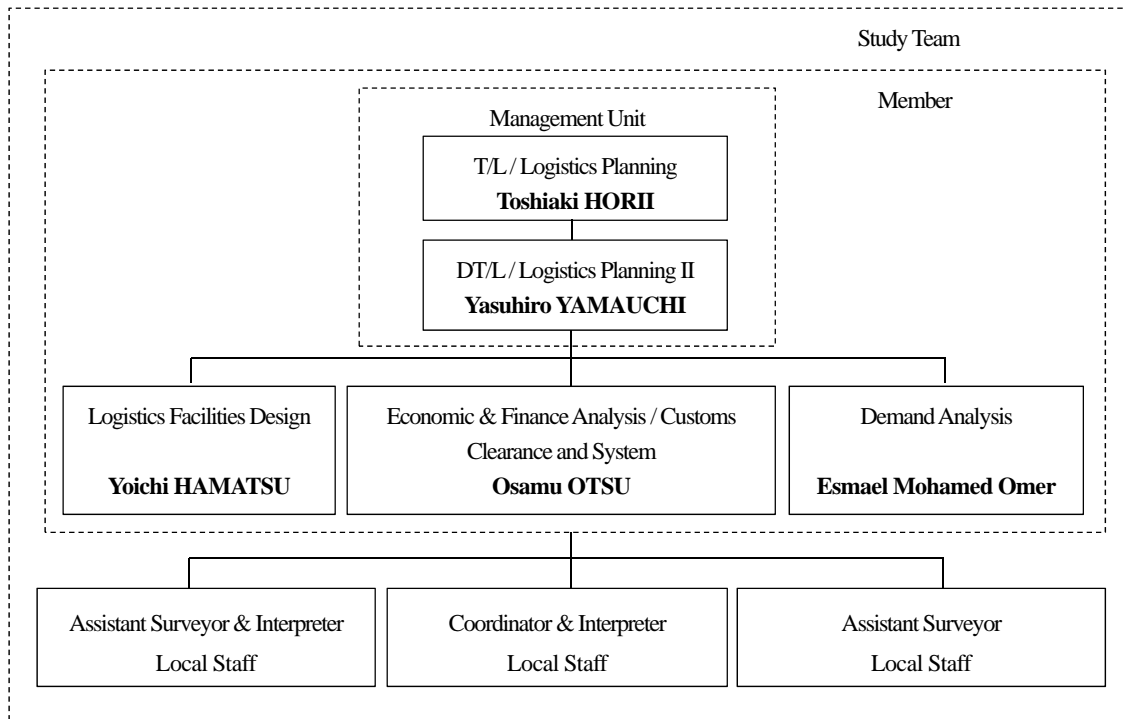


Figure 1.2-2 Study Team Organization

(2) Supporting Team

In this study, a backup team shown below were set up to support the study team in its operation, technical issues, and report check.

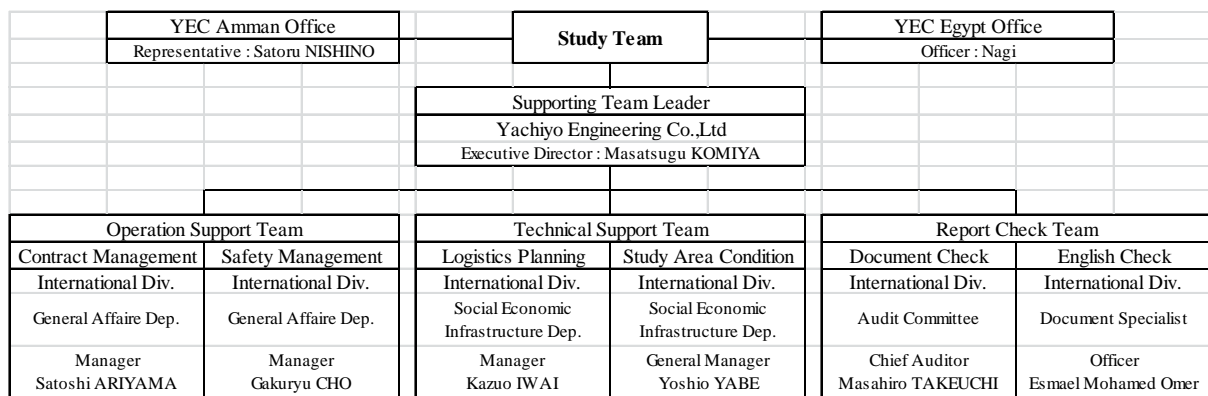


Figure 1.2-3 Supporting System for the Study

1.3 Overall Time Schedule

The original work schedule is as shown below, however, the analysis period after mission was postponed one months and submission of final report was rescheduled at the end of July.

Table 1.3-1 Time Schedule

Term		FY 2013		FY 2014							Rem.
		2	3	4	5	6	7				
Preparation Period in Japan											
101	Basic Policy on Study Implementation										
102	Reviewing Existing Documents										
103	Reviewing Projects by Donors										
104	Listing up necessary Materials and Data										
105	Provision of Activity Plan and Questionnaire										
106	Preparing Inception Report										
Study in Jordan, Palestine and Israel											
201	Discussion on IC/R										
202	Meeting with Organization Concerned										
203	Data Collection and Analysis of Socio-Economic and Trade										
204	Analysis of Information about Logistics Sector in Jordan Valley										
205	Analysis for Logistics Sector in Target Countries										
206	Analysis of Projects Proposed by other International Donors										
207	Analysis of Future Logistics Demand and Logistics Improvement Policy										
208	Features and Restrictions for Logistics Activities in Project Area										
209	KHB Data Collection										
210	New Project Profiling of Logistics Facilities										
211	Discussion on Draft Final Report										
Analysis Period after Mission											
301	Reporting of Study Results and Discussion										
302	Discussion on Final Report										
Reporting											
400	Preparation Report										

Legend:  Work in Jordan, Palestine and Israel  Work in Japan

1.4 Field Work Schedule

The study area covers three countries/states and it was shared by study team while study period. Actual field schedule is as follows.

Table 1.4-1 Actual Trip Schedule in Jordan and Palestine Stay

D	M	W	Toshiaki Horii Team Leader / Logistics Planning	Yasuhiro Yamauchi D.Team Leader / Logistics Planning 2	Osamu Otsu Custom System / Economic Analysis	Esmael Omer Demand Analysis	Yoichi Hamatsu Logistics Facilities Design
7	Mar	F	NRT-Dubai				
8	Mar	S	Dubai-Amman				
9	Mar	S	Jordan				
10	Mar	M	Jordan				
11	Mar	T	Jordan				
12	Mar	W	Jordan				
13	Mar	T	Amman - KHB - Palestine				
14	Mar	F	Palestine				
15	Mar	S	Palestine				
16	Mar	S	Palestine				
17	Mar	M	Palestine				
18	Mar	T	Palestine - KHB - Amman				
19	Mar	W	Amman - Dubai		Jordan		
20	Mar	T	Dubai - NRT		Jordan		
21	Mar	F			Jordan		
22	Mar	S			Jordan		
23	Mar	S			Jordan		
24	Mar	M			Jordan		
25	Mar	T			Jordan		
26	Mar	W			Jordan		
27	Mar	T			Jordan		
28	Mar	F			Jordan		
29	Mar	S			Jordan		
30	Mar	S			Jordan		
31	Mar	M			Jordan		
1	Apr	T			Jordan		
2	Apr	W			Jordan		
3	Apr	T			Jordan		
4	Apr	F			Jordan		
5	Apr	S			Jordan		
6	Apr	S			Jordan		
7	Apr	M			Jordan		
8	Apr	T			Jordan		
9	Apr	W		Amman-KHB-Palestine		Jordan	
10	Apr	T		Palestine		Jordan	
11	Apr	F		Palestine		Jordan	Amman - KHB - Palestine
12	Apr	S		Palestine		Jordan	Palestine
13	Apr	S		Palestine		Jordan	Palestine
14	Apr	M				Jordan	
15	Apr	T				Jordan	
16	Apr	W				Jordan	
17	Apr	T				Jordan	
18	Apr	F				Jordan	
19	Apr	S				Jordan	
20	Apr	S				Jordan	
21	Apr	M		Amman-KHB-Palestine		Jordan	
22	Apr	T		Palestine		Jordan	
23	Apr	W		Palestine-KHB-Amman		Jordan	
24	Apr	T				Jordan	
25	Apr	F				Jordan	
26	Apr	S				Jordan	
27	Apr	S				Jordan	
28	Apr	M				Jordan	
29	Apr	T		Amman-KHB-Palestine		Jordan	Amman-KHB-Palestine
30	Apr	W		Palestine		Jordan	Palestine
1	May	T		Palestine		Jordan	Palestine
2	May	F		Palestine-KHB-Amman		Jordan	Palestine-KHB-Amman
3	May	S				Jordan	
4	May	S				Jordan	
5	May	M	NRT - Dubai			Jordan	
6	May	T	Dubai Amman		Jordan		Amman-KHB-Palestine
7	May	W	Jordan	Amman-KHB-Palestine		Jordan	Palestine-KHB-Amman
8	May	T	Jordan	Palestine-KHB-Amman		Jordan	
9	May	F				Jordan	
10	May	S				Jordan	
11	May	S				Jordan	
12	May	M				Jordan	
13	May	T				Jordan	
14	May	W				Jordan	
15	May	T				Jordan	
16	May	F				Jordan	
17	May	S				Jordan	
18	May	S				Jordan	
19	May	M		Amman-Dubai		Jordan	Amman-Dubai
20	May	T		Dubai-NRT		Amman-Dubai	Dubai-NRT
21	May	W				Dubai-NRT	

Mobilization

Jordan Stay

Palestine Stay

2. PRESENT CONDITION OF THE STUDY AREA

2.1 Basic Information

2.1.1 Outline of the Study Countries

(1) Hashemite Kingdom of Jordan

Jordan is an Arabian constitutional monarchy in the northwest of the Arabian Peninsula, West Asia, in the Middle East.

Capital	Amman
Area	89,000km ²
Population, 2013	6,527,000 (More than half of its population are people flowed into the country from Palestine occupied by Israel during the Middle East War (Palestinian refugees) and their descendant. As of 2013, the country has received a huge number of Syrian refugees, amounting to nearly 10% of its population fleeing from the civil war.)
Population Density	73/km ²
Official Languages	Arabic
Religion	Islam-Sunna: 92%, Christian: 4%

(2) Israel

Israel is a Jewish republic located on the Mediterranean coast of the Western Asia.

Capital	Jerusalem (Tel Aviv Yafo is well known as common)
Area	22,000km ²
Population, 2013	8,180,000
Population Density	372/km ²
Official Language	Hebrew, Arabic
Religion	Jew: 75.4%、Islam: 17.3%, Christian: 2.0%、Islam-Duruziya: 1.7%

(3) State of the Palestinian

Palestine is a state government of Palestinians based on the West Bank of the Jordan River.

Central City	Ramallah (Palestine argue West Jerusalem)
Area	6,020km ² (West Bank: 5,655km ² Gaza Strip: 365km ²)
Population, 2013	4,420,000
Population Density	734/km ²
Official Languages	Arabic
Religion	Islam: 92%、Christian: 7%、Others: 1%

2.1.2 Natural Conditions

Geologically, Jordan consists of an arid plateau in the east. In the west a rift valley runs north to south from the Jordan Valley to the Dead Sea. In the center, ranges of mountains run in parallel with the rift valley. The central area is rich in altitudes: The highest point in the territory is the summit of Mt. Ramm at 1,734 m above the sea, and the lowest is the Dead Sea at 410 below sea level. Eighty per cent of the Jordanian territory belongs to a desert. The east of the country borders on Iraq and mostly forms an arid plateau. The west is rich in high land, with precipitations Mediterranean evergreen forest, irrigated with water from oases, wadis formed in rainy seasons, or wells. In the western Jordan, a rift valley runs north to south from the Jordan Valley to the Dead Sea, dividing it into the east bank and the west bank. The country borders on Syria in the north and on Saudi Arabia in the south. On the Golan Heights in the north, Israel and Syria are still at war.

2.1.3 Meteorology

(1) Rain fall

Jordan has four seasons. Precipitation concentrates in the winter season from December to January. The country's rainfall is generally low, averaging annually around 270 mm, and varies from region to region: the average annual rainfall in the desert areas is around 50 mm, but around 800 mm on the northern highlands. Natural environment is very harsh: 92% of its precipitations are lost in vaporization.

(2) Temperature

Temperatures in Jordan are divided into two seasons: high and dry summer and warm and wet winter. In the summer seasons of June to August, the temperature in the eastern desert areas may go beyond 40 °C, while in Amman the temperature goes down in winter even with sporadic snowfalls.

2.1.4 Land Use

The country's territory is 89,000 km², of which 79% of total is land use of desert and semi-desert. The share of agricultural area is 11.3% of total land and comprised of arable areas representing 2.0% of the whole territory, permanent clopland 1.0%, and forest 1.1%. The total irrigated area is about 790 km², which is mainly covered in Jordan Valley. The country's potential of water resources (water resources available per capita) is the second lowest in the world. With the rapid growth of urban population, securing drinking water has become a chronic issue of the country. Considering the difficulty in securing irrigation water, the expansion of agricultural development will remain unhopeful in the future. This problem of water resources results not only from such causes as low precipitation of desert climate and reducing annual precipitation due to climate changes, but also from such factors as geology poor in rivers and lakes and political influence of Israel-Palestine issues. It constitutes the largest obstacle to the agricultural development of Jordan.

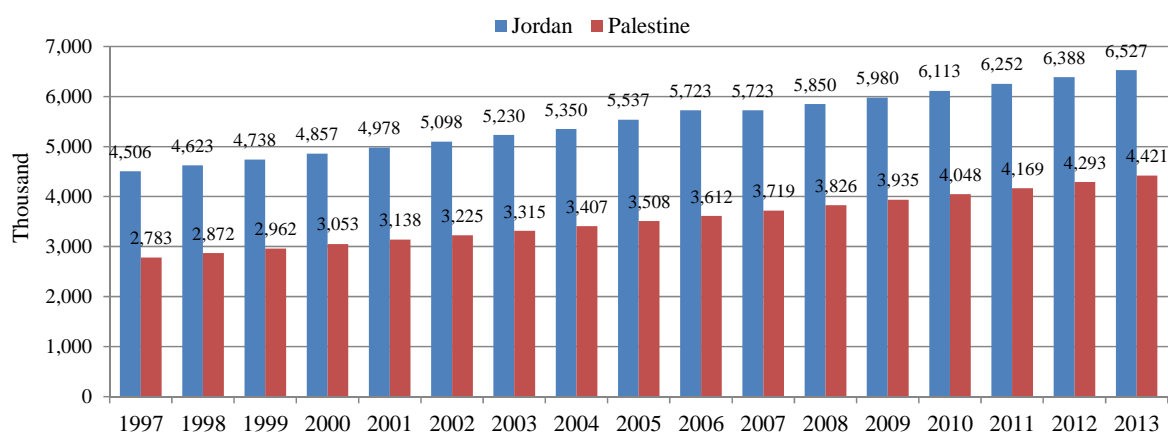
2.2 Social and Economic Conditions

2.2.1 Population

(1) Demographic Change by Country

As of the end of 2013, Jordan had a population of about 6.5 million, of which 2.5 million, or about 40%, live in the State of Amman. Meanwhile, the population of Palestine was about 4.4 millions, comprised of 2.7 million on the West Bank and 1.7 million in Gaza strip.

In terms of demographic change, the annual growth is around 2.2% in Jordan, 2.5% on the West Bank, and 3.4% in Gaza strip, stable around these rates for the past five years.



Source: Statistical Yearbook 2012, Department of Statistics, Jordan

Figure 2.2-1 Demographic Changes of Population

(2) Population in the Jordan Valley

In case of Jordan, for example, the size of the population living in the Jordan Valley is estimated at about 674 thousand as shown below. This accounts for about 10% of the total population of the country.

Table 2.2-1 Population in the Valley of Jordan

Region	Total	Rural	Urban	Jordan Valley
Amman	2,473,400	147,900	2,325,500	
Balqa	428,000	120,600	307,400	120,600
Zarqa	951,800	52,000	899,800	
Madaba	159,700	45,700	114,000	45,700
Irbid	1,137,100	194,100	943,000	194,100
Ma'raq	300,300	182,500	117,800	
Jarash	191,700	71,600	120,100	71,600
Ajlun	146,900	35,400	111,500	35,400
Karak	249,100	161,900	87,200	161,900
Tafiela	89,400	25,600	63,800	25,600
Ma'an	121,400	54,800	66,600	
Aqaba	139,200	19,500	119,700	19,500
Total	6,388,000	1,111,600	5,276,400	674,400

Source: Statistical Yearbook 2012, Department of Statistics, Jordan

Table 2.2-2 Population by State

Region	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Amman	1,715,900	1,760,400	1,804,200	1,884,500	1,931,500	1,978,000	2,029,200	2,074,000	2,147,250	2,220,500	2,220,500	2,265,100	2,315,600	2,367,000	2,419,600	2,473,400	2,528,400
Balqa	300,500	308,400	316,000	325,400	333,500	341,600	350,400	356,000	369,700	383,400	383,400	391,900	400,600	409,500	418,600	428,000	437,600
Zarqa	696,200	714,300	732,000	723,700	741,700	759,600	779,300	799,000	825,850	852,700	852,700	871,600	891,000	910,800	934,100	951,800	969,800
Madaba	116,700	119,700	122,700	121,400	124,500	127,400	130,800	135,000	139,050	143,100	143,100	146,300	149,500	152,900	156,300	159,700	163,200
Irbid	818,300	839,500	860,400	864,600	886,100	907,400	930,900	952,000	985,350	1,018,700	1,018,700	1,041,300	1,064,400	1,088,100	1,112,300	1,137,100	1,162,500
Mafraq	194,700	199,700	204,700	228,300	234,000	239,600	245,800	250,000	259,500	269,000	269,000	275,000	281,100	287,300	293,700	300,300	307,000
Jarash	134,300	137,800	141,200	145,700	149,300	152,900	156,900	161,000	166,350	171,700	171,700	175,500	179,400	183,400	187,500	191,700	196,000
Ajlun	102,700	105,400	108,000	111,700	114,500	117,300	120,300	123,000	127,300	131,600	131,600	134,500	137,500	140,600	143,700	146,900	150,200
Karak	184,700	189,500	194,200	189,400	194,100	198,800	204,000	211,000	217,100	223,200	223,200	228,200	233,200	238,400	243,700	249,100	254,600
Tafiela	68,500	70,300	72,000	68,000	69,700	71,400	73,200	77,000	78,550	80,100	80,100	81,900	83,700	85,600	87,500	89,400	91,300
Ma'an	86,500	88,800	91,000	92,300	94,600	96,900	99,400	102,000	105,400	108,800	108,800	111,200	113,700	116,200	118,800	121,400	124,100
Aqaba	87,000	89,200	91,400	102,000	104,500	107,100	109,800	110,000	115,100	120,200	120,200	127,500	130,300	133,200	136,200	139,200	142,300
JORDAN TOTAL	4,506,000	4,623,000	4,737,800	4,857,000	4,978,000	5,098,000	5,230,000	5,350,000	5,536,500	5,723,000	5,723,000	5,850,000	5,980,000	6,113,000	6,252,000	6,388,000	6,527,000
Jenin	192,743	198,584	204,547	210,518	216,078	221,726	227,520	233,530	240,023	246,696	253,558	260,216	267,027	274,001	281,156	288,511	295,985
Tubas	34,755	36,117	37,521	38,938	40,269	41,631	43,039	44,510	46,111	47,770	49,489	51,192	52,950	54,765	56,642	58,586	60,582
Tulkarm	127,341	130,238	133,174	136,094	138,793	141,516	144,293	147,155	150,227	153,363	156,566	159,594	162,668	165,791	168,973	172,224	175,494
Nablus	248,102	254,845	261,708	268,560	274,922	281,366	287,961	294,782	302,133	309,666	317,391	324,816	332,389	340,117	348,023	356,129	364,333
Qalqiliya	68,361	70,448	72,580	74,716	76,704	78,725	80,798	82,949	85,273	87,663	90,120	92,506	94,947	97,447	100,012	102,649	105,330
Salfit	46,077	47,328	48,601	49,873	51,053	52,248	53,472	54,738	56,101	57,499	58,932	60,309	61,714	63,148	64,615	66,119	67,641
Ramallah & Al-Bireh	202,759	209,679	216,769	223,896	230,556	237,342	244,328	251,596	259,474	267,598	275,981	284,195	292,629	301,296	310,218	319,418	328,811
Jericho & Al Aghwar	31,089	32,105	33,145	34,188	35,162	36,154	37,173	38,232	39,378	40,559	41,776	42,964	44,183	45,433	46,718	48,041	49,390
Jerusalem	320,809	325,033	329,274	333,451	337,278	341,108	344,982	348,941	353,157	357,424	361,743	368,394	375,167	382,041	389,298	396,710	404,165
Bethlehem	130,361	134,525	138,783	143,054	147,037	151,088	155,251	159,574	164,250	169,064	174,022	178,853	183,804	188,880	194,095	199,463	204,929
Hebron	385,165	399,905	415,069	430,370	444,725	459,402	474,564	490,393	507,611	525,433	543,891	562,141	580,955	600,364	620,418	641,170	662,452
West Bank Total	1,787,562	1,838,807	1,891,171	1,943,658	1,992,577	2,042,306	2,093,381	2,146,400	2,203,738	2,262,735	2,323,469	2,385,180	2,448,433	2,513,283	2,580,168	2,649,020	2,719,112
North Gaza	178,605	186,485	194,637	202,909	210,712	218,729	227,051	235,782	245,326	255,256	265,594	275,687	286,246	297,269	309,434	322,126	335,253
Gaza	357,768	370,198	382,943	395,760	407,745	419,963	432,546	445,645	459,851	474,509	489,642	504,047	519,027	534,558	551,833	569,715	588,033
Deir Al-Balah	144,015	149,456	155,052	160,696	165,988	171,397	176,982	182,811	189,148	195,705	202,493	209,014	215,808	222,866	230,689	238,807	247,150
Khan Yunis	195,475	202,247	209,190	216,172	222,700	229,354	236,207	243,340	251,075	259,056	267,294	275,134	283,286	291,737	301,138	310,868	320,835
Rafah	119,659	124,375	129,233	134,140	138,749	143,465	148,342	153,439	158,988	164,737	170,697	176,450	182,449	188,690	195,598	202,777	210,166
Gaza Strip Total	995,522	1,032,761	1,071,055	1,109,677	1,145,894	1,182,908	1,221,128	1,261,017	1,304,388	1,349,263	1,395,720	1,440,332	1,486,816	1,535,120	1,588,692	1,644,293	1,701,437
PALESTINE TOTAL	2,783,084	2,871,568	2,962,226	3,053,335	3,138,471	3,225,214	3,314,509	3,407,417	3,508,126	3,611,998	3,719,189	3,825,512	3,935,249	4,048,403	4,168,860	4,293,313	4,420,549

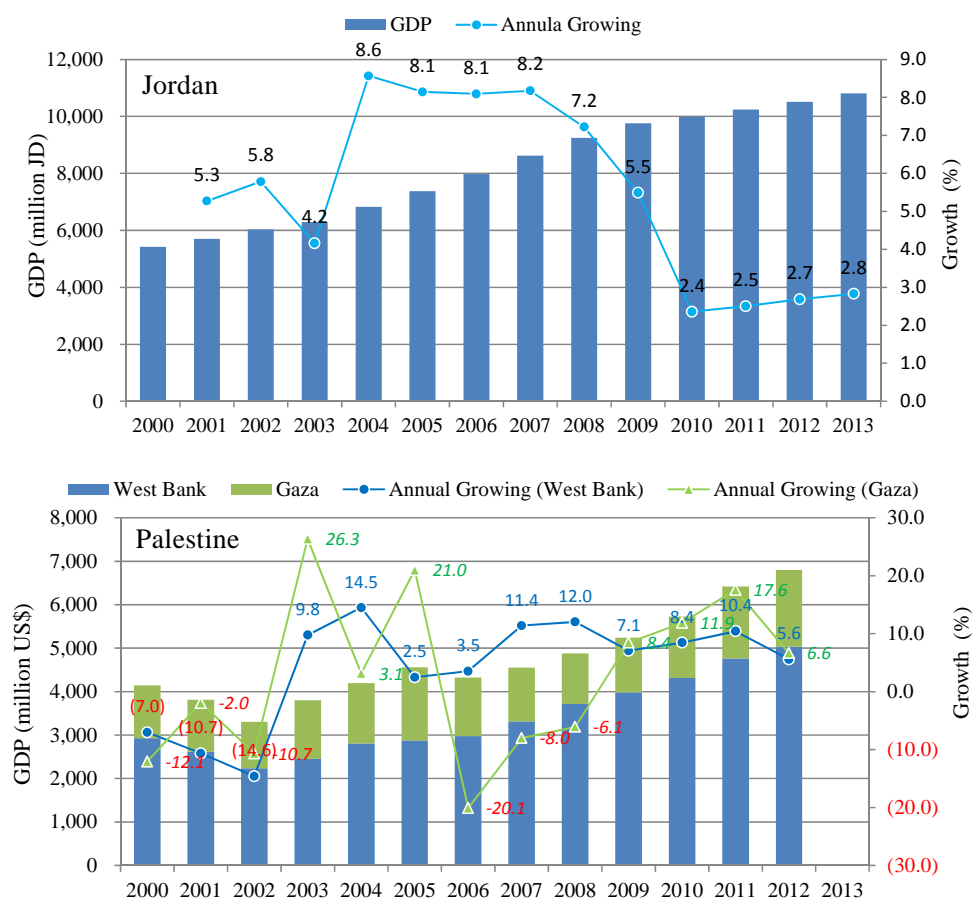
Source : Statistical Yearbook 1997-2013, Department of Statistics, Jordan
Palestine Central Bureau of Statistics, Palestine

2.2.2 Economics

(1) GDP

In terms of GDP, Jordan figure shows a high rate of economic growth of 7 to 8% from 2004 to around 2008. With the decline of the U.S. economy from around 2009, however, the growth started slowing and, what with the Arab Spring that arose in neighbouring Arab countries in 2010 to 2012 with waves of pro-democracy demonstrations and protests and the civil war breaking out in Syria in 2011, the country's economic growth has been declining due to damage to the tourism and other sectors.

Throughout the early years of the 2000s, the Palestinian economy kept negative growth as it was severely impacted by the blockade of the Palestine territory and restriction on movement after the conflicts with Israel that happened in this period. Later, the Palestinian economy significantly recovered, but, as Israel imposed economic sanctions after Hamas won the Palestinian legislative election suspending customs reimbursement, etc., the regional economy deteriorated again, especially in Gaza strip. Since 2009, however, the regional economy has recovered and shown a high rate of growth despite restriction on movement and other difficulties.



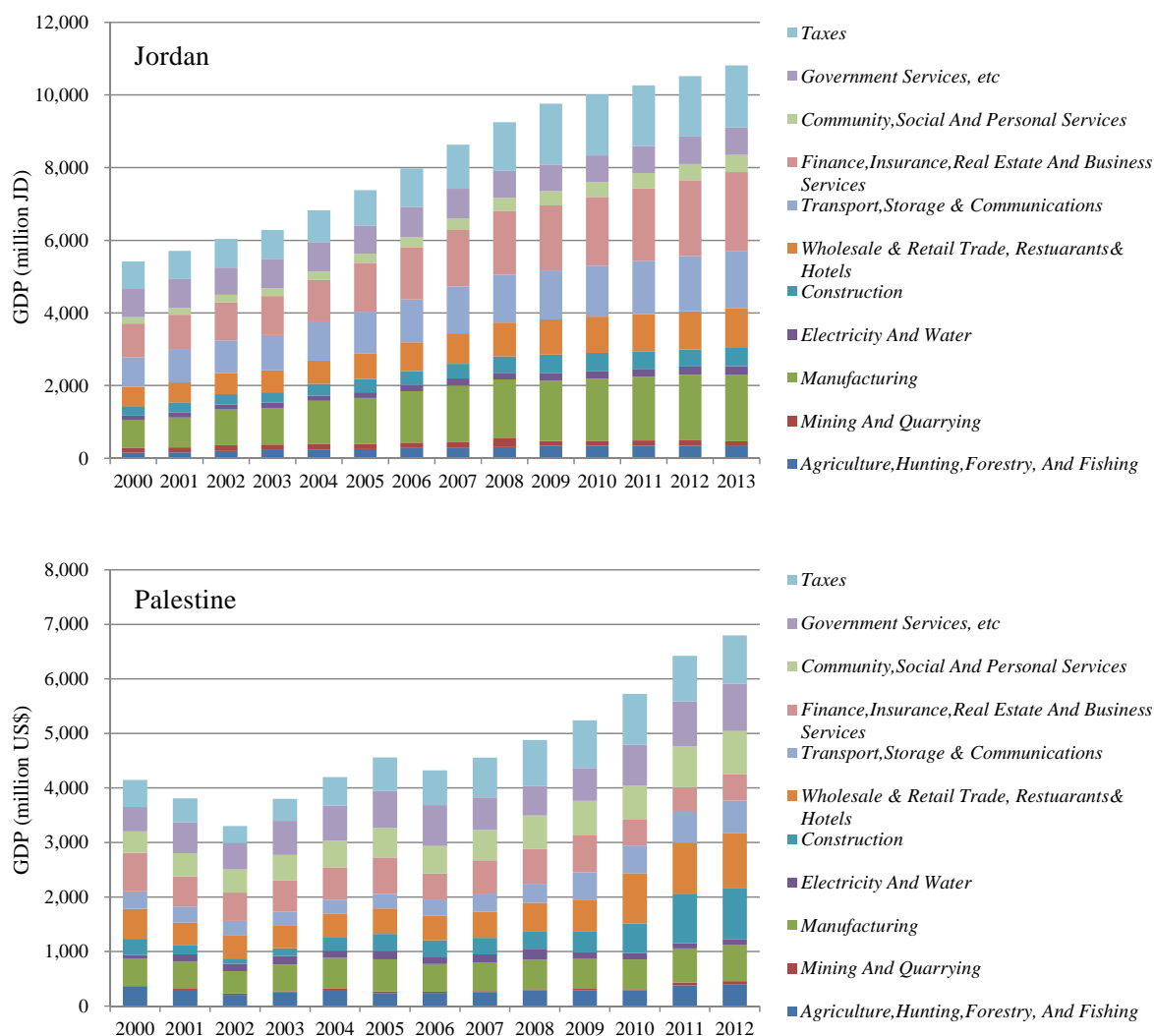
Source : Statistical Yearbook 1997-2013, Department of Statistics, Jordan
Palestine Central Bureau of Statistics, Palestine

Figure 2.2-2 GDP of Jordan and Palestine

2.2.3 Industrial Sectors

(1) GDP by sector

The GDP indicator from 2000 shows a steady growth in all sectors in Jordan, especially in the tertiary industry such as banking and real estate. On the other hand, in Palestine, significant growth of GDP has been recorded in commercial activities and construction in response to increased demand, but the expansion of economic activities in other sectors has been rather modest.



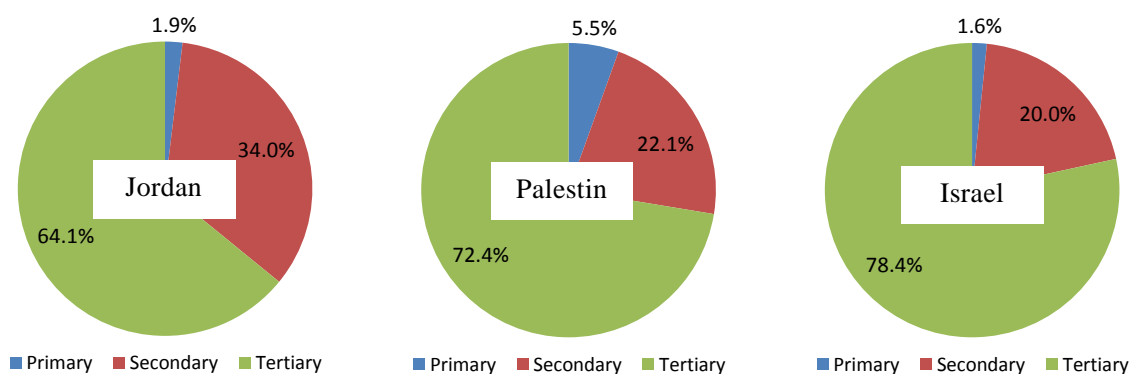
Source : Statistical Yearbook 1997-2013, Department of Statistics, Jordan
Palestine Central Bureau of Statistics, Palestine

Figure 2.2-3 GDP by sector in Jordan and Palestine

(2) Characteristics of Major Industries

In all of the three countries under the study, the industrial structure is dominated by the tertiary industry, centered on tourism, accounting for 60 to 70% of all the industries. As major exports of Jordan has phosphate rock, potassium carbonate, fertilizer, apparel,

chicken and bovine, agricultural products, and natural gas. In particular, for phosphate, Jordan is one of the major producers in the world.



Source: Statistical Yearbook 2012, Department of Statistics, Jordan
Palestinian Central Bureau of Statistic, Palestine
Employment Statistics, ILO

Figure 2.2-4 Industrial Structure in Jordan, Palestine, and Israel

Table 2.2-3 GD by Sectors

													million US\$	
Sector	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture,Hunting,Forestry, And Fishing	218.8	222.6	278.2	310.8	345.7	346.6	391.9	396.8	430.9	486.2	487.3	488.6	489.7	472.5
Mining And Quarrying	187.9	198.4	226.4	220.5	214.1	201.5	217.0	245.4	333.3	179.9	189.8	199.6	209.6	186.6
Manufacturing	1,062.0	1,151.5	1,374.1	1,413.0	1,652.1	1,780.5	1,980.9	2,162.4	2,273.3	2,318.5	2,385.2	2,451.8	2,518.5	2,567.0
Electricity And Water	176.5	187.2	188.6	195.7	205.1	215.0	237.0	267.0	252.6	291.2	300.3	309.3	318.4	320.9
Construction	330.7	372.0	404.7	405.0	453.6	508.1	532.8	561.8	637.1	721.1	698.3	675.4	652.5	709.1
Wholesale & Retail Trade, Restuarants& Hotels	772.8	792.4	809.1	845.5	894.0	991.6	1,105.7	1,183.4	1,301.2	1,351.8	1,391.7	1,431.6	1,471.5	1,518.3
Transport,Storage & Communications	1,140.3	1,253.1	1,262.8	1,357.9	1,506.8	1,600.3	1,654.7	1,809.2	1,851.2	1,885.9	1,968.8	2,051.8	2,134.7	2,219.0
Finance,Insurance,Real Estate And Business Services	1,300.6	1,355.2	1,460.6	1,503.2	1,600.6	1,883.4	1,999.3	2,168.3	2,455.3	2,513.0	2,649.8	2,786.7	2,923.5	3,039.4
Community,Social And Personal Services	247.9	260.4	295.5	302.1	323.0	350.6	398.2	457.9	501.3	552.4	575.7	599.1	622.3	657.7
Government Services, etc	1,086.5	1,109.1	1,051.8	1,113.4	1,138.5	1,088.2	1,170.0	1,135.5	1,042.4	1,016.5	1,029.7	1,042.7	1,055.9	1,047.3
Taxes	1,061.9	1,083.9	1,095.9	1,132.2	1,219.7	1,365.7	1,480.2	1,692.9	1,874.3	2,347.1	2,339.7	2,332.4	2,325.0	2,399.9
JORDAN TOTAL	7,586.0	7,985.9	8,447.7	8,799.3	9,553.2	10,331.4	11,167.5	12,080.6	12,952.9	13,663.9	13,986.0	14,336.0	14,721.4	15,137.9
Agriculture,Hunting,Forestry, And Fishing	356.6	297.2	208.0	250.8	298.1	237.1	242.0	250.5	287.8	293.4	286.2	378.9	401.0	
Mining And Quarrying	12.4	15.2	19.8	19.0	29.4	27.4	21.6	22.8	19.5	21.0	22.9	51.4	54.4	
Manufacturing	505.9	499.2	409.4	490.3	554.2	592.7	505.7	528.3	541.5	544.9	543.8	622.9	659.3	
Electricity And Water	58.1	137.2	138.7	155.8	134.3	155.0	121.0	145.7	200.0	125.7	120.2	96.3	102.0	
Construction	298.6	160.1	95.7	144.4	239.3	310.0	311.2	300.6	312.2	387.7	538.1	899.0	951.6	
Wholesale & Retail Trade, Restuarants& Hotels	547.4	419.2	429.2	421.9	440.8	465.1	453.8	478.2	531.7	565.8	921.6	943.9	999.2	
Transport,Storage & Communications	323.4	293.4	257.5	247.0	256.1	264.5	285.3	337.0	346.4	513.5	509.5	565.1	598.2	
Finance,Insurance,Real Estate And Business Services	704.9	556.4	521.6	570.1	587.8	670.2	488.4	610.2	643.9	675.9	475.1	455.9	482.6	
Community,Social And Personal Services	393.9	423.0	422.6	471.3	491.2	542.6	505.7	555.6	609.8	634.0	624.0	751.3	795.3	
Government Services, etc	447.8	564.0	485.3	623.3	642.4	679.4	747.8	596.6	541.5	602.5	749.9	821.9	870.1	
Taxes	497.6	445.9	313.6	406.7	524.8	615.5	639.7	728.7	843.9	875.0	933.1	834.8	883.6	
PALESTINE TOTAL	4,146.7	3,810.8	3,301.4	3,800.5	4,198.4	4,559.5	4,322.3	4,554.1	4,878.3	5,239.3	5,724.5	6,421.4	6,797.3	

Source : Statistical Yearbook 2000-2013, Department of Statistics, Jordan

Palestine Central Bureau of Statistics, Palestine

Jordanian GDP is converted with the exchange rate of JD 1= US\$1.4 for every years

3. PRESENT CONDITIONS OF THE EXTERNAL TRADE

3.1 Summary of Foreign Trade Policies in the Study Area

When logistics conditions in the Jordan Valley are analysed, target three (3) countries should be considered, Jordan, Palestine and Israel, together with other neighbouring countries in case of international transport.

3.1.1 General Foreign Trade Policies

(1) Jordan

Jordan's foreign trade policy is based on the norms of economic openness and integration into the rapidly globalizing world economy. Jordan has managed to nurture its economic ties with its neighbouring Arab countries, European Union, USA and Singapore, etc., as well as joining the World Trade Organization (WTO) in 2000. Moreover, in an effort to further enhance the investment environment in the country, Jordan concluded over 35 agreements on promotion of investments and over 30 agreements on avoidance of double taxation with Arab and non-Arab countries.

Table 3.1-1 Major Trade Agreements signed by Jordan

Trade Agreement	Signed	Effective
Greater Arab Free Trade Area (GAFTA)	2/19/1997	1/1/1998
Jordan-EU Trade Agreement	11/24/1997	5/1/2002
Qualifying Industrial Zone (QIZ) Trade Agreement	1996	11/1997
Jordan-USA Free Trade Agreement	10/24/2000	12/17/2001
Jordan-Europe Free Trade (EFTA) Agreement	6/21/2001	1/1/2001
Agadir Agreement	2/25/2004	7/6/2006
Jordan-Singapore Free Trade Agreement	5/16/2004	8/22/2005

Source: Ministry of Industry and Trade, Jordan

As a result of affiliations to various agreements on Free Trade, the share of "Customs and other import duties" to total tax revenue in Jordan has decreased from the peak in 1992 (46.9 percent) and is almost stable around 9.0 to 10.0 percent these 4 years. (Source: Index Mundi)

(2) Palestine

Trade Agreements and Arrangements between the PLO and the Rest of the world are listed as follows.

Table 3.1-2 Major Partner Countries and Regions (Palestine)

1	USA
2	Canada
3	European Union (EU)
4	European Free Trade Area (EFTA: Switzerland, Iceland, Norway, Lichtenstein)
5	Russia
6	Egypt
7	Jordan
8	Saudi Arabia
9	Israel
10	Turkey
11	Greater Arab Free Trade Area (GAFTA)

(3) Israel

The outline of trade agreements Israel has signed is given below:

i) World Trade Organization (WTO)

Israel was approved by WTO in January 1995 and joined it in April the same year, with certain exemptions for defence-related goods.

ii) Bilateral and Regional FTA (as of February, 2011)

- Bilateral free trade agreements: USA, Canada, Turkey, and Mexico.
- Free trade agreements with EFTA (Switzerland, Iceland, Norway, and Lichtenstein), EU and MERCOSUR

iii) Others

Israel has QIZ (Qualified Industrial Zone) agreements with Jordan and the USA.

iv) Organization for Economic Co-operation and Development (OECD)

Israel joined OECD in May 2012.

3.1.2 Major Economic and Trade Agreements

The economic and trade agreements signed by these countries are expected to help revitalize regional economy while boosting demand for (international) transport and traffic in and around these regions. The details of major agreements are as follows:

(1) Greater Arab Free Trade Area (GAFTA)

Reflecting the spirit of the Agreement on Arab Economy Unity signed in June 1957, the Greater Arab Free Trade Area was launched in January 1998 by a resolution adopted at a meeting of the Social and Economic Council of the League of Arab States as a measure to actualize the development and promotion of trade among Arab countries.

Eighteen Arab countries signed the agreement: 1) Jordan, 2) UAE, 3) Bahrain, 4) Saudi Arabia, 5) Oman, 6) Qatar, 7) Morocco, 8) Syria, 9) Lebanon, 10) Iraq, 11) Egypt, 12) Palestine, 13) Kuwait, 14) Tunisia, 15) Libya, 16) Sudan, 17) Yemen and 18) Algeria.

To make the GAFTA a workable system, the member countries agreed upon complete free trade by abolishing customs duties and charges on goods traded among them. As of January 2005, exemptions were given to three countries: Sudan, Palestine, and Yemen. Further, twelve countries, namely Saudi Arabia, Egypt, Sudan, Oman, Bahrain, Kuwait, Lebanon, Morocco, Tunisia, Libya, Syria, and UAE, adopted special measures to promote trade, including the non-requirement of certificate of country of origin and attachment of embassy and consulate documents. Furthermore, to expand free trade from goods to various services, discussion is under way on the liberalization of foreign investments within GAFTA.

(2) Jordan – Palestine Economic Agreement

To concretize the master agreement for trade promotion between Jordan and Palestine signed in January and May 1995, the both countries held an economic meeting in June 2000 in Amman. The major points discussed and agreed upon at the meeting were as follows:

1: Cooperation for mutual trade

Based on the agreement signed in January 1995 and in accordance with the principles of the GAFTA, the two countries will continue their efforts to create free trade zones.

2: Cooperation in the investment field

The two countries will make efforts to further facilitate starting up joint ventures.

3: Cooperation in the transportation field

(For details, please see section 6.2 of this report)

(3) Qualifying Industrial Zone (QIZ) Agreement

This agreement was signed in November 1997 among Jordan, Israel and the USA to abolish or mitigate customs on and give preferential treatment to goods exported to the USA. Since December 2004, Egypt also has been a member of the QIZ agreement.

Products produced under this agreement may be exported to the USA without being imposed any customs or quantitative quota. One of the conditions for goods to qualify for QIZ is that a minimum of 35% in its estimated value be produced in a QIZ of Israel or Jordan, the West Bank, Gaza strip, or the USA.

It is said that about 30% of Jordan's entire export volume are QIZ-related.

As to the status and impact of the QIZs in Jordan, a CRS report gives the following description, which is summarized below for your information.

➤ QIZs in Jordan

Jordanian-Israel Joint Committee and USA observer evaluate eligible products every 12 months. Both the public and private sectors have a role in Jordan's QIZs. Of 13 QIZs, three are operated under the supervision of the Jordan Industrial Estates Corporation (JIEC). A semi-governmental corporation, the JIEC was created by law in 1985.

➤ Impact of the QIZs on Trade and the Jordanian Economy

USA trade with Jordan has grown substantially from both the QIZ program and from the USA-Jordan free trade agreement which went into effect in 2001. Between 1998 and 2005 Jordan moved up from the United States' 13th to 8th largest trading partner among the 20 Middle-East-North African (MENA) entities. In 2005, USA exports to and imports from Jordan totalled \$1.9 billion: USA exports, \$650 million, were 1.8 times their 1998 level; USA imports, at \$1.3 billion, were 80 times their 1998 level.

Despite the 2001 FTA between the United States and Jordan, most Jordanian articles still enter the United States through the QIZ program (75%). The apparel industry dominates Jordan's total exports to the United States, accounting for 99.9% of all QIZ exports and 86% of all Jordanian exports to the United States. The reason for continuing QIZ dominance is that QIZ products enter the United States free of duty. The negative influence of customs revaluation conducted every ten years was easily predictable. In fact, in 2005, the growth in QIZ exports from Jordan levelled off to only a 2% growth over 2004 exports.

(4) Agadir Free Trade Agreement

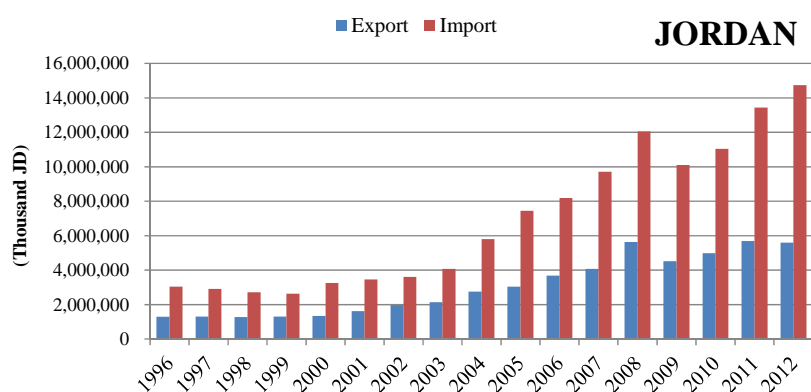
To enhance its economic relationship with Arab countries on the Mediterranean, Morocco signed free trade agreements in February 2004 with Egypt, Tunisia and Jordan. In September 2011, they approved the Palestine to join the agreement.

The agreement contains that all customs on industrial and agricultural products (except certain security, insurance, and environmental-related products) traded between the members countries have been abolished since March 2007.

3.2 External Trade Condition of Jordan and Palestine

3.2.1 Export and Import

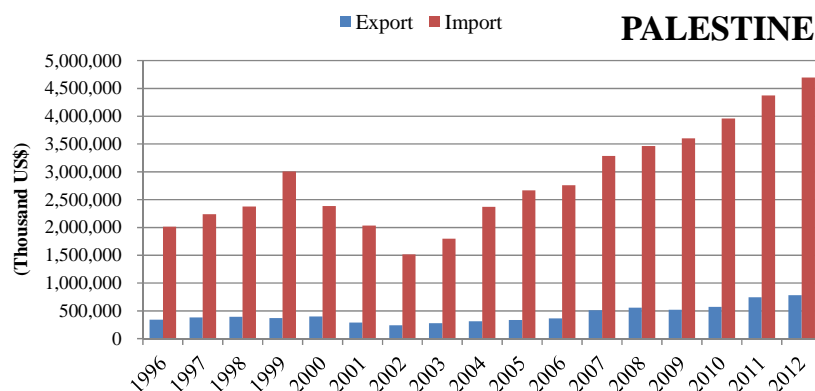
In Jordan, as its steady GDP increase at an annual rate of 8% or more for five years since 2004, the country's total exports and imports rapidly increased. However, with the stagnation of the USA economy since around 2009, the pro-democracy demonstrations in Gulf countries by "the Arab Spring", the civil war in Syria, and the growth of exports has levelled off or slowed down since 2008. On the other hand, imports have grown every year except for 2009 when they temporary decreased, resulting in annual trade deficit increasing every year, with total imports reaching nearly three times total exports. For the past 20 years, the annual growth of imports and exports has stayed around 10% on average.



Source: Jordan Customs

Figure 3.2-1 Jordan Export and Import

As to Palestine, it has been running a large trade deficit, with total imports by far exceeding the total exports and the annual rate of deficit remaining mostly the same. In the beginning of 2000s, as the country's economy was severely impacted by restriction on movement by Israel, both exports and imports of Palestine significantly decreased. The economy has recovered from 2003, but the trade deficit has been increasing every year. For the past 20 years, the annual growth rates of imports and exports have stayed at a little more than 5%.



Source: Jordan Customs

Figure 3.2-2 Palestinian Export and Import

Table 3.2-1 Jordan Export and Import

Jordan	Year	Export		Import		Balance
		Amount	Growth (%)	Amount	Growth (%)	
1990		706,087.1		1,725,828.1		-1,019,741.0
1991		770,744.3	9.2	1,710,462.9	(0.9)	-939,718.6
1992		829,302.6	7.6	2,214,002.2	29.4	-1,384,699.6
1993		864,661.6	4.3	2,453,624.8	10.8	-1,588,963.2
1994		995,181.2	15.1	2,362,582.5	(3.7)	-1,367,401.3
1995		1,241,132.5	24.7	2,590,250.4	9.6	-1,349,117.9
1996		1,288,171.7	3.8	3,043,556.5	17.5	-1,755,384.8
1997		1,301,388.5	1.0	2,908,085.4	(4.5)	-1,606,696.5
1998		1,277,899.2	(1.8)	2,714,373.7	(6.7)	-1,436,474.5
1999		1,298,716.8	1.6	2,635,206.9	(2.9)	-1,336,490.1
2000		1,346,581.5	3.7	3,259,403.7	23.7	-1,912,822.2
2001		1,626,732.5	20.8	3,453,729.3	6.0	-1,826,996.8
2002		1,963,942.5	20.7	3,599,160.4	4.2	-1,635,217.9
2003		2,136,667.9	8.8	4,072,007.7	13.1	-1,935,339.8
2004		2,753,023.9	28.8	5,799,241.4	42.4	-3,046,217.5
2005		3,049,561.4	10.8	7,442,863.7	28.3	-4,393,302.3
2006		3,689,881.1	21.0	8,187,724.6	10.0	-4,497,843.5
2007		4,063,641.3	10.1	9,722,193.6	18.7	-5,658,552.3
2008		5,633,005.0	38.6	12,060,894.8	24.1	-6,427,889.8
2009		4,526,324.3	(19.6)	10,107,696.0	(16.2)	-5,581,371.7
2010		4,990,117.3	10.2	11,050,126.4	9.3	-6,060,009.1
2011		5,684,579.3	13.9	13,440,215.3	21.6	-7,755,636.0
2012		5,599,471.7	(1.5)	14,733,749.3	9.6	-9,134,277.6
Avg.			9.9		10.2	-3,202,181.0

Unit: Thousand JD

Source: Jordan Customs

Table 3.2-2 Palestinian Export and Import

Palestine	Year	Export		Import		Balance
		Amount	Growth (%)	Amount	Growth (%)	
1996		339,467.0		2,016,279.0		-1,676,812.0
1997		382,423.0	12.7	2,238,561.0	11.0	-1,856,138.0
1998		394,846.0	3.2	2,375,102.0	6.1	-1,980,256.0
1999		372,148.0	(5.7)	3,007,227.0	26.6	-2,635,079.0
2000		400,857.0	7.7	2,382,807.0	(20.8)	-1,981,950.0
2001		290,349.0	(27.6)	2,033,647.0	(14.7)	-1,743,298.0
2002		240,867.0	(17.0)	1,515,608.0	(25.5)	-1,274,741.0
2003		279,680.0	16.1	1,800,268.0	18.8	-1,520,588.0
2004		312,688.0	11.8	2,373,248.0	31.8	-2,060,560.0
2005		335,443.0	7.3	2,667,593.0	12.4	-2,332,150.0
2006		366,709.0	9.3	2,758,726.0	3.4	-2,392,017.0
2007		512,979.0	39.9	3,284,035.0	19.0	-2,771,056.0
2008		558,446.0	8.9	3,466,168.0	5.5	-2,907,722.0
2009		518,355.0	(7.2)	3,600,785.0	3.9	-3,082,430.0
2010		575,513.0	11.0	3,958,512.0	9.9	-3,382,999.0
2011		745,661.0	29.6	4,373,647.0	10.5	-3,627,986.0
2012		782,369.0	4.9	4,697,356.0	7.4	-3,914,987.0
Avg.			5.4		5.4	-2,420,045.2

Unit: Thousand US\$

Source: Palestinian Central Bureau of Statistics, Palestine

3.2.2 Transit Cargo

The status of transit cargo passing through Jordan is as follows. The most dominant are goods exported from Asia which are destined via Jordan, for Syria, Lebanon, Israel, and Palestine. Exports from Europe cross the Mediterranean, landed ashore, and transported via Jordan to Saudi Arabia, Iraq, and other Gulf countries.

Table 3.2-3 Jordan Transit Freight

Origin	Value ('000 JD)		Weight ('000 ton)	
	Amount	Share (%)	Amount	Share (%)
Free Zones	235,505	1.8	206,694	3.1
Paletine	37,604	0.3	47,194	0.7
Israel	82,256	0.6	50,479	0.7
Saudi Arabia	1,557,310	11.6	1,485,781	22.0
Syria	840,753	6.3	949,105	14.1
Other Middle East	691,759	5.2	624,354	9.2
Africa	538,402	4.0	288,702	4.3
Asia	5,738,569	42.8	2,055,211	30.4
Oceania	103,432	0.8	35,488	0.5
Europe	2,244,622	16.7	688,893	10.2
North America	1,208,965	9.0	230,947	3.4
Central & South America	139,334	1.0	90,505	1.3
Total	13,418,511	100.0	6,753,353	100.0

Source: Statistics Yearbook 2012, Department of Statistical, Jordan

Transit cargo through Palestine is basically inexistent. The West Bank of Palestine borders on Israel and Jordan, but there are no goods coming and going between the two countries through the West Bank. The only border crossing between the West Bank and Jordan is the KHB and all goods that pass it are either coming from or going to Palestine. Further, movement of cargo and people within Palestine, i.e. between the West Bank and Gaza strip, is currently under strict restriction and hence is virtually inexistent.

On the other hand, as to transit freight through Gaza strip, the area is similarly surrounded by Egypt and Israel and there is no interest in transporting goods through Gaza strip, so there is no transit freight passing through this area.

3.2.3 Cargo Transportation Mode

About 60% of cargo exported from Jordan is transported by land. The remaining 32.2 % are transported by sea and 7.8% by air. For imports, the largest part is transported by sea, accounting for about 55%, followed by those transported by land (33.2%) and by air (10.2%). Meanwhile, for Palestine, almost all of its imports and exports are transported by land.

Table 3.2-4 Jordan and Palestine Transit Freight**【Jordan】**

Transport Means	Export		Import	
	Amount ('000 JD)	Share (%)	Amount ('000 JD)	Share (%)
Road	3,345,297	59.7	4,886,699	33.2
Airline	439,212	7.8	1,505,130	10.2
Sealine	1,803,603	32.2	8,162,076	55.4
Pipeline	0	0.0	87,858	0.6
High Pressure Line	11,360	0.2	91,986	0.6
Total	5,599,472	100.0	14,733,749	100.0

【Palestine】

Transport Means	Export		Import	
	Amount ('mil US\$)	Share (%)	Amount ('mil US\$)	Share (%)
Road	782.4	100.0	4166.6	88.7
Pipeline	0	0.0	530.8	11.3
Total	782.4	100.0	4697.4	100.0

Source: Statistical Yearbook 2012, Department of Statistics, Jordan

Palestinian Central Bureau of Statistics 2013. Foreign Trade Statistics. Palestine

3.2.4 Commodities

Articles showing larger shares in recent exports from Jordan are vegetables and root crops, chemical raw materials such as sulphur, lime, cement, rare metals, chemical fertilizers, textile and apparel, etc., whose relative growth rates have been all increasing in the past five to ten years. They are followed by paper, jewellery, pharmaceuticals, and plastics, which, they too, show higher shares in the country's exports.

Since around 2008, the volumes of exports have shown almost no fluctuation and their composition, too, has remained almost the same. The most noticeable characteristic of exports over the past 20 years is that, from the early 2000s to around 2007, textile and apparel products rapidly increased their shares in total exports, jumping from less than 10% to around 30%. However, this trend has turned around since about 2008, mainly under the influence of exports to North America as it seems and, as a result, the current composition of exports has become similar to what it was before 2000, with traditionally competitive export products such as chemical raw materials, vegetables and root crops, etc. gaining higher shares again. Meanwhile, however, the export of animal and vegetal oils, jewellery, soap, etc. has decreased.

As to imports, natural resources have a dominant share, which is about three times larger than it was 20 years ago and still growing every year. They are followed by automobiles and related products, electric appliances, mechanical parts, cereals, plastics, etc.

Table 3.2-5 Major Commodities of Jordanian Export and Import

EXPORT				'000 JD
HS Code	Category	Amount	Share (%)	
31	Fertilisers	722,984	12.9	
61	Articles of apparel and clothing accessories, knitted or crocheted	693,882	12.4	
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	471,212	8.4	
30	Pharmaceutical products	447,475	8.0	
7	Edible vegetables and certain roots and tubers	334,477	6.0	
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes	299,948	5.4	
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers and parts and accessories of such articles	223,412	4.0	
39	Plastics and articles thereof	219,340	3.9	
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	185,618	3.3	
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof; imitation jewellery; coin	182,334	3.3	
8	Edible fruit and nuts; peel of citrus fruit or melons	131,548	2.3	
48	Paper and paperboard; articles of paper pulp, of paper or of paper board	129,755	2.3	
1	Live Animals	99,019	1.8	
73	Articles of iron or steel	98,940	1.8	
76	Aluminium and articles thereof	89,739	1.6	
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	76,684	1.4	
34	Soap, organic surface-active agents washing preparations; lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a basis of plaster	60,967	1.1	
21	Miscellaneous edible preparations	60,705	1.1	
44	Wood and articles of wood; wood charcoal	59,084	1.1	
94	Furniture, bedding, mattresses, mattress supports, cushions and similar stuffed furnishing, lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings	53,807	1.0	
Top 20 Sub Total		4,640,930	82.9	
TOTAL		5,599,472	100.0	

IMPORT				'000 JD
HS Code	Category	Amount	Share (%)	
27	Mineral fuels, mineral oils and products of their distillation bituminous substances; mineral waxes	4,692,799	83.8	
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	973,305	17.4	
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	748,395	13.4	
10	Cereals	621,747	11.1	
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers and parts and accessories of such articles	592,588	10.6	
72	Iron and steel	552,008	9.9	
39	Plastics and articles thereof	528,312	9.4	
30	Pharmaceutical products	349,726	6.2	
2	Meat and edible meat offal	282,780	5.1	
60	Knitted or crocheted fabrics	282,716	5.0	
29	Organic chemicals	282,535	5.0	
99	Unspecified	221,464	4.0	
48	Paper and paperboard; articles of paper pulp, of paper or of paper board	199,291	3.6	
17	Sugars and sugar confectionery	187,858	3.4	
4	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	182,461	3.3	
73	Articles of iron or steel	176,865	3.2	
44	Wood and articles of wood; wood charcoal	164,358	2.9	
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof; imitation jewellery; coin	162,887	2.9	
8	Edible fruit and nuts; peel of citrus fruit or melons	151,567	2.7	
23	Residues and waste from the food industries; prepared animal fodder	150,715	2.7	
Top 20 Sub Total		11,504,377	78.1	
TOTAL		14,733,751	100.0	

Source: Jordan Customs

Meanwhile, for Palestine, major exports are mineral-related products, which account for nearly 20% of the total exports. Other products with larger shares are furniture and mattresses, scrap iron and other metals, vegetables and fruits, footwear, etc. As to imports, energy-related products hold top shares, with crude and refined products, electricity and gas, etc. all showing large shares. Other products showing higher shares include cereals, automobiles, iron and steel materials, and electric appliances.

Table 3.2-6 Major Commodities of Palestinian Export and Import

EXPORT				'000 US\$
HS Code	Category	Amount	Share (%)	
66	Non-metallic mineral manufactures, n.e.s.	152,392	19.5	
82	Furniture and parts thereof, bedding mattresses, mattress supports cushions and similar stuffed furnishings.	64,294	8.2	
28	Metalliferous ores and metal scrap.	59,315	7.6	
89	Miscellaneous manufactured articles, n.e.s	43,414	5.5	
5	Vegetables and fruit.	33,489	4.3	
85	Footwear	32,033	4.1	
42	Fixed vegetable fats, and oils crude, refined or fractionated.	30,388	3.9	
12	Tobacco and tobacco manufacture.	29,162	3.7	
63	Cork and wood manufactures (excluding furniture).	24,900	3.2	
27	Crude fertilizers other than those of division chemical fertilizers, and crud mineral (excluding, petroleum and precious stones).	18,760	2.4	
7	Coffee, tea, cocoa, spices and manufactures thereof.	18,423	2.4	
2	Dairy products and birds eggs.	18,405	2.4	
4	Cereals and cereal preparations	17,326	2.2	
67	Iron and steel.	16,997	2.2	
69	Manufactures of metals, n.e.s.	16,321	2.1	
68	Non-ferrous metals.	15,960	2.0	
64	Paper paperboard and articles of paper, pulp of paper or of paperboard.	15,101	1.9	
54	Medicinal and pharmaceutical products.	14,043	1.8	
29	Crude animal and vegetable materials, n.e.s.	13,645	1.7	
57	Plastics in primary forms.	11,620	1.5	
Top 20 Sub Total		645,988	82.6	
TOTAL		782,369	100.0	

IMPORT				'000 US\$
HS Code	Category	2012	Share (%)	
33	Petroleum, petroleum products and related materials.	824,987	17.6	
35	Electric current.	466,672	9.9	
66	Non-metallic mineral manufactures, n.e.s.	336,432	7.2	
4	Cereals and cereal preparations	263,929	5.6	
78	Road vehicles (including air-cushion vehicles).	184,173	3.9	
34	Gas, natural and manufactured.	155,836	3.3	
67	Iron and steel.	148,572	3.2	
77	Electrical machinery apparatus and appliances n.e.s. and electrical parts thereof (including non-electrical counterparts n.e.s. of electrical household-type equipment).	147,709	3.1	
5	Vegetables and fruit.	121,991	2.6	
11	Beverages.	112,830	2.4	
54	Medicinal and pharmaceutical products.	101,110	2.2	
8	Feeding stuff for animals(not including unmilled cereal)	98,572	2.1	
63	Cork and wood manufactures (excluding furniture).	98,484	2.1	
0	Live animals other than animals of fish Division .	92,733	2.0	
89	Miscellaneous manufactured articles, n.e.s	92,231	2.0	
55	Essential oils and resinoids and perfume materials,toilt, polishing and cleansing preparations.	87,864	1.9	
2	Dairy products and birds eggs.	81,488	1.7	
57	Plastics in primary forms.	79,935	1.7	
64	Paper paperboard and articles of paper, pulp of paper or of paperboard.	78,780	1.7	
12	Tobacco and tobacco manufacture.	76,691	1.6	
Top 20 Sub Total		3,723,734	79.3	
TOTAL		4,697,356	100.0	

Source: Palestinian Central Bureau of Statistics, Palestine

3.2.5 Border Crossing Points

Bordering on several countries, Jordan has multiple border crossings on land. Along the Jordan Valley, there are Jordan Valley Border Point (Sheikh Hussein Bridge, SHB), which mainly serves trade with Israel, and King Hussein Border Point (King Hussein Bridge, KHB), which mainly serves trade with Palestine. Ignoring sea and air and looking exclusively at land transport, we find that the volume of trade passing through the Jordan Valley accounts for 3.4% in export and 2.3% in import of total overland transport of the country. Further, with Aqaba Port receiving more imports than it ships exports, overland transport accounts for about 60% in export and about 33% in import of the total trade of Jordan by three channels. All things considered, the volume of goods passing through KHB across the Jordan Valley, both in imports and exports, remain less than 1% of the total volume of trade of Jordan.

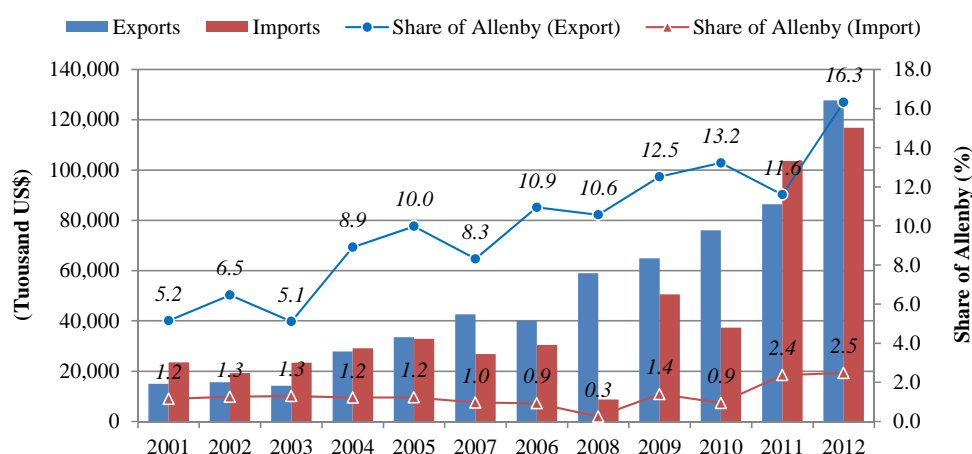
Table 3.2-7 Position of Jordan Valley Crossing for Trade

Customs	Export (2012)		Import (2012)	
	Amount ('000 JD)	Share (%) for Land Transport	Amount ('000 JD)	Share (%) for Land Transport
Amman	826,549	24.7	3,082,691	63.1
Ramtha	237,550	7.1	365,349	7.5
Ruwished	601,496	18.0	207,694	4.3
Jordan Valley Border Point (SHB)	70,683	2.1	87,709	1.8
Zarqa	30,674	0.9	711,958	14.6
Irbid	288,192	8.6	114,681	2.3
Maan	33	0.0	0	0.0
Dhuleel	256,902	7.7	116,509	2.4
Karak	78,071	2.3	48,554	1.0
Modawara	119,172	3.6		0.0
Al-Rqeem	187,112	5.6	67,255	1.4
Omari	426,060	12.7	1,941	0.0
King Hussein Bridge (KHB)	42,210	1.3	23,432	0.5
Al-Mafraq	100,087	3.0	55,985	1.1
Shediya	6,383	0.2	950	0.0
Numaira Custom	74,124	2.2	1,993	0.0
Sub Total of Land Transport	3,345,297	100.0	4,886,699	100.0
Jordan Total	5,599,471		14,733,749	
Share of Land Transport		59.7		33.2
Share of KHB for Jordan Total		0.8		0.2

Source: Statistical Yearbook 2012, Department of Statistics, and Jordan Customs

Meanwhile, for Palestine, the share of goods passing through KHB in the total volume of transport is 16.3% for exports and 2.5% for imports, with the percentages increasing year by year. Especially for exports, the share of imports passing through the bridge has tripled

since 2001, showing that the importance of KHB as channel of export from Palestine is growing year by year. On the other hand, the share of imports passing through KHB remains low, with growth observed in the past few years presumably mainly coming from cement from Jordan, etc. In Palestine, there aren't hardly any industries that import raw materials and transform and export them abroad as processed products. Large part of the country's imports is comprised of energy-related products, mechanical or electric products, etc., which are imported from Israel through ports. Thus, the role of KHB in import is limited.



Source: Palestinian Central Bureau of Statistics, Palestine

Figure 3.2-3 Position of KHB for Palestinian Export and Import

Table 3.2-8 Position of KHB for Palestinian Export and Import

Thousand US\$												
Exit passage	Exports											
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Al-Awda (Rafah, Commercial Center)	-	-	-	-	-	-	-	-	-	-	-	-
Al-Muntar (Karni)	37,501	26,929	45,879	38,696	32,098	22,287	33,933	-	-	3,337	-	-
Karm Abu_ salem	-	-	-	-	-	-	-	-	-	-	3,646	4,683
Al-Qarara	-	-	-	-	-	-	-	-	-	-	-	-
Commercial Allenby	14,957	15,570	14,298	27,855	33,476	42,657	40,141	59,023	64,861	76,081	86,473	127,710
Beat Hanoon	923	5,804	-	-	-	-	-	-	-	-	-	-
Al-Shijaiya	-	-	-	-	-	-	-	-	-	-	-	-
Networks and Pipes*	-	-	-	-	-	-	-	-	-	-	-	-
Undefined **	236,968	192,563	219,503	246,137	269,870	448,035	292,635	499,423	453,494	496,095	655,542	649,976
Total	290,349	240,867	279,680	312,688	335,443	512,979	366,709	558,446	518,355	575,513	745,661	782,369
Share of Commercial Allenby	5.2	6.5	5.1	8.9	10.0	8.3	10.9	10.6	12.5	13.2	11.6	16.3

Entry passage	Imports											
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Al-Awda (Rafah, Commercial Center)	397	313	6,039	8,122	8,753	3,103	2,445	-	-	-	-	-
Al-Muntar (Karni)	234,716	200,003	350,261	384,246	463,386	369,285	291,004	70,299	60,189	81,803	9,757	-
Karm Abu_ salem	-	-	-	-	-	-	-	-	-	99,172	191,800	280,247
Al-Qarara	176	2,622	2,144	5,361	7,663	3,909	3,080	-	-	-	-	-
Commercial Allenby	23,527	19,237	23,393	29,090	32,890	26,806	30,523	8,779	50,566	37,391	103,648	116,761
Beat Hanoon	125,375	120,385	45,619	54,623	7,859	3,082	2,429	-	-	-	-	-
Al-Shijaiya	72,038	74,926	109,210	140,527	97,643	234,463	244,928	249,374	117,741	112,021	55,565	24,649
Networks and Pipes*	150,469	157,358	169,180	130,419	158,457	187,366	309,442	400,140	391,046	385,793	428,330	505,889
Undefined **	1,426,949	940,764	1,094,422	1,620,860	1,890,941	1,930,712	2,400,184	2,737,576	2,981,243	3,242,332	3,584,547	3,769,810
Total	2,033,647	1,515,608	1,800,268	2,373,248	2,667,592	2,758,726	3,284,035	3,466,168	3,600,785	3,958,512	4,373,647	4,697,356
Share of Commercial Allenby	1.2	1.3	1.3	1.2	1.2	1.0	0.9	0.3	1.4	0.9	2.4	2.5

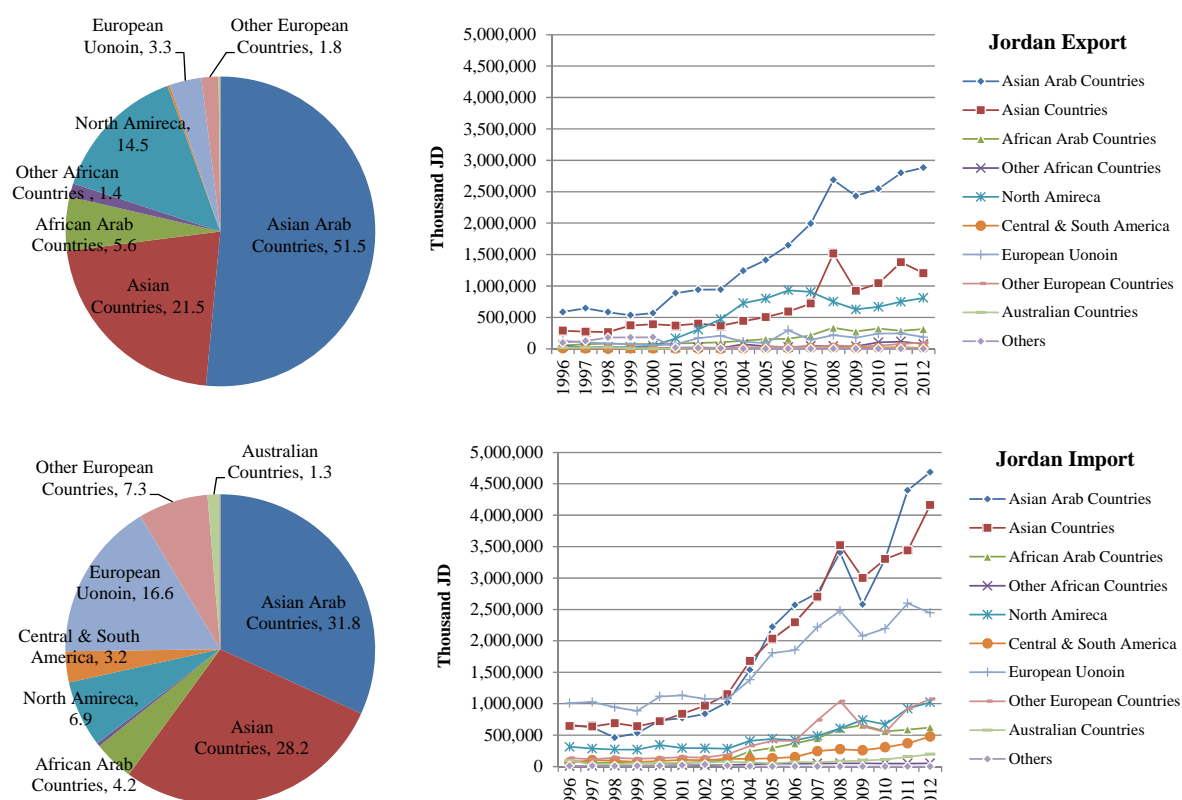
Source: Palestinian Central Bureau of Statistics, Palestine

3.2.6 Export and Import Countries Analysis

About half of the exports from Jordan are for Arab Gulf countries, followed by those for Asia accounting for 21.5% of the total exports, North America for 14.5%, and Arab African countries for 5.6%. As for imports, those from Arab Gulf countries and those from Asia each account for about 30% of the country's total imports, followed by EU accounting for 16.6% and other European countries for 7.3% and North America for 6.9%.

As to exports, export under the QIZ Agreement proposed by the United States in 1996 expanded step by step. Especially, export to the USA reached about 30% of the total exports from Jordan around 2006, but, with the stagnation of the USA economy in the years that followed, contracted to about 15% in 2012. Instead, export to Asia has expanded in recent years.

As to imports, products from EU held the top share until the early 2000s accounting for one third of the total imports, but since then import from Arab Gulf countries and other Asian countries has expanded, representing stably 15 to 20% of the total imports.

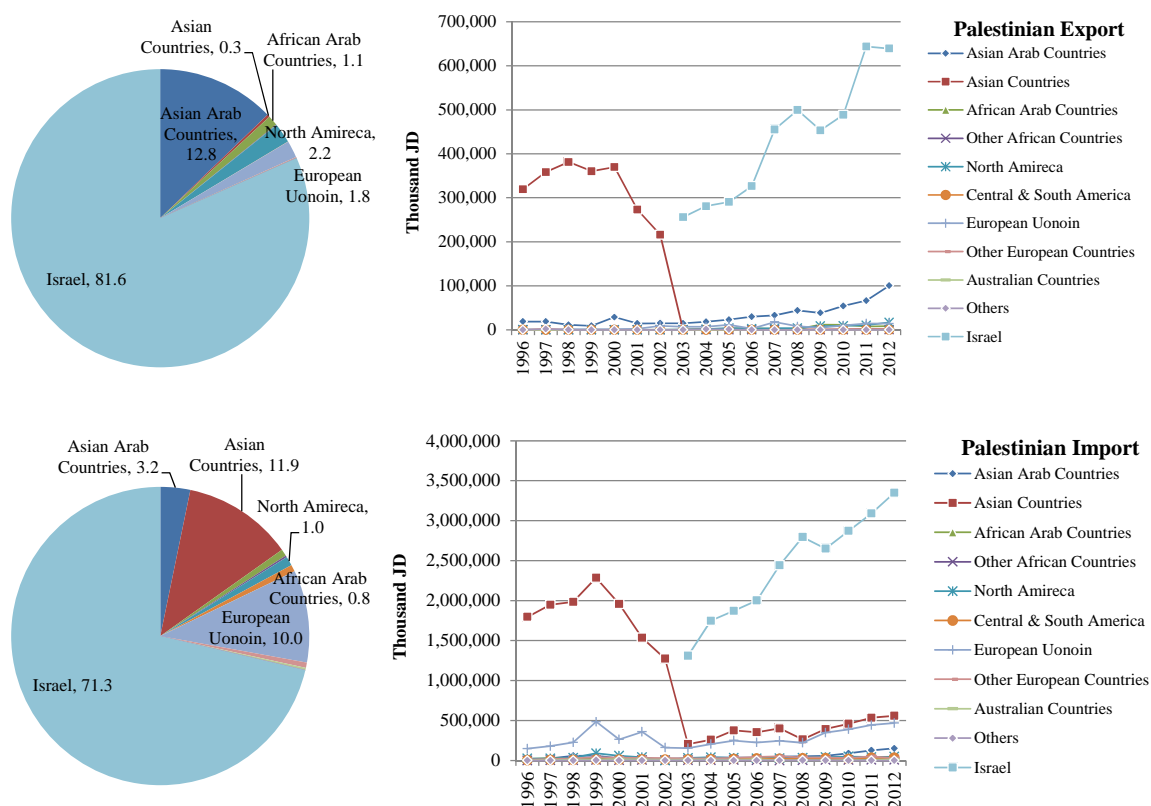


Source: Jordan Customs

Figure 3.2-4 Jordan Export and Import by Region

Israel holds most of the shares in Palestinian exports and imports. Other trade partners of Palestine include Arab Gulf countries, which accounted for 12.8% of its total exports in 2012 and further increasing its share over the past few years. For imports, as of 2012, Asia

represented 11.9% and EU about 10%. Imports from EU accounted for 16 to 17% of the total imports at peak times of the 2000s, but tends to level off in recent years.



Note: Figures of Israel before 2003 are included in category of Asian Countries

Source: Palestinian Central Bureau of Statistics, Palestine

Figure 3.2-5 Palestinian Export and Import by Region

Table 3.2-9 Export and Import Volume by Partners

Thousand JD

Country Region	Exports																
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Asian Arab Countries	585,276	647,311	584,015	535,539	568,340	886,945	941,028	943,030	1,243,034	1,412,947	1,649,706	1,993,773	2,687,626	2,432,130	2,546,379	2,798,710	2,883,357
Asian Countries	287,992	272,638	265,269	371,711	391,406	369,369	401,821	367,815	440,725	506,126	592,009	719,812	1,517,373	921,694	1,042,291	1,378,254	1,203,656
African Arab Countries	53012	70979	80716	75106	76545	84679	94300	101424	127,209	153,574	157,153	213,432	335,205	276,513	320,843	285,765	314,098
Other African Countries	51430	16633	29057	8814	12842	16586	24390	14280	73208	42132	27599	45079	46565	39280	104546	114929	78707
North Amireca	39338	26001	20823	30323	48003	167279	307478	472160	726,282	801,371	931,127	905,824	750,409	626,745	668,807	748,440	809,288
Central & South America	6880	4671	1789	4410	4239	3877	2478	2137	3909	9279	9110	12821	15120	11039	14755	25998	13565
European Uonoin	127972	103613	84,157	76,387	51,034	70,540	169,309	205,982	112,097	90,152	295,117	141,580	219,230	176,421	241,198	247,412	186,189
Other European Countries	20584	14,053	10152	9580	7361	9582	11838	21595	25158	31795	27070	29767	54586	39849	48471	79909	99,643
Australian Countries	17072	20931	23331	4804	2001	910	930	1688	1402	2187	991	1552	6890	2653	2828	5162	10970
Others	98615	124559	178590	182043	184810	16966	10370	6557	0	0	0	0	0	0	0	0	0
Total	1,288,171	1,301,389	1,277,899	1,298,717	1,346,581	1,626,733	1,963,942	2,136,668	2,753,024	3,049,563	3,689,882	4,063,640	5,633,004	4,526,324	4,990,118	5,684,579	5,599,473

Thousand JD

Country Region	Imports																
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*	2008	2009	2010	2011	2012
Asian Arab Countries	664,118	625,475	460,583	532,114	731,492	770,848	837,521	1,023,191	1,538,543	2,221,063	2,570,975	2,764,781	3,402,899	2,581,822	3,309,349	4,396,640	4,685,512
Asian Countries	644,583	636,235	690,449	638,771	718,857	839,681	967,602	1,151,166	1,680,340	2,034,097	2,296,206	2,701,965	3,522,352	3,001,882	3,302,657	3,440,254	4,162,058
African Arab Countries	98,302	57,751	61,134	46,129	47,550	58,629	73,644	102,470	242,143	298,717	365,960	447,489	600,917	659,589	560,144	586,775	621,334
Other African Countries	8,909	11,293	14,632	9,746	13,155	22,082	18,974	24,726	32,514	46,960	49,182	48,220	51,384	49,875	47,285	48,073	52,295
North Amireca	315,232	286,438	271,725	270,004	343,409	292,843	289473	285,276	408,695	440,886	421,095	488,553	605,685	742,351	669,539	922,091	1,022,032
Central & South America	61,788	102,316	94,023	70,219	88,623	105,483	98,694	123,983	119,328	132,564	150,847	245,702	275,106	259,524	305,316	368,568	477,725
European Uonoin	1,010,612	1,026,764	944,335	885,232	1,115,388	1,132,438	1,077,192	1,080,083	1,380,352	1,808,278	1,853,715	2,219,010	2,479,402	2,077,363	2,195,731	2,598,005	2,444,107
Other European Countries	136,097	115,348	138,327	122,768	132,757	149,173	142,258	192,058	327,073	410,702	409,161	738,749	1,040,590	638,228	548,387	923,708	1,074,061
Australian Countries	93,488	35,203	32,978	49,364	58,755	61,852	60,712	74,319	66,739	49,597	70,584	67,725	82,560	97,062	111,719	156,100	194,625
Others	10428	11263	6188	10,860	9417	20700	33091	14735	3514	0	0	0	0	0	0	0	0
Total	3,043,557	2,908,086	2,714,374	2,635,207	3,259,403	3,453,729	3,599,161	4,072,007	5,799,241	7,442,864	8,187,725	9,722,194	12,060,895	10,107,696	11,050,127	13,440,214	14,733,749

Thousand US\$

Country Region	Exports																
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Asian Arab Countries	19,043	19,043	11,520	9,278	28,960	14,497	14,973	14,796	18,278	23,154	29,867	33,044	44,054	38,499	54,324	66,504	100,142
Asian Countries	319,353	358,367	381,443	360,469	369,988	273,164	216,409	374	1,987	2,002	583	790	825	625	1,256	1,914	1,464
African Arab Countries	11	15	38	360	162	79	120	181	1,079	2,701	4,164	1,728	1,779	11,832	11,575	7,498	8,695
Other African Countries	0	0	68	150	0	0	0	0	54	85	27	236	40	41	20	35	402
North Amireca	806	17	75	292	71	128	203	802	1,700	4,218	2,553	3,601	3,827	8,797	9,302	10,491	16,836
Central & South America	9	0	7	73	0	0	0	159	0	103	0	15	12	28	206	79	217
European Uonoin	244	878	1,647	1,519	1,675	2,453	8,921	7,041	6,958	11,405	2,638	18,076	8,068	4,720	9,835	14,463	14,392
Other European Countries	1	2,102	48	7	0	28	241	327	91	239	302	127	283	203	520	786	1,022
Australian Countries	0	0	0	0	0	1	0	18	0	-	7	131	135	116	80	36	17
Others	0	2000	0	0	0	0	0	0	1,392	978	3	-	0	-	-	2	2
Israel								255,981	281,149	290,558	326,565	455,228	499,423	453,494	488,396	643,853	639,180
Total	339,467	382,423	394,846	372,148	400,857	290,349	240,867	279,680	312,688	335,443	366,709	512,976	558,446	518,355	575,513	745,661	782,369

Thousand US\$

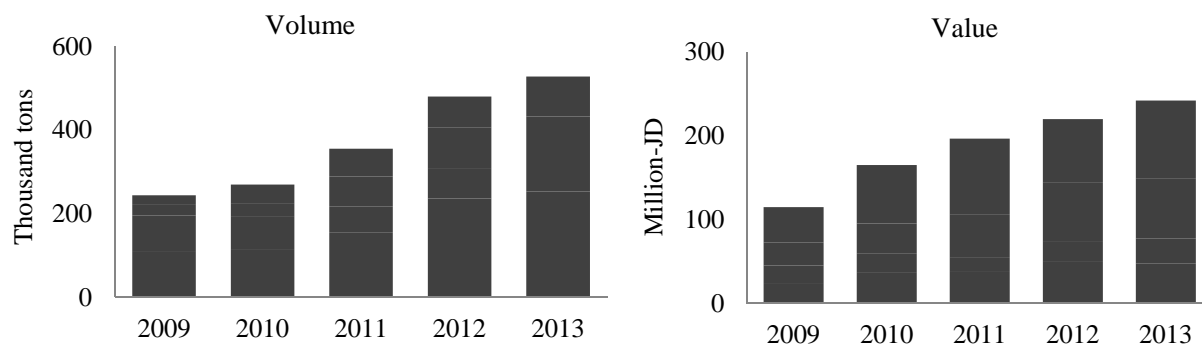
Country Region	Imports																
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*	2008	2009	2010	2011	2012
Asian Arab Countries	7,398	25,563	57,689	60,886	25,734	23,779	21,639	26,643	34,801	36,399	35,052	50,274	52,375	56,475	90,834	127,632	152,003
Asian Countries	1,796,088	1,947,951	1,983,903	2,285,629	1,958,322	1,534,842	1,274,234	205,337	258,117	376,359	352,434	402,307	263,727	392,949	458,395	534,873	559,572
African Arab Countries	19,172	30,583	27,722	20,185	13,934	13,002	9,436	19,078	30,299	32,601	31,885	36,041	22,716	35,500	38,982	34,675	35,280
Other African Countries	1,776	3,720	4,438	5,351	2,243	4,793	2,257	4,522	4,125	4,779	4,425	1,817	3,789	6,092	6,011	8,168	9,118
North Amireca	25,450	24,577	33,982	90,409	58,127	41,022	648	31,591	40,759	33,313	24,248	29,455	34,833	42,991	50,064	42,296	46,737
Central & South America	3,425	4,717	5,438	9,459	8,840	11,220	7,550	11,320	15,184	17,836	23,582	18,975	25,399	27,532	17,105	34,176	34,604
European Uonoin	148,625	178,903	226,217	484,644	263,605	358,829	161,151	154,564	205,141	250,356	225,615	246,352	222,521	348,467	388,758	443,818	469,148
Other European Countries	12,126	17,691	26,327	41,341	35,131	32,743	28,317	27,204	26,862	33,107	43,258	52,907	38,399	36,946	30,401	53,018	27,274
Australian Countries	2,218	4,840	9,073	7,462	16,001	13,292	9,748	10,049	9,626	8,101	14,888	2,365	4,407	2,704	4,485	3,952	12,800
Others	0	14	314	1,862	871	126	629	317	483	1,041	1,189	691	3,173	-	134	17	20
Israel								1,309,642	1,747,850	1,873,700	2,002,150	2,442,851	2,794,829	2,651,129	2,873,343	3,091,022	3,350,799
Total	2,016,279	2,238,560	2,375,102	3,007,227	2,382,807	2,033,647	1,515,608	1,800,268	2,373,248	2,667,592	2,758,726	3,284,035	3,466,168	3,600,785	3,958,512	4,373,647	4,697,356

Source: Jordan Customs, and Palestinian Central Bureau of Statistics, Palestine

3.3 Present Condition of External Trade at King Hussein Bridge

3.3.1 Overview

(1) Freight crossing KHB



Source: Jordan Customs

Figure 3.3-1 Freight Crossing KHB

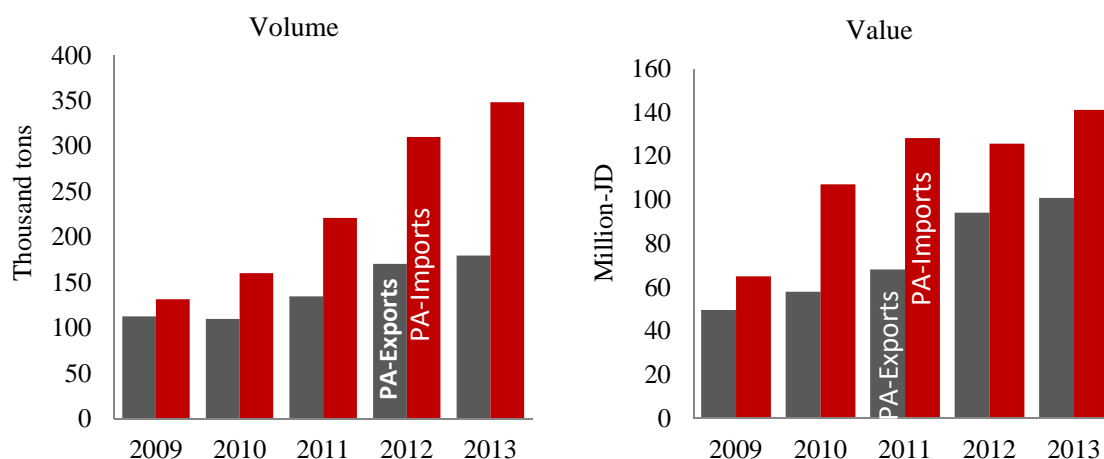
Freight volume of 528 thousand tons, equivalent to 242 million JD (339 million US\$), crossed KHB in 2013. The trade volume crossing KHB increased by more than a double in the last five years, in terms of volume and value. Both the trade volume and value have shown an average growth rate of about 22% per year. There is, however, significant variation in the growth rate, as Table above confirms. The trade has recorded a growth rate as maximum as 44% in terms of value, and in general the freight maintained a growth rate of above 10% in terms of both volume and value.

Table 3.3-1 Changes in Freight Crossing KHB

Year	Weight (tons)	Change (%)	Value (million-JD)	Change (%)
2009	24400		115	
2010	27000	11%	165	44%
2011	35551	32%	196	19%
2012	48043	35%	220	12%
2013	52792	10%	242	10%

Source: Jordan Customs

(2) KHB freight by PA export and import

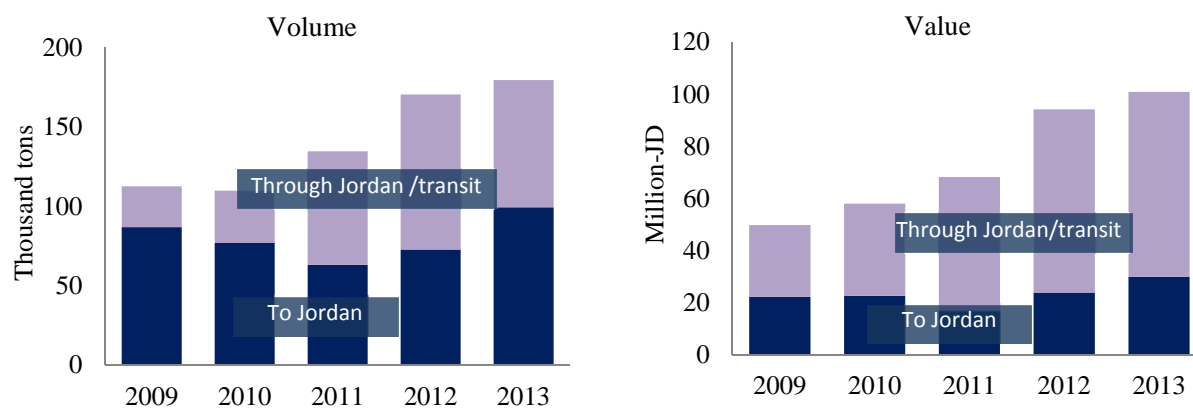


Source: Jordan Customs

Figure 3.3-2 PA Exports and Imports through KHB by Volume and Value

PA imports more than it exports through KHB. Moreover, the proportion of the PA export volume through KHB has been decreasing consistently since 2009. Currently PA export volume through KHB Bridge is just about half the import volume through the bridge. In terms of value, however, the PA export is about 71% of the corresponding import showing smaller gap.

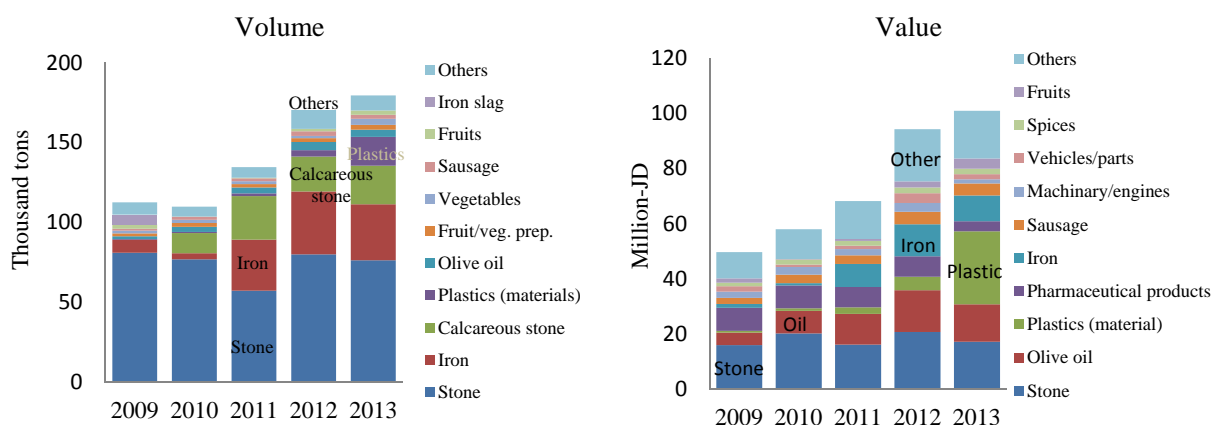
KHB is an important Palestinian trade gateway not only to access Jordan but the world, neighbouring countries in particular. Although PA exports to or imports from Jordan dominate the freight volume (69% of the total), they account for just one-third of the total volume. The remaining two-third of the trade value through KHB is transit goods that PA exports or imports through Jordan. The variation may be attributed to the differences in the type of commodities that the PA trades with Jordan and other countries. The following sections look at the PA exports and imports by commodity type.

3.3.2 Exports from Palestine through KHB

Source: Jordan Customs

Figure 3.3-3 PA Exports through KHB

The PA exports destined for Jordan account for 56% of the total volume on average. In terms of value, however, the PA exports destined for Jordan account for just about 30% of the goods value. The remaining goods accounting for 70% of the value are transit goods destined for other countries. The Palestinian exports through KHB have been increasing for the last five years at a rate of 13.0% and 19.9%, on average, in terms of volume and value, respectively. In contrast to the commodities destined for Jordan, the Palestinian exports destined for other countries have shown higher growth rate indicating that KHB is becoming an important corridor to access countries other than Jordan.



Source: Jordan Customs

Figure 3.3-4 Commodities PA Exports through KHB

Figure 3.3-4 shows the top ten commodities that the PA exports through KHB. The ten commodities with typical examples are also shown in next Table. There is slight variation of the proportion of the commodities PA exported in terms of weight and value. In general, stone and iron make 69.2% of the all the commodity volume, and 32.9% of the value that the PA exported through KHB in the last five years.

Stone remains at the top of the PA exports through KHB, both in volume and value accounting for 52.5% and 24.4% respectively. Although the stone proportion has been decreasing since 2009, it still makes over 40% of the PA export volume.

In terms of value, olive oil becomes the second highest PA exports through KHB after the stone. The oil proportion was 9.1% of the total value in 2009, and reached 16.3% in 2011 before it declined to 13.4% in 2013.

Vegetables and fruits make small proportion of the goods that PA exports through KHB. Vegetables and fruits account for just 1.8% and 2.3% of the volume and value, respectively. The potential of PA to export agricultural products and the reason behind these low figures need further analysis. It is, however, likely that the current border crossing system and limited facilities have influenced the types of trading commodities.

Table 3.3-2 Top ten PA Export Commodities by Volume with Typical Examples

HS-code	HS-code Description (2 digit level)	Typical examples at 4 or 6 HS-code digit level
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	<ul style="list-style-type: none"> Stone
72	Iron and steel	<ul style="list-style-type: none"> Ferrous waste and scrap; remitting scrap ingots of iron or steel Iron and non-alloy steel in ingots or other primary forms (excluding iron of heading 7203) Bars and rods of iron or non-alloy steel, not further worked than forged, hot-rolled, hot-drawn or hot-extruded, but including those twisted after rolling
25	Salt, sulphur; earths and stone; plastering materials, lime and cement	<ul style="list-style-type: none"> Crude or roughly trimmed marble, travertine, ecausine and other calcareous monumental or building stone Marble, travertine, ecausine and other calcareous monumental or building stone merely cut, by sawing or otherwise, into blocks or slabs of rectangular (including square) shape Ecausine and other calcareous monumental or building stone; alabaster Sandstone
39	Plastics and articles thereof	<ul style="list-style-type: none"> Polyethylene having a specific gravity of less than 0.94
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats, animal or vegetable waxes	<ul style="list-style-type: none"> Olive oil and its fractions, whether or not refined, but not chemically modified Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared
20	Preparation of vegetables, fruit, nuts or other parts of plants	<ul style="list-style-type: none"> Tomatoes prepared or preserved otherwise than by vinegar or acetic acid Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading 2006 Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter
07	Edible vegetables and certain root and tubers	<ul style="list-style-type: none"> Potatoes (fresh or chilled) Tomatoes (fresh or chilled) Onions and shallots Garlic Fruits of genus <i>Capsicum</i> or the genus of <i>Pimenta</i>
16	Preparations of meats, of fish or of crustaceans, mollusc or other aquatic invertebrates	<ul style="list-style-type: none"> Sausages and similar products, of meat, meat offal or blood; food preparations based on these products
08	Edible fruits and nuts; peel of citrus fruit or melon	<ul style="list-style-type: none"> Lemons (<i>Citrus limon</i>, <i>Citrus limonum</i>) and limes (<i>Citrus aurantifolia</i>, <i>Citrus latifolia</i>) Dates Guavas, mangoes and mangosteens Oranges Grapes, fresh or dried
26	Ores, slag and ash	<ul style="list-style-type: none"> Slag, dross, scaling and other waste from the manufacture of iron or steel

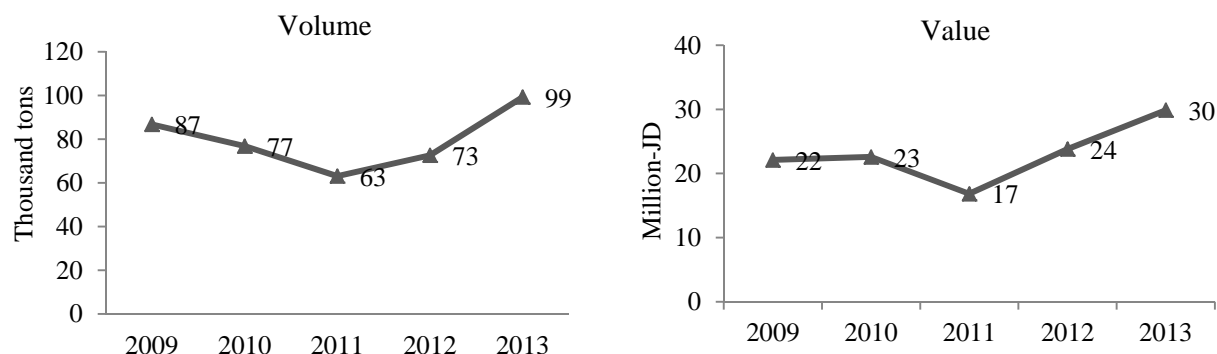
Source: Jordan Customs

There is significant variation in the commodities that the PA exports to Jordan and the type of the commodities it exports through Jordan to other countries as explained below.

(2) PA exports to Jordan

In 2013 Jordan imported goods worth about 30 million JD (99.3 thousand tons) through KHB.

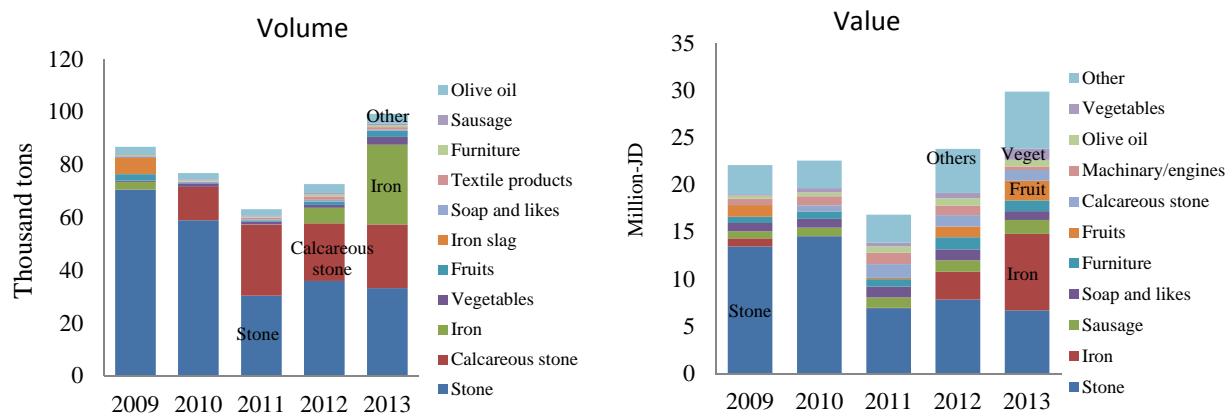
Although this means an increase of 35.4% (14.4% in terms of volume) from 2009, the Jordanian import shrank in the middle, before it started to increase in 2012.



Source: Jordan Customs

Figure 3.3-5 Trends of Goods Crossing KHB and Destined for Jordan

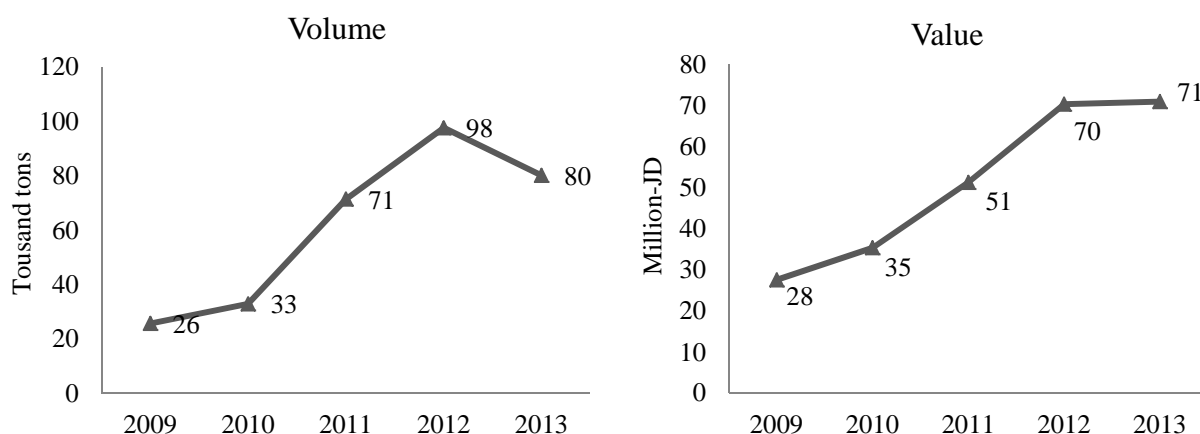
As next Figure shows, stones, and iron dominate the commodities destined for Jordan. The stones and the iron together make about 88.7% of the commodities Palestinian exported to Jordan in the last five years, although they account for just 57.2% of the value. The third most exported commodity to Jordan through KHB, after the stone and the iron, is prepared food/sausage in terms of value accounting for 4.7% of all the goods destined for Jordan.



Source: Jordan Customs

Figure 3.3-6 Types of Commodities Crossing KHB and Destined for Jordan

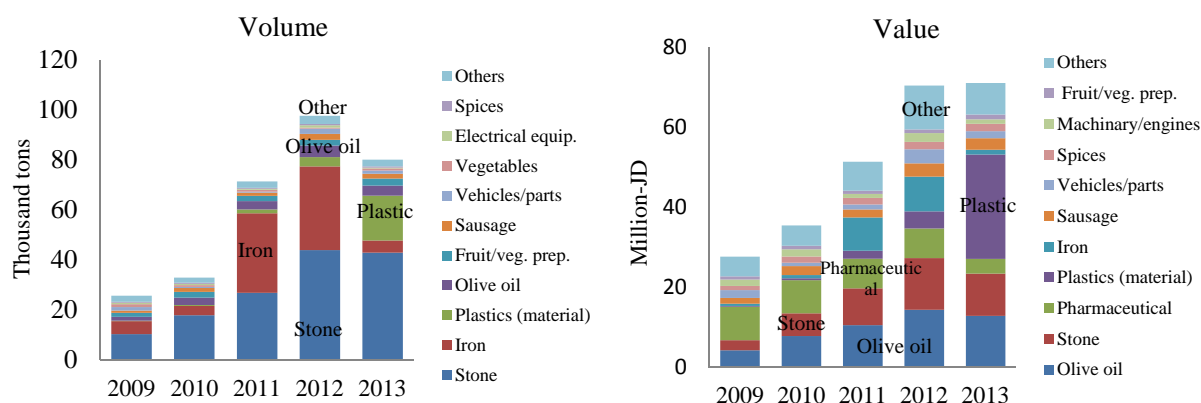
(3) Goods PA exports through Jordan



Source: Jordan Customs

Figure 3.3-7 Trend the PA Export through Jordan (Transit through KHB)

The value of Palestinian exports crossing KHB in transit through Jordan has been increasing consistently since 2009. The value which was 27.6 million JD in 2009 reached 71.0 million JD (99.4 million US\$) in 2013 (157.2% increase). This indicates an average annual growth rate of 27.8%. Similar trend is observed for the volume, except for the year 2013. The volume reached 97.7 thousand tons in 2012 before it declined to 80.2 in 2013. The decline may be attributed to the sharp decrease in iron export, which dropped by 85.4%.

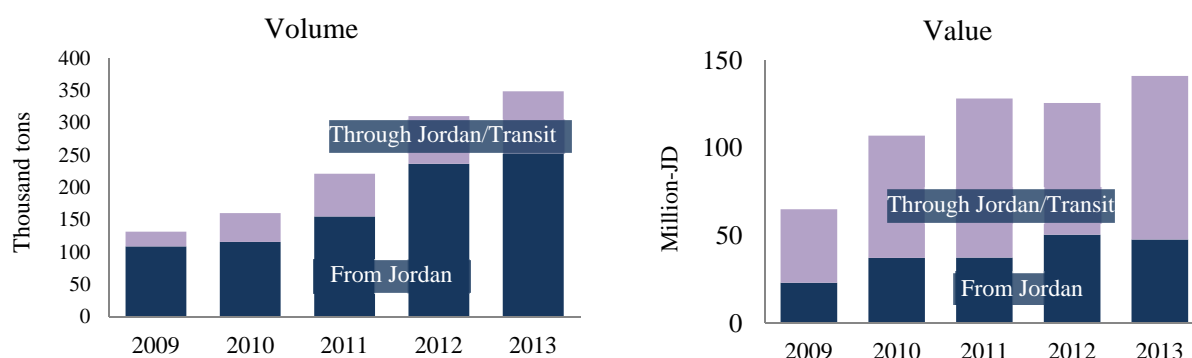


Source: Jordan Customs

Figure 3.3-8 PA Exports through Jordan by Commodity (Transit through KHB)

In terms of commodity value, olive oil makes the highest proportion of the Palestinian goods in transit through KHB from 2009–2013. The stone stands at the top in terms of volume, but it comes as the second in terms of value after the olive oil. Although declined in 2013, pharmaceutical products come as the third in the value ranking. Plastics and their products are the fourth in terms of the value; however, they sharply increased in 2013 becoming the highest.

3.3.3 Import to Palestinian through KHB

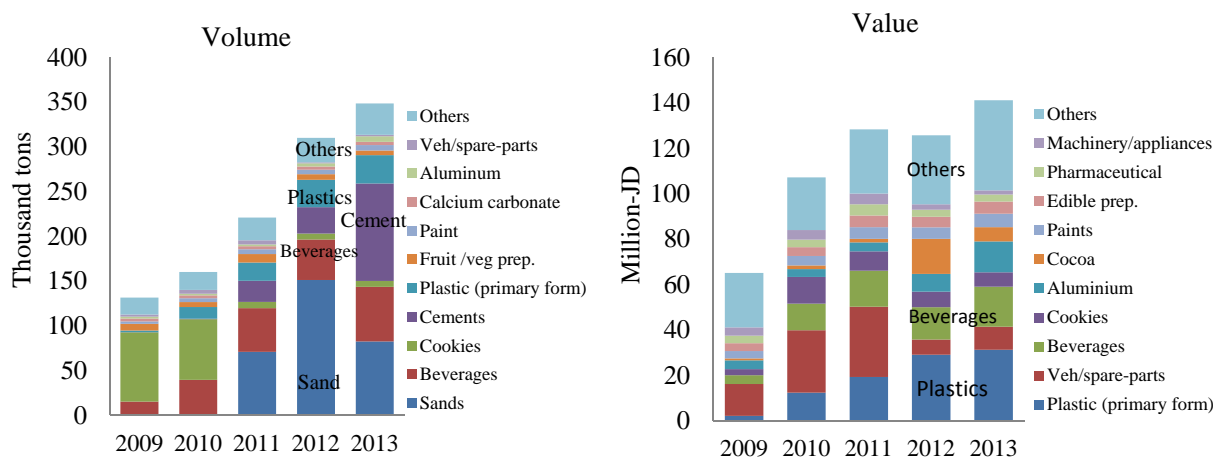


Source: Jordan Customs

Figure 3.3-9 PA Imports through KHB

Similar to the PA exports, about 65% of the value of goods the Authority imports through KHB are transit goods through Jordan. In terms of volume, however, Jordanian exports make about 75% of the total goods the PA import through KHB.

Next Table shows the top ten commodities that PA imported through KHB in the last five years in their ranking order by volume, and Next Figure shows the imports by value and volume. Palestinians import mostly construction materials, cookies and beverages (water and juice). Sand comes at the top in terms of volume followed by beverages, cookies and cement, respectively.



Source: Jordan Customs

Figure 3.3-10 PA Imports through KHB by Commodity**Table 3.3-3 Top ten PA Export Commodities by Volume with Typical Examples**

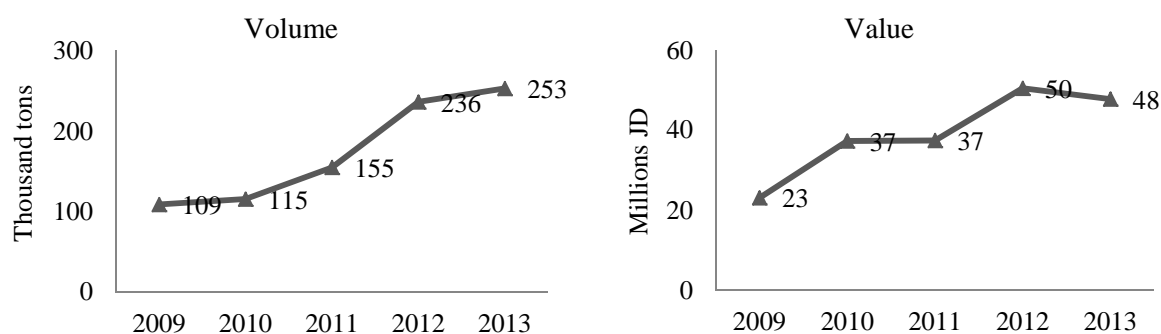
HS-Code	HS-Description (2 digit level)	Typical examples at 4 or 6 HS-code digit level
25	Salt, sculpture; earths and stone; plastering materials, lime and cement	<ul style="list-style-type: none"> Natural sands of all kinds, whether or not colored, other than metal-bearing sands of Salt (including table salt and denatured salt) and pure sodium chloride, whether or not in aqueous solution or containing added anti-caking or free-flowing agents; sea water

22	Beverages, spirits and vinegar	<ul style="list-style-type: none"> • Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavored • Mineral waters and aerated waters • Other waters
19	Preparations of cereals, flour, starch or milk; pastry-cooks' products	<ul style="list-style-type: none"> • Cookies • Pasta
38	Miscellaneous chemical products	<ul style="list-style-type: none"> • Refractory cements, mortars, concretes and similar compositions
39	Plastics and articles thereof	<ul style="list-style-type: none"> • Polymers in primary forms
20	Preparation of vegetables, fruit, nuts or other parts of plants	<ul style="list-style-type: none"> • Fruit juices • Tomatoes or other vegetables, and edible parts of plants prepared or preserved
32	Tanning or dyeing extracts; tannin and their derivatives; dyes pigments and other coloring matter; paints and varnishes; putty and other mastic; inks	<ul style="list-style-type: none"> • Prepared pigments, prepared opacifiers, prepared colors and similar preparations • Paints and varnishes (including enamels and lacquers) based on synthetic polymers or chemically modified natural polymers, dispersed or dissolved in a non-aqueous medium; solutions as defined in note 4 to this chapter • Glaziers' putty, grafting putty, resin cements, caulking compounds and other mastics; painters' fillings; non-refractory surfacing preparations for façades, indoor walls, floors, ceilings or the like
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare earth metals, of radioactive elements or isotopes	<ul style="list-style-type: none"> • Calcium carbonate
76	Aluminum and articles thereof	<ul style="list-style-type: none"> • Aluminum bars, rods and profiles
87	Vehicles others than railway or tramway rolling-stock, and parts and accessories thereof	<ul style="list-style-type: none"> • Motor cars and other motor vehicles principally designed for the transport of persons of a cylinder capacity exceeding 2500 cm³ • Motor vehicles for the transport of goods • Parts and accessories of the motor vehicles

Source: Jordan Customs

There is a variation in the commodities the Palestinians import directly from Jordan and that they import through Jordan; this variation is discussed below.

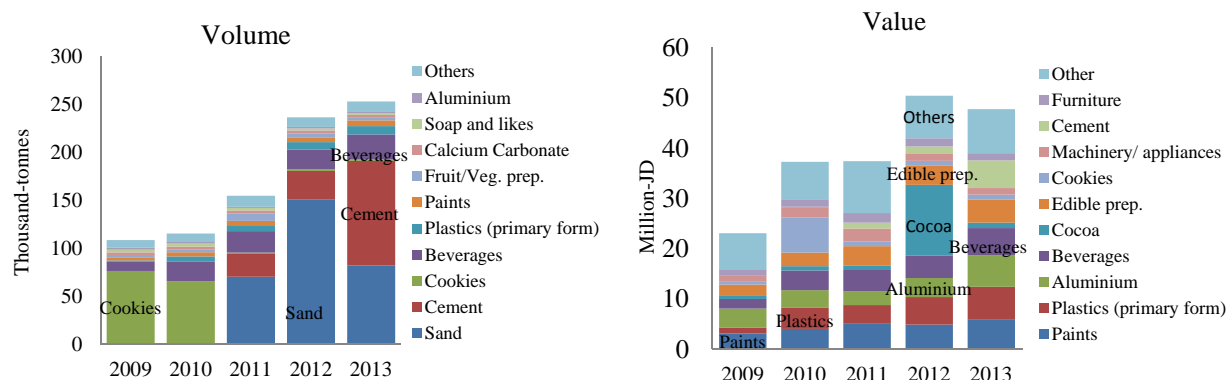
(1) Jordanian exports to Palestinian Territory



Source: Jordan Customs

Figure 3.3-11 Trend of Jordanian Exports to Palestine (through KHB)

Jordanian exports to the Palestinian Territory have been in general increasing in the last five years, though the export value dropped by 5.7% in 2013. The export through KHB has expanded from 108.7 thousand tons in 2009 to 253.1 thousand tons in 2013, an increase of 132.8%. Similarly, the export value, which was just 23.1 million JD in 2009, reached 47.8 Million JD in 2013, increasing by 106.9%.



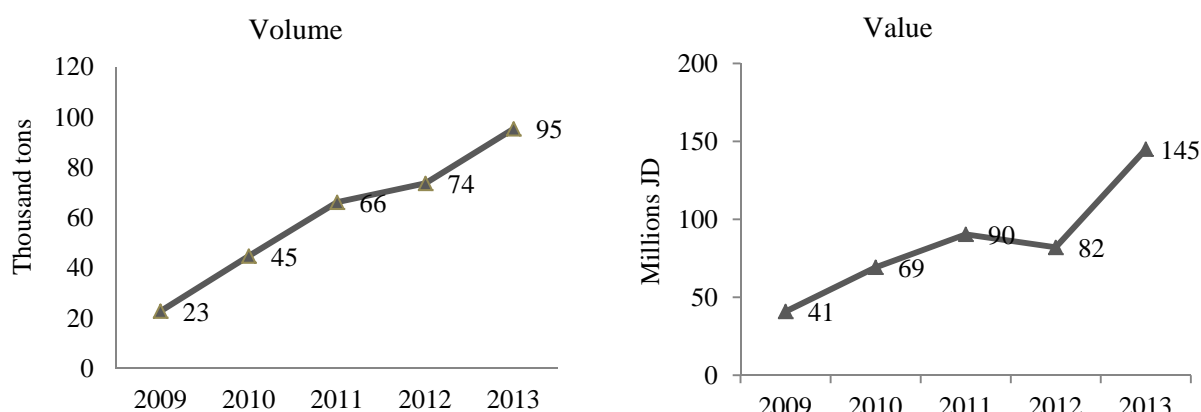
Source: Jordan Customs

Figure 3.3-12 Trend of Jordanian Exports to PT by Commodity (through KHB)

On average, the Jordanian exports through KHB have grown by 18.1% and 14.7% in terms of volume and value, respectively. In 2011 and 2012, the Jordanian export volume to Palestine has jumped recording a growth rate of 25.4% and 34.5%, respectively. This may be attributed to a sudden increase in the sand volume, which makes significant portion of the commodities that Jordan exports through KHB.

Beside the sand, the main commodities that Jordan exports to Palestine include cement, flour products, and beverages.

(2) Goods PA imports through Jordan

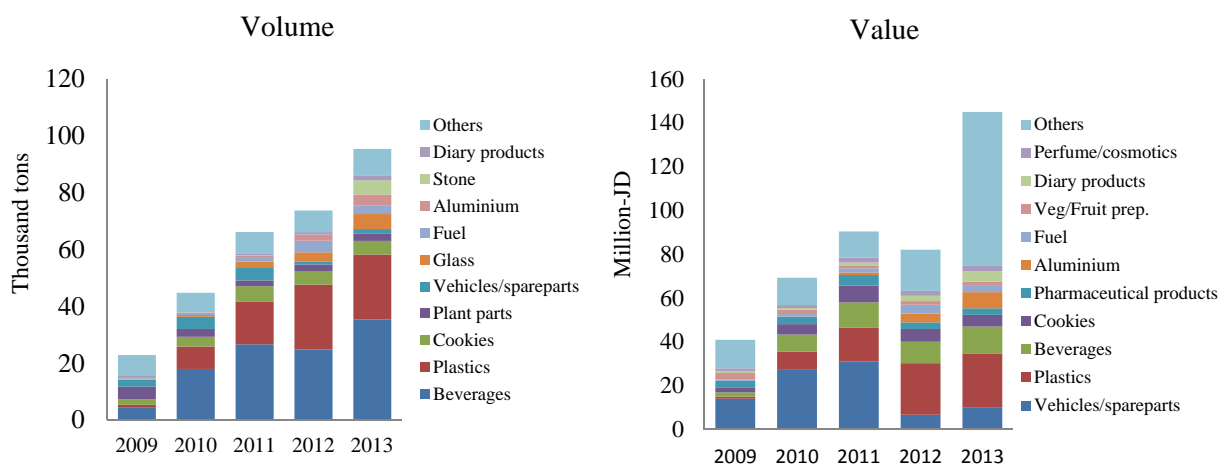


Source: Jordan Customs

Figure 3.3-13 Trends of Transit Goods PA Imports through Jordan

The goods that the PA imports through Jordan (KHB) have been increasing since 2009, in general. The PA imports increased by more than three times from 2009 to 2010, to reach 95.4 thousand tons. Similarly, the volume increased by about 2.6 times to reach 145 million JD.

As next Figure shows, most of the commodities that PA imports through Jordan include beverages, plastics, flour products, vehicles/its parts.



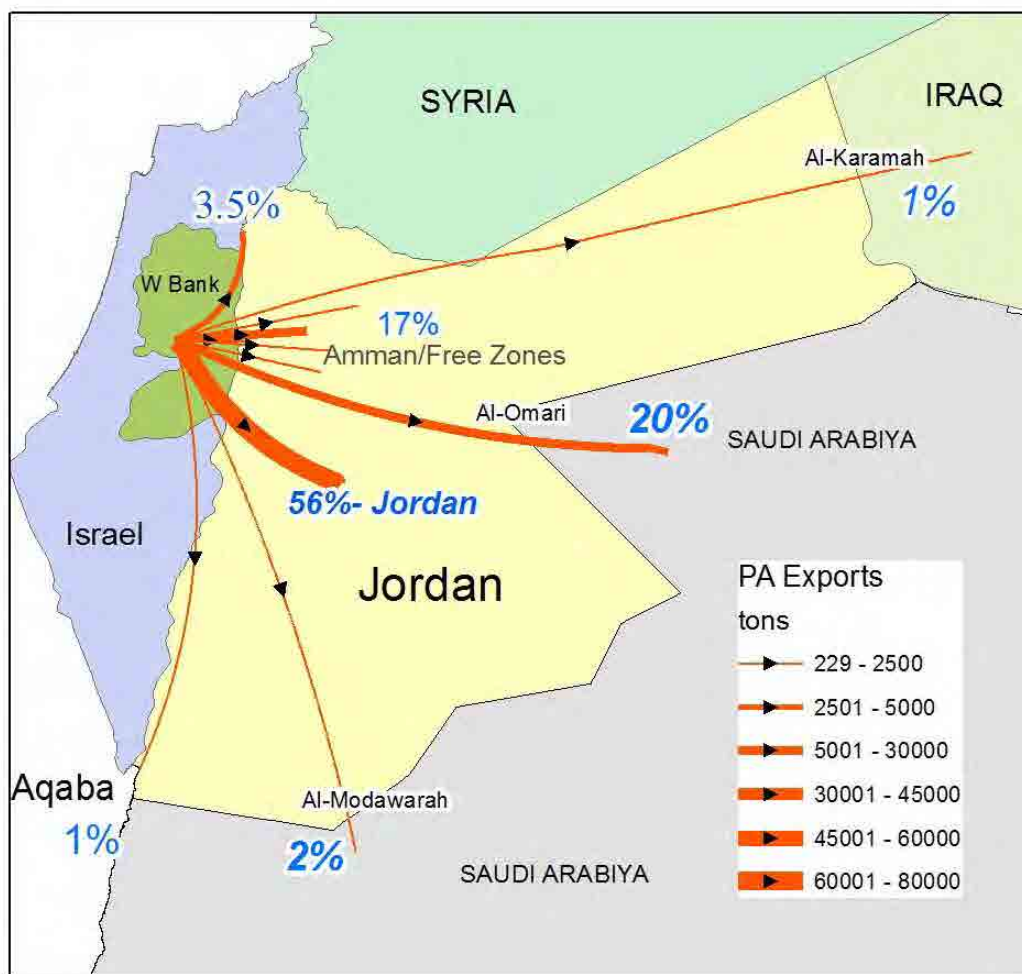
Source: Jordan Customs

Figure 3.3-14 Commodities PA Imports through Jordan

3.3.4 KHB Freight Flow

(1) Destinations of PA exports

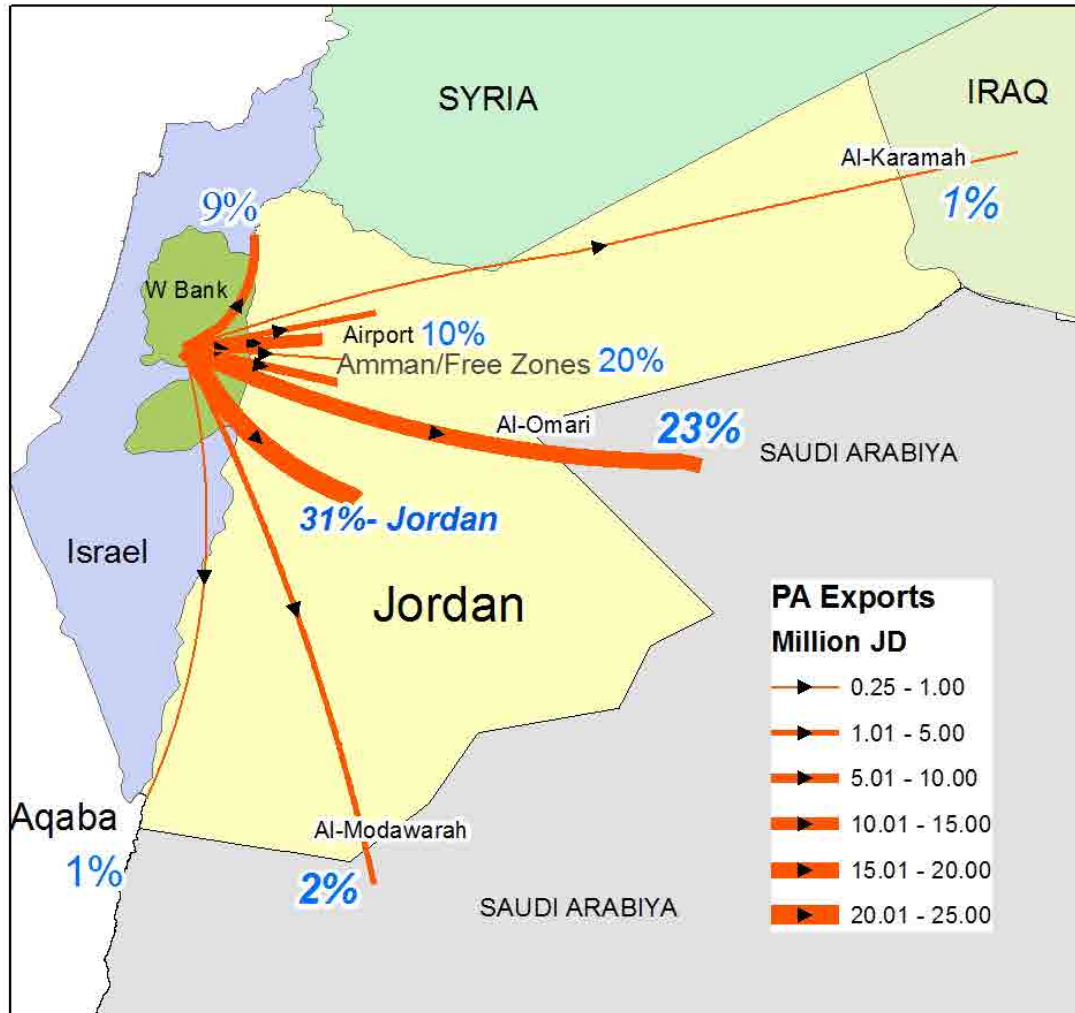
Palestinian goods exported through KHB are mainly destined for Jordan. The freight volume destined for Jordan makes 56% of the total on average. The remaining 47% goes directly to Jordanian free zones or neighbouring countries. Among the neighbour countries, Saudi Arabia accounts for 22%, making it the second highest freight destination after Jordan.



Source: Summarized by Study Team from Database of Jordan Custom

Figure 3.3-15 Destinations of PA exports through KHB (2009–2013, Volume)

In terms of value, however, the flow proportion changes and freight value destined for Jordan accounts for just 31% of the total. The freight value destined for Queen Alia International Airport (QAIA) makes 10% of the value of the PA exports through KHB. The Saudi share increases to 25% in value terms. The Aqaba share is very low, not exceeding 1% in both volume and value terms.

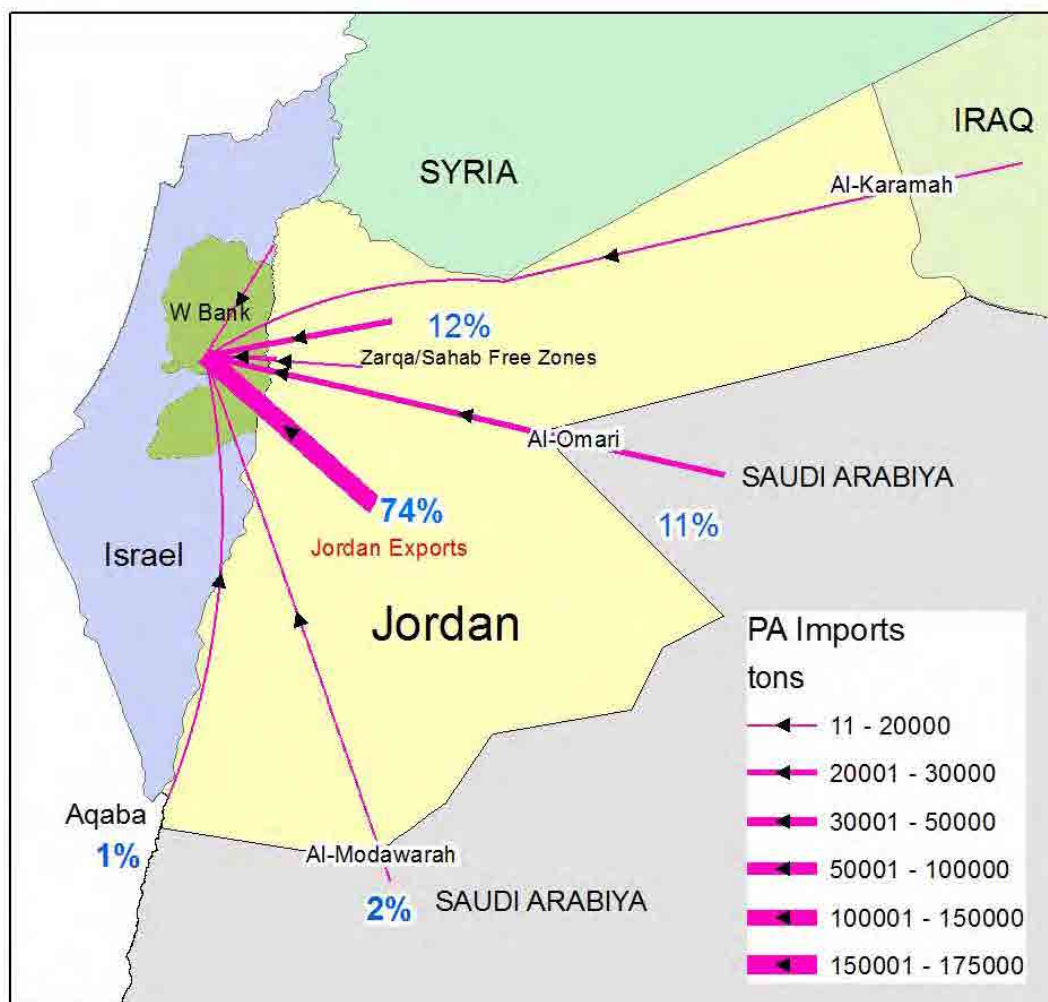


Source: Summarized by Study Team from Database of Jordan Custom

Figure 3.3-16 Destinations of PA exports through KHB (2009–2013, Value)

(2) Orgins of PA imports

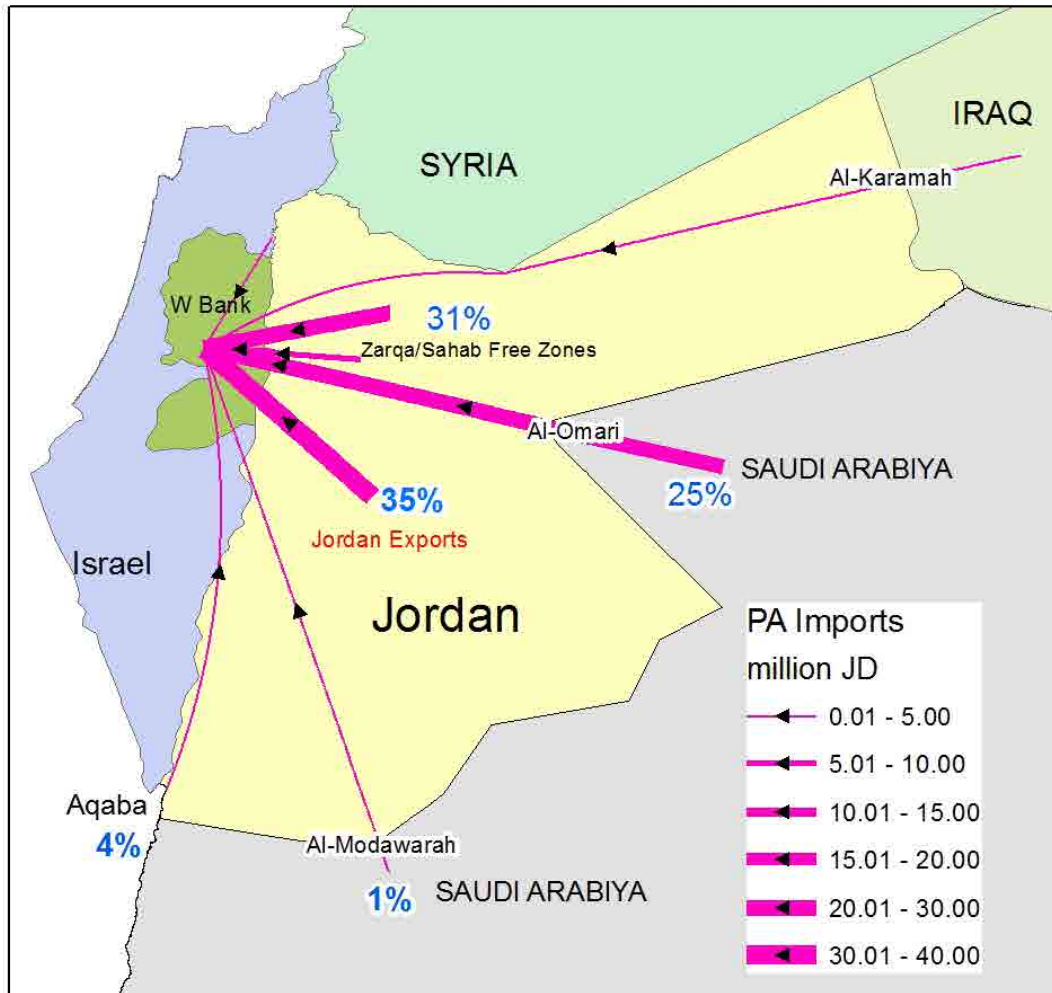
The orgins of the PA imoportrs are similar to that of the exports. Jordan accounts for 74% of the freight volume crossing KHB into PT. It is followed by Saudi Arabia, which is the source for 13% of the volume of the PA imports through KHB. Again, the goods that PA directly imports through Aqaba is just about 1%.



Source: Summarized by Study Team from Database of Jordan Custom

Figure 3.3-17 Origins of PA import through KHB (2009–2013, Volume)

Similar to that of the exports, it is important to note that the proportion of the PA imports by value is quite different from that of the volume. Direct PA imports from Jordan accounts for just 35% in terms of the value, while that of Saudi Arabiya and Aqaba increase to 26% and 4% respectively. Goods from Jordanian free zones becomes the second largest source, accounting for 31% of the value.



Source: Summarized by Study Team from Database of Jordan Custom

Figure 3.3-18 Origins of PA Imports through KHB (2009–2013, Value)

4. LOGISTICS INFRASTRUCTURES IN JORDAN VALLEY

4.1 Land Border Crossing Points

The land border crossing points in Jordan are located near to four countries (Syria, Iraq, Saudi Arabia, Israel) and one state government (Palestine). Total nine (9) borders are currently used.

Syrian Border

The border crossing points with Syria currently used are Jaber crossing and Ramtha crossing. Jaber is a crossing point located 80 km away from Amman, which is commonly used by the visitors to Syria. Ramtha is located about 90 km from Amman, which is mainly used by commercial trucks. As the Syrian situation has not been normal since the civil war, it seems that these crossing points also face the problems on security such as many of refugee inflow, weapons smuggling, and illegal settlements.

Iraqi Border

The land border crossings between Jordan and Iraq is Al-Karama located about 360 km away from Amman. This is the only corridor connecting between Amman and Iraq. Upon the terms of suicide bomb terrorists, illegal inflow of weapons/explosion through the Al-Karama border from Iraq, the border is important on national security for Jordan. To improve such a situation, Japanese Government supported by grant aid program to enhance border security, “The Project for the Enhancement of Border Security at Al-Karama Border Crossing in Jordan” by improving its old facilities and insufficient equipment, including provision of X-ray inspection devices.

Saudi Arabian Border

Jordan has three border crossings on land with Saudi Arabia: Omari, Al-Mudawara, and Durra. Omari is at about 160 km west of Amman, while Al-Mudawara is located about 322 km away from Amman in the south of Jordan. The route to Al-Mudawra crossing passes through Ma'an, one of Jordan's major cities. Durra border crossing is at about 350 km south of Amman and at about 30 km from Aqaba. The Durra border crossing terminal is managed by the Aqaba Special Economic Zone Authority (ASEZA) and become logistics base from/to Saudi Arabia.

Israeli and Palestinian Border

Currently, Jordan uses three border crossings on land with Israel and Palestine, i.e. SHB, KHB, and Wadi Araba Border Crossing. The SHB is a border crossing with Israel located in the north of the Jordan Valley at about 90 km from Amman. The KHB is at about 57 km from Amman in the south of the Jordan Valley, and mainly used as cross border for Palestinian and foreigners except Israeli people. Wadi Araba is located in the south of Jordan at about 320 km from Amman, connecting Aqaba, Jordan, and Eilat, Israel.

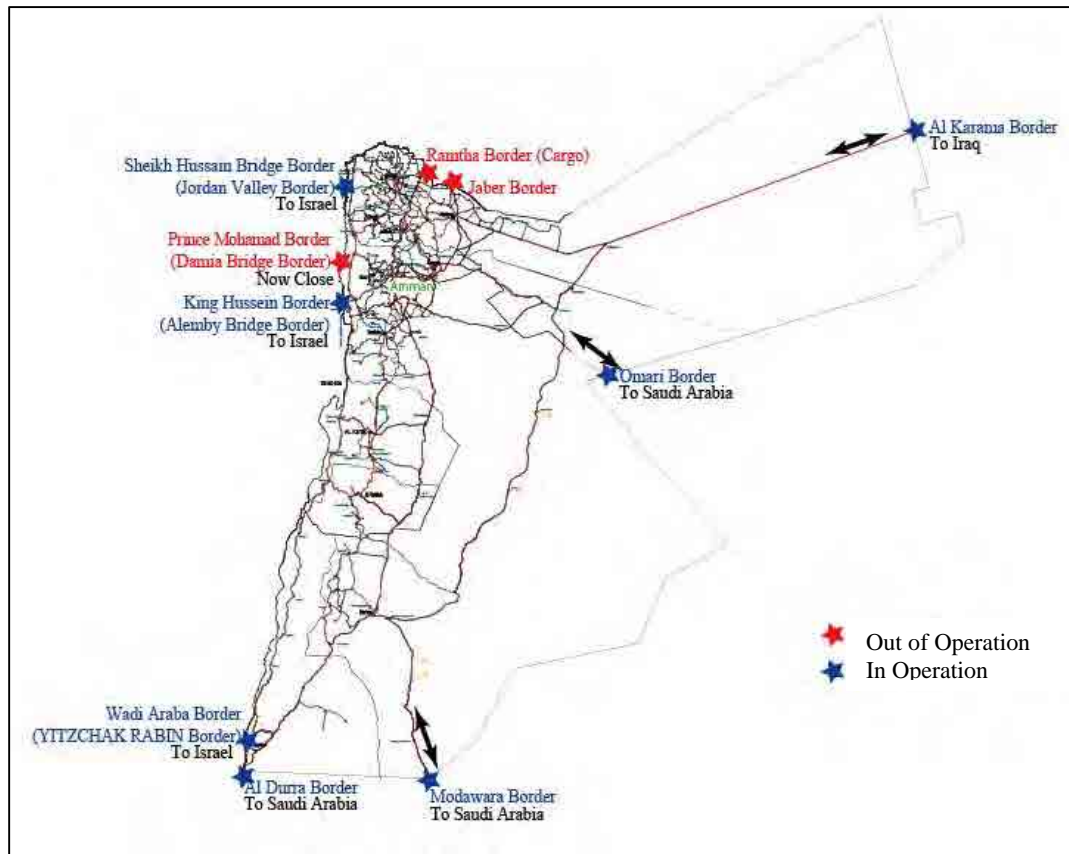


Figure 4.1-1 Location of the Land Border in Jordan

4.2 Border Crossing inside Jordan Valley

As stated in previous section, Jordan has two (2) land crossing borders in Jordan Valley, i.e. SHB and KHB. Only the SHB is, however, acknowledged as an official border crossing, and it regards the KHB as border operated for Palestinians from/to visit Jordan.

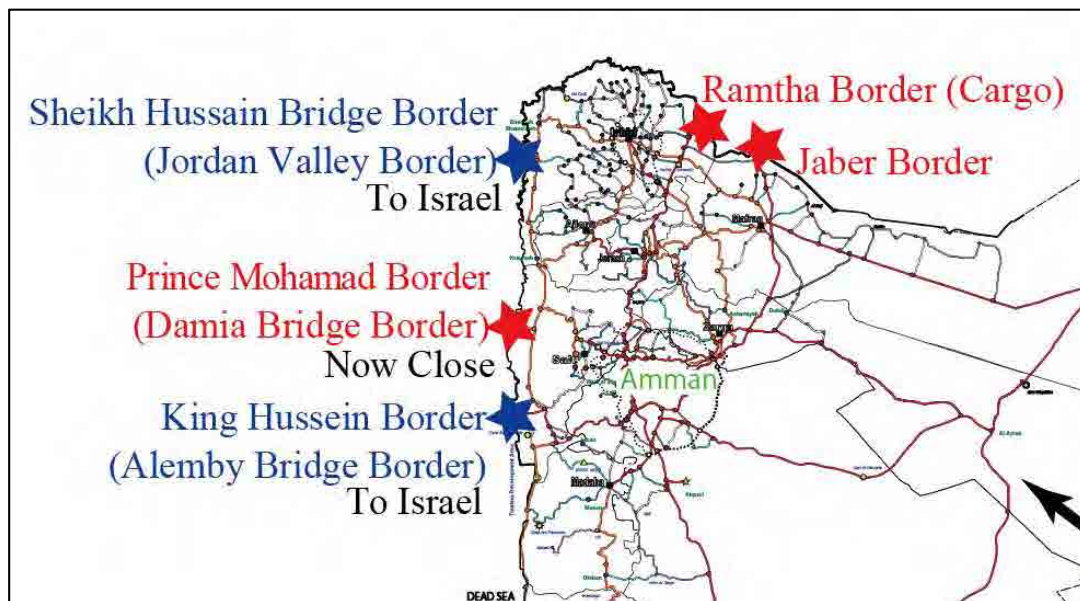


Figure 4.2-1 Location of the land border in Jordan Valley

4.2.1 King Hussein Bridge

(1) Outline of the facilities

It is the only border crossing between Jordan and the West Bank. After the conclusion of Israeli-Jordanian Peace Treaty, the lack of capacity of the old bridge under increased traffic volume became a serious issue. To solve the problem, a new bridge was built as part of Japanese ODA. That was the KHB currently used. The four-lane, PC-covered cable-stayed bridge was completed on March 22, 2001 involving about 8 km of access roads.

Called the Allenby Bridge by Israel and the King Hussein Bridge (KHB) by Jordan (in this study KHB is commonly used), this crossing is opened mainly for Palestinian tourists. Forbidden to Israeli by Israeli authority, the bridge is mainly used to pass foreign tourists, Palestinians, and commercial freight from/to Palestine.

Major services offered by the crossing are those related to customs clearance, immigration, and quarantine. The crossing is open from 8:00 a.m. to 8:00 p.m. in the following day for different service hours for tourists and commercial freight. The service hours may be changed on Israeli and Jordanian holidays, as announced 7 to 0 days in advance through media, etc. by the Public Security Department (PSD) for the Jordanian side.

As KHB is the only overland channel from Jordan to the Palestine at present, demand is high for the use of this crossing from tourists and freight and the construction of new terminals is being planned on Israeli and Jordanian side.

Table 4.2-1 Service hours at KHB

Das of week	Tourists	Commercial freight
Week days (Sunday to Thursday)	8:00 a.m.-6:00 p.m. (Arrival) 8:00 a.m.-2:00 p.m. (Departure)	7:30 a.m.-8:00 p.m. (Arrival)
Holiday (Friday and Saturday)	8:00 a.m.-1:00 p.m.	Closed

The administrative demarcation and coordination at border crossing in KHB are as shown in Table below:

Table 4.2-2 Services and Agencies in charge at the KHB (Jordan Side)

Service	Ministry/Agency in Charge
Facility Management	Public Security Directorate, Ministry of Interior; Ministry of Public Works and Housing
Custom Clearance	Customs under the Ministry of Finance
Immigration Check and Inspection	Public Security Directorate, Ministry of Interior; General Intelligence Directorate
Quarantine	Ministry of Agriculture

Source: Summary by Study Team

(2) Passenger Terminal and Cargo Truck Terminal

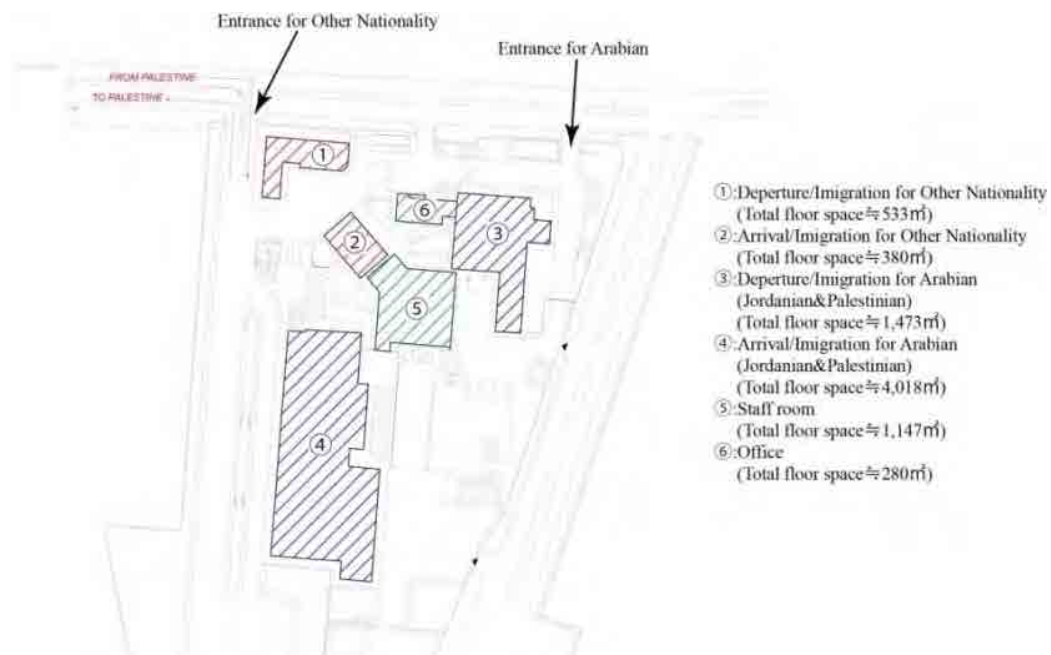
Currently, the border crossing facilities for Passengers are comprised of an administration office and passenger arrival and departure facilities. The total area of the passenger facilities

is about 49,700 m². They are made up of an immigration facility for Palestinians, an immigration facility for foreigners, and a facility for border crossing.

The cargo truck terminal is comprised of a visual inspection hall (iron scrap), a visual inspection hall (non-iron scrap), a quarantine (agricultural products), and an office. The total area of the cargo terminal is about 20,400 m². The size of the facility, just enough to handle 30 – 40 or so large trucks at once, is too small for current traffic volume and cause of delay on cargo transportation. Since Jordan and Israel both prohibit the passage of trucks through the crossing, all goods are unloaded and loaded again on the Palestinian side (Back-to-Back System). The Jordanian cargo terminal handles only customs clearance procedure and has no yard for loading and unloading goods.



Figure 4.2-2 Location Map of Passenger / Truck Terminal at KHB



Source: Ministry of Public Works and Housing, Jordan

Figure 4.2-3 Scale of the Passenger Terminal in KHB



Figure 4.2-4 Scale of the Truck Terminal in KHB

(3) Customs and Quarantine

The customs services are jointly handled by the Jordanian Customs and the Public Security Directorate, Ministry of Interior. These customs procedures are very inefficient, taking much time and money for check and inspection. The results of interviews show that they take one to one and half hours on average and up to three hours at the longest.

The quarantine services also available at the terminal, however, since it has no full scaled quarantine facilities (labs, washing station, office, etc.) there, sampled pieces are temporarily stored in a small size fridge and then sent to labs in Amman for quarantine inspections. The method for quarantine is random sampling and takes five to ten minutes for checking documents and goods. Goods once quarantined may continue their travel without being kept at the crossing, but an agreement is signed that they not be put on the market until the result of quarantine is released. This system, which significantly differs from the practice of standard border crossings and risks missing right samples and goods being put on the market before approval is given, should be improved without delay.



Figure 4.2-5 Quarantine Inspection at KHB

4.2.2 Sheikh Hussein Bridge

(1) Outline of the facilities

The SHB is a border crossing located in the north of the Jordan Valley at 90 km from Amman and near Lake Tiberias (Sea of Galilee). Usually it is open 24 hours. The SHB is an official border crossing between Jordan and Israel. As to the role demarcation and coordination between agencies in border control, the facilities are controlled by the Public Security Directorate, Ministry of Interior. The agencies in charge of customs, immigration, and quarantine services are as shown in below.

Table 4.2-3: Services and Agencies in charge at the SHG

Service	Ministry/Agency in Charge
Facility Management	Public Security Directorate, Ministry of Interior
Custom Clearance	Customs under the Ministry of Finance
Immigration Check and Inspection	Public Security Directorate, Ministry of Interior; General Intelligence Directorate
Quarantine	Ministry of Agriculture

Source: Summary by Study Team

As at the KHB, the customs services are jointly handled by the Jordanian Customs and the Public Security Directorate, Ministry of Interior. Goods are checked with mobile scanners. The terminal offers also a quarantine service, but, in the absence of quarantine facilities (labs, washing station, office) there, sampled taken are sent by post the same day to labs in Amman. Goods once quarantined may continue their travel without being kept at the crossing.



Figure 4.2-6 Inspection work with Mobile Scanner in SHB

(2) Passenger Terminal and Cargo Truck Terminal

The total area of the tourist and freight facilities is about 500,000 m², more than seven times larger than that of the KHB (70,100 m²). The current facilities are comprised of a passenger terminal and a cargo terminal as other standard border crossings. Differently from the KHB, the passenger terminal is not divided by user's nationality. The crossing allows also the passage of private vehicles and has vehicle check sheds.

The cargo terminal of an area of about 72,000 m² is comprised of truck parking lots, cargo sheds, and an office. A truck terminal is already in place so that it can handle arriving and departing trucks through different gates in the future, but has not been put into use yet considering small traffic volume and inspection system not ready yet.



Figure 4.2-7 Layouts of Passengers and Cargos Terminal of SHB

(3) Customs and Quarantine

The customs services are jointly handled by the Jordanian Customs and the Public Security Directorate, Ministry of Interior. In inspection, certain goods are X-rayed with mobile scanners.

The terminal offers also a quarantine service, but, in the absence of quarantine facilities (labs, washing station, office) and stations to store test pieces, sampled taken are immediately sent to labs in Amman for inspection. An inspection takes one week to ten days to give the results. Goods once quarantined may continue their travel without being kept at the SHB, however, just as at the KHB, an agreement is signed between Jordanian government and the shippers/transportation companies that the goods not be put on the market until the results of quarantine are released.

4.3 Present Conditions of Road Infrastructure

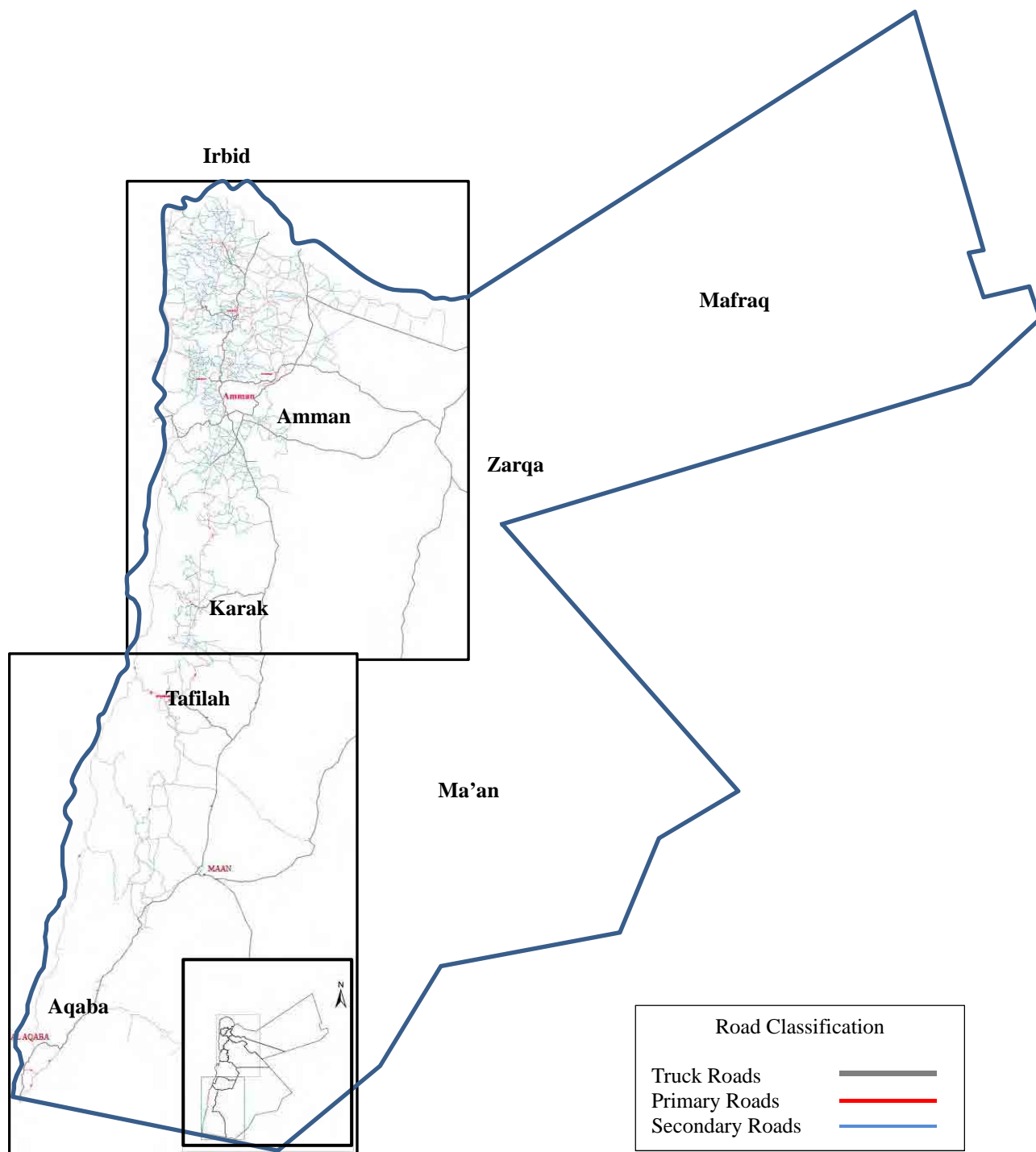
4.3.1 Road Infrastructure in Jordan

The total length of the road network in Jordan is about 7,234 km. Most of the land transport is accomplished by road vehicles. Railways are partly used, but are limited to the transport of rock phosphate and tourists. The transport of passengers and goods is also dominated by road. The total length of the trunk roads is 2,878 km, the primary roads 1,749 km, and the secondary roads 2,607 km.

4.3.2 Road Network in Jordan

With the efforts so far made to expand and improve the road infrastructure, the road network in Jordan has developed throughout the country. The development covers not only inter-regional highways and urban roads, but also of local and community. Considering the size of its economy, Jordan seems to have already built an adequate infrastructure. The road network is comprised of trunk roads, primary roads, secondary roads, and other roads. Major cities are all connected with trunk roads. Of these trunk roads, the most important is Highway No. 15 (Commonly known as “Desert Highway”) that trans-crosses the country. This is the only section connecting Ramtha, a northern city bordering on Syria, Amman, the capital, Ma’an, the largest city in the south, and Aqaba. Another important road that connects north-south through Jordan is Highway No. 65. The highway, which runs downs the Jordan Valley from the city of North Shuna in Jordan’s northern tip to the southern port city of Aqaba, is another main stem connecting with all of the country’s border crossings with Israel and the West Bank. Further, in addition to connecting the north and the south of the country and with Israel and the West Bank, Highway No. 65 runs through the great farm belt of the Jordan Valley and thus constitutes Jordan’s lifeline for the distribution of agricultural products. Not only as a community road for people living along it, Highway No. 65 also plays the role of an important socioeconomic infrastructure vital to distributing agricultural products across the country and promoting international trade.

Further, major trunk roads ensuring the east-west distribution of goods include Highway No. 10 that connects Jerash, a major city in northern Jordan, and Al-Karama, the border crossing with Iraq, and Highway No. 40 that connects Amman and Al-Azraq. The role of these east-west highways is to offer access to Highway No. 5 that runs through the desert areas in eastern Jordan. Connecting the Iraqi border and Saudi Arabian border, Highway No. 5 is one of the country’s trunk roads playing important, if not vital, roles in freight transport.

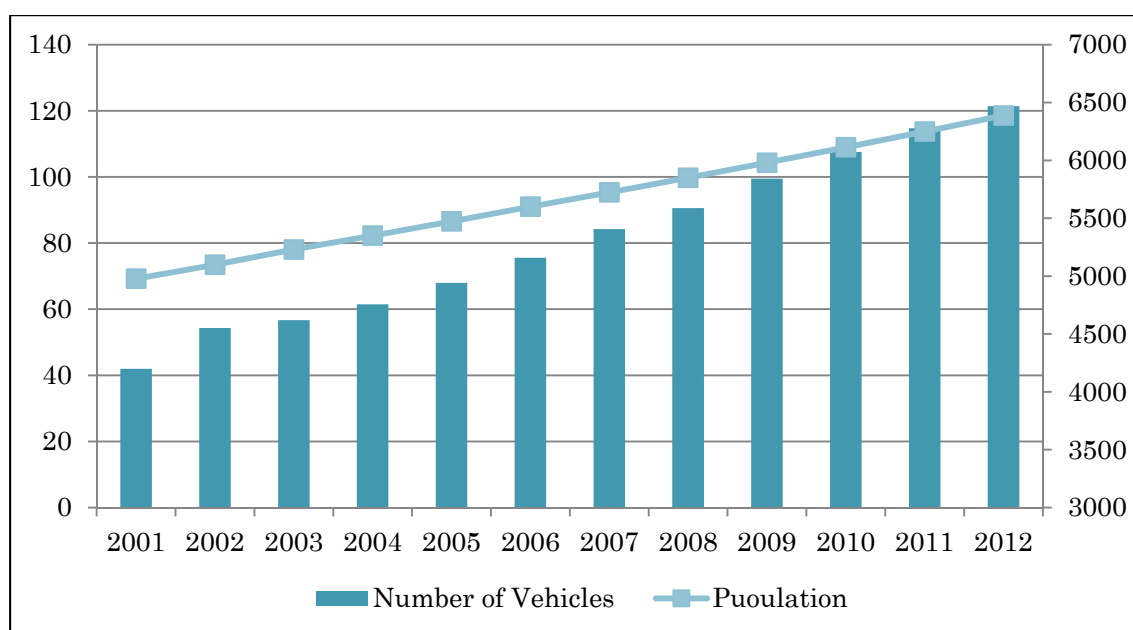


Source: Ministry of Public Works and Housing, Jordan

Figure 4.3-1 Road Network of Jordan

4.3.3 Traffic Conditions in Jordan

The growing rate of registered vehicle in Jordan has been increased more than figure of population increasing as shown in below Table. The number of registered vehicle of 2001 in Jordan was around 420 thousand and increased to around 1,200 thousand in 2012 which is almost triple scale while recent 10 years. The reason is the increasing of urban population, steady economic growing, and reduction of customs duties for cars and so on.



Source: Statistical Yearbook 2012, Department of Statistics, Jordan

Figure 4.3-2 Trend in Population and Registered Vehicles

5. RELEVANT MASTER PLAN AND DONORS' SUPPORT PROJECT

5.1 Relevant Master Plan

5.1.1 National Development Master Plan of Jordan (2006 – 2015)

The National Development Master Plan has been established as undertakings at a historic turning point for Jordan to renew herself by dealing with the problems facing the country. The goal of this plan is to improve the quality of life of the people through 1) achievement of the real economic growth rate of 7.2% per year, 2) reduction of the debt ratio from 91% to 36%, and 3) reduction of the unemployment rate of the working population from 12.5% to 6.8%.

5.1.2 Jordan Highway Master Plan (JHMP)

The Government of Jordan is implementing the JHMP through the Ministry of Public Works and Housings. This plan is divided into three phases as shown below:

Phase 1: Road inventory and condition survey, checking the road classification, survey of existing pavement condition, traffic survey, existing OD survey, GIS, database, etc.

Phase 2: Future traffic demand, investment plan, environmental evaluation, proposal of correction of management, evaluation of basic plan

Phase 3: Technology transfer to the staff of the Ministry of Public Works and Housing

5.2 Logistics Improvement Plan in Jordan Valley by Other Donors

5.2.1 King Hussein Bridge Upgrading Project (Jordan Side)

(1) Outline

Currently a border facility upgrading project for KHB has been carried out by the Quartet. The Quartet, an organization formulated in 2002 by UN, EU, USA, and Russia, aims to help the Palestine become an independent through the mediate and support the peace in Middle East. The task of the Quartet in this project is to improve the efficiency of and ensure the smooth crossing of traffic and transport in the region through the upgrading of the KHB and thereby help the stable economic growth of Palestine.

The objectives of the project are twofold, i.e. (1) Containerization of border crossing facilities and (2) Improvement of the Back-to-Back System (switch to the Door-to-Door System). Started in 2010, the project schedules the Netherlands' delivery of scanners to the PNA in 2012. Four parties, comprised of the Quartet, Jordan, PNA, and Israel, have already agreed upon the containerization of the border facilities for logistics improvement. The installation of scanners is aimed at upgrading the inspection system to meet containerization. For its part, Israel, after the decision for installation of scanners, has set aside a budget of 300,000 NIS (about 870,000,000 yen) for the upgrade of border crossing facilities. The upgrading project is under way to start the work in the near future (refer to the next section).

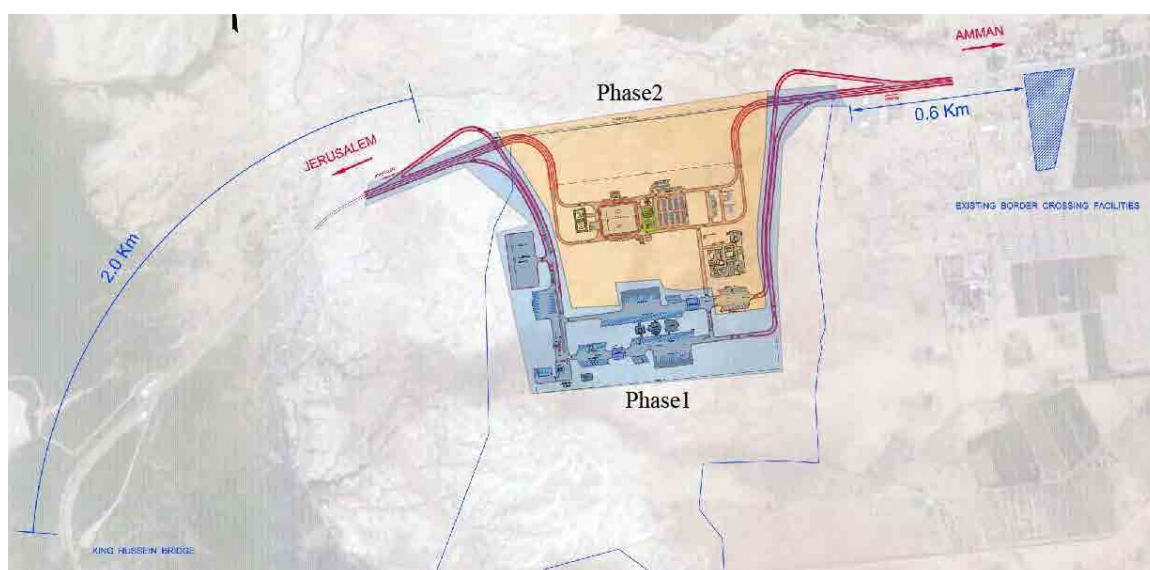
As to the upgrading project on the Jordanian side, the country plans to newly build a passenger terminal and a cargo terminal at a location 600 m away from the current cargo

terminal to meet future containerization. The contents of upgrading project proposed by the Quartet are as follows:

- ✓ Building new facilities while fulfilling the current border crossing functions.
- ✓ Upgrade all functions of the cargo terminal and the passenger terminal
- ✓ Install two X-ray scanners (detailed specification of the scanners to be determined later)
- ✓ Consideration two systems: Door-to-Door and Back-to-Back System. Which to be introduced will be determined through consultation between the Israel government and the Jordanian government.
- ✓ The construction will be phased in two steps, Phase 1 and Phase 2, to achieve a seamless transition of border crossing functions.
- ✓ Phase1: Construction of inspection facilities meeting containerization of cargo terminal (space and access roads, scanner building, and inspection equipment)
- ✓ Phase2: Construction of passenger terminal and other cargo terminal (all passenger facilities and office for cargo terminal, CIQ (Custom, Immigration, and Quarantine))
- ✓ Cost: 35 million JD (about 5 billion yen, calculate based on the concept paper)
- ✓ Construction schedule (See table below). Proposed schedule as of now is as follows.

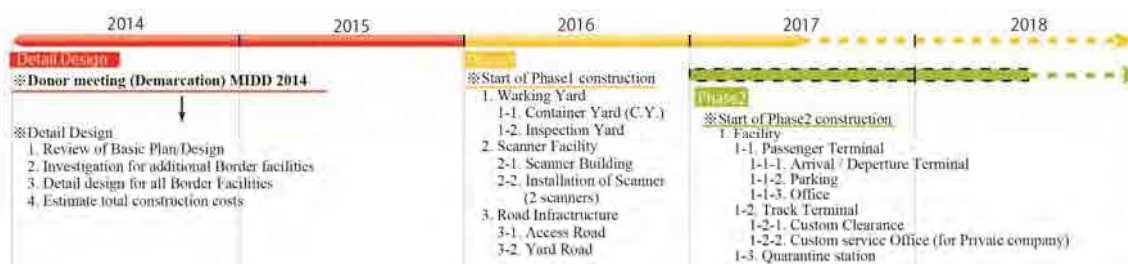
Phase1: Starting civil works in 2016 and completion in middle of 2017

Phase2: Starting civil works in 2017



Source: KHB Border Crossing General Master Plan Drawings, Ministry of Public Works and Housing

Figure 5.2-1 Layout Drawing of KHB Border Crossing (Jordan Side)



Source: Summary by Study Team

Figure 5.2-2 Planned Scheduled for new KHB Border Crossing

(2) Problems

There are two options of cargo terminal for transshipment policy, i.e. same policy as existing system (Back-to-Back in Israel) or additional Back-to-Back in Jordan side as well. Since Israel has already placed its orders based on the existing Back-to-Back system, Jordan will have to base its system on the same system. However, delay in adjustment among the Quartet, Israel government, and the Jordanian government is preventing engineers from starting working even on detailed design. For this reason, the start of Phase 1 is very likely to be postponed, making the project fall behind the initial schedule.

Besides transshipment policy, although the outline of the new facilities is roughly agreed upon, nothing is planned as to the facilities and equipment for quarantine and container stock yard, which makes the facilities as currently planned insufficient as a full scaled border crossing.

The outlook of funding is also supposed to be discussed at donors meetings, but still remains a blank slate.

5.2.2 King Hussein Bridge Upgrading Project (Israel Side)

Israel has already started working on the upgrading of the border facilities to meet the requirement for containerization policy and increase of future cargo volume. The detailed design has already finished and civil work will start soon. The plan is to upgrade groups of facilities in phases on the existing premises without bothering border crossing operations. Specific work items are as follows:

- ✓ Construction a new scanner building
- ✓ Expand the existing liquid yard
- ✓ Expand the existing imported (new) car yard
- ✓ Building a new cement yard
- ✓ Building a new rock (marble) yard
- ✓ Building a container yard
- ✓ Building a new truck parking lot
- ✓ Construction schedule: Starting 2016 to middle of 2017



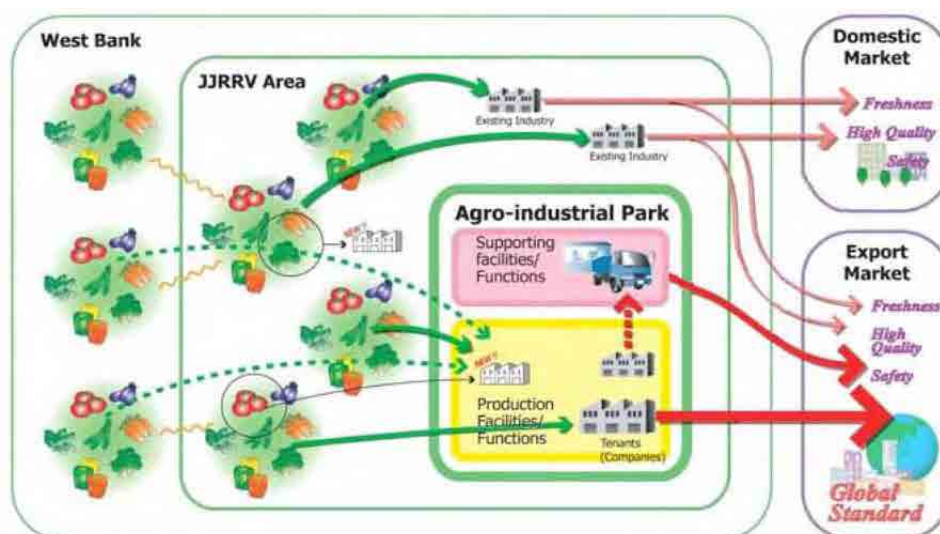
Figure 5.2-3 Layout Drawing of KHB Border Crossing (Israel Side)

5.2.3 Jericho Agro Industrial Park (JAIP)

(1) Concept of Development

The objective of development of JAIP is to position JAIP as an economic growing post for Palestine through the improvement of agricultural production in the Jordan Valley, promotion of agri-business, and strengthening of the competitiveness of export industries of Palestine. The JAIP project is one of the case studies for the Concept of “Corridor for Peace and Prosperity” and is currently pushed forward under agreement in the four-party meeting of Palestine, Israel, Jordan, and Japan.

The basic concept is to collect agricultural products from the areas around Jericho of Palestine, to make products at JAIP, and to export them widely to Jordan and Gulf area.

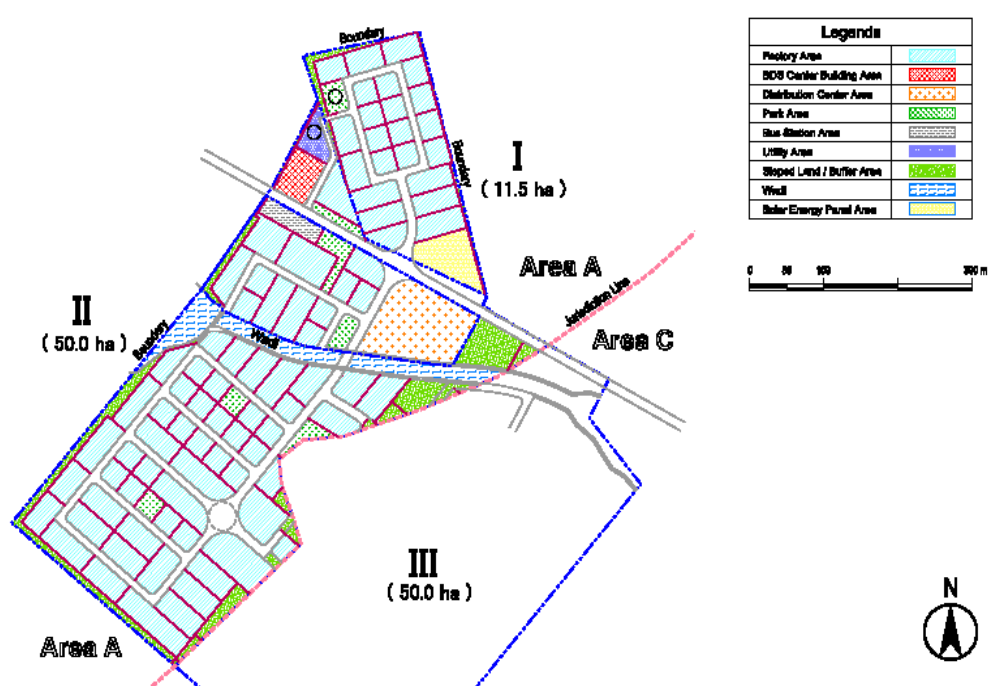


Source: F/S on Agro-Industrial Park Development in the Jordan River Rift Valley, JICA

Figure 5.2-4 JAIP Development Concept

(2) Outline of the facilities

The construction site is located in the southern part of Jericho and consists of three areas; Phases I (11.5 ha) and II (50 ha) that belong to Area A and Phase III (50 ha) that belongs to Area C. Development is conducted stepwise. At present, development of relatively small scale in Phase I started since commencement in 2009 includes recruitment of tenant companies performed in line with preparation for plant operation by several tenants. It is said that transfer to the next phase is scheduled after successful land acquisition by PNA in the future. For the integrated development of Phases I and II, the prerequisites are to ensure sufficient investment demand to these phases and land acquisition by the PNA. The figure below shows the land use related to stepwise development plan and integrated Phases I and II development.



Source: Internal Manual for Jericho Agro-Industrial Park, PIEFZA

Figure 5.2-5 Land use Plan inside JAIP

(3) Development History

Table 5.2-1 Project Schedule up to now

Off-Site Infrastructure	Effective	Remarks
● Approach Road to Jericho City Center	October, 2010	Completed
● Water Connection Pipes to Jericho Municipality System	February, 2013	For Stage I : completed
● Water Supply System	February, 2013	
● Waste Water Treatment Plant	March, 2014	Completed, Stage I
● PV(Photovoltaic) Power Generation	September, 2012	Completed, 300KW
● Solid Waste Management (expansion)	n.a	
● Electricity Transmission Line & Substation	September, 2012	
● Access Road to Toad #90	n.a	

On-Site Infrastructure		
● Land Reclamation	June, 2011	Completed
● Retaining Walls for PV Site	July, 2012	Completed
● Elevated Water Tank		500m ³ Completed
● Administration Building with facilities	January, 2013	Completed

Source: Internal Manual for Jericho Agro-Industrial Park, PIEFZA

(4) Forecast of the Generated Cargo Volume

For stepwise development of JAIP, the working population and the generated cargo volume in each stage are predicted in the previous study. The values shown below are estimated for each of working population and the generated cargo volume.

Table 5.2-2 Number of Working Population in JAIP

Facilities	Phase I	Phase II	Sub-total	Phase III	Total
Hangar	480	1,890	2,370	2,890	5,260
Distribution Center	130	500	630	770	1,400
Office	80	100	180	100	280
BDS Center	10	20	30	0	30
Others	10	10	20	10	30
Total	710	2,520	3,230	3,770	7,000

Source: Feasibility Study on Agro-Industrial Park Development in the Jordan River Rift Valley

Table 5.2-3 Forecast of the Cargo Volume Generated from JAIP

	Phase 1	Phase 2	Sub Total	Phase 3	Total
Yearly Cargo Volume	38,000	152,000	190,000	231,000	421,000
Dairy Cargo Volume	125	502	627	762	1,389
Number of Trucks	5t	5	21	26	58
	10t	7	25	32	71
	20t	11	45	56	124
	Sub Total	23	91	114	253

Source: Feasibility Study on Agro-industrial Park Development in the Jordan River Rift Valley

5.2.4 Master Plan of Dry Ports/Logistics Facilities (Jordan Side)

(1) Outline

The Ministry of Transport, Jordan, has conducted the study on the Dry Ports/Logistics Facilities Plan, which is intended for overall development of the reloading and inspection facilities (dry ports), the logistics center with distribution and processing, storage, and distribution functions, the industry zone including hangers and offices. Three areas were selected as shortlist which has high cargo demand potential. The final report was completed in May, 2013. The comparative survey with multi criteria analysis in terms of cargo demand and others was done on above each of three areas (Amman, Mafraq, Aqaba). In consequence, it was concluded desirable to proceed with development of Dry Ports/Logistics Centers in two

areas excluding Aqaba.

(2) Scale Plan

For development of the above centers in Amman and Mafrq, the details as estimated on the basis of survey results of cargo demand to be handled are summarized in the table below.

Table 5.2.4 Dry Ports/Logistics Facilities Plan

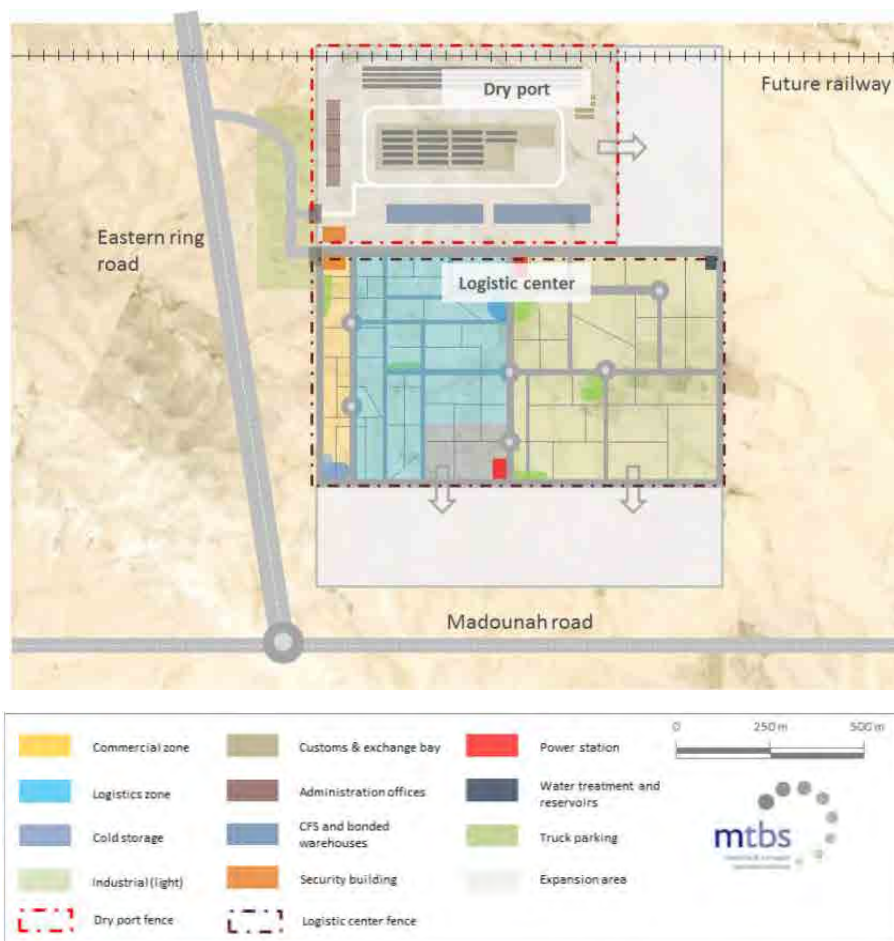
	Amman	Mafrq KHBT
Dry port area demand	80 ha	50 ha
Dry port area for consumer/industrial goods	80 ha	50 ha
Logistic center area demand	44 ha	120 ha
Logistic center area for consumer goods	44 ha	20 ha
Logistic center area for industrial goods	0 ha	100 ha
Industrial area and commercial demand	66 ha	356 ha
Industrial area development	60 ha	350 ha
Commercial activities	6 ha	6 ha
Total area demand		
Total area demand	190 ha	526 ha

Source: Final Report of Study for Dry Ports / Logistics Center in Jordan, Ministry of Transport

(3) Layout Plan

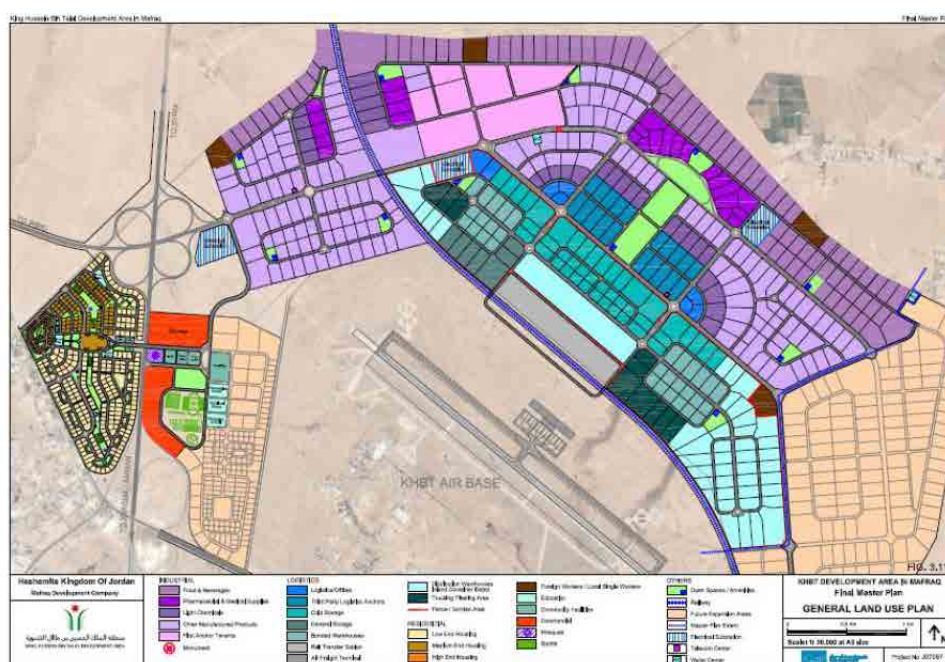
The Dry Ports/Logistics Center in Amman is planned to be developed in the Madounah section, specifically around the point where the Eastern Ring Road intersects with the Madounah road. The proposed location is area where the railway development is scheduled in the future, and the Dry Ports/Logistics Center is planned to have the cargo station in parallel. For Mafrq, this Center is to be developed by allocating a partial area of the regional development Master Plan (KHBT: King Hussein Bin Talal) which is pushed forward by the Jordan Investment Board.

The facilities layout of each plan is outlined as follows.



Source: Final Report of Study for Dry Ports / Logistics Center in Jordan, Ministry of Transport

Figure 5.2-6 Dry Ports/Logistics Center Plan (Amman)



Source: Final Report of Study for Dry Ports / Logistics Center in Jordan, Ministry of Transport

Figure 5.2-7 Dry Ports/Logistics Center Plan (Mafraq)

(4) Implementation Plan and Cost Estimation

The concept of the development in Amman and Mafrq is to proceed with the activities in phases from 2015 to 2035. The rough total cost estimation is 114 million EUR for Amman and 83 million EURO for Mafrq.

Table 5.2-5 Preliminary Cost Estimation

【Amman】 unit: million Euro

Target	Phase 1 (2015 - 2020)	Phase 2 (2020 - 2025)	Phase 3 (2025 - 2030)	Phase 4 (2030 - 2035)	Total (2015-2035)
General Infrastructure	10,700	-	-	-	10,700
Dry ports	20,693	14,358	34,967	22,081	92,100
Logistics Center	4,505	2,132	2,132	2,132	10,900
Total	35,898	16,490	37,099	24,213	113,700

【Mafrq】 unit: million Euro

Target	Phase 1 (2015 - 2020)	Phase 2 (2020 - 2025)	Phase 3 (2025 - 2030)	Phase 4 (2030 - 2035)	Total (2015-2035)
General Infrastructure	10,700	-	-	-	10,700
Dry ports	13,301	9,816	24,849	12,134	60,100
Logistics Center	5,050	2,550	2,250	2,250	11,800
Total	29,051	12,066	27,099	14,384	82,600

Source: Final Report of Study for Dry Ports / Logistics Center in Jordan, including the land acquisition cost

5.2.5 Distribution Center for Agricultural Products (Jordan Side)

The Ministry of Agriculture (MoA) requested JICA to provide technology assistance concerning the agricultural products distribution center for the purpose of improvement of agricultural products transport and their quality improvement in the Jordan Valley. Subsequently, however, the minister who took up a post newly presented a proposal based on different concept. The study this time summarized such development concept as follows.

In consequence, the study team and JICA determined that the concept of the present Ministry for the agricultural products distribution center had deviated greatly from the original one of improving the logistics of the Jordan Valley as a whole and of contributing to development of the region.

Table 5.2-6 Transition of Concept of Developing the Agricultural Products Distribution Center

Item	Original Concept	Present Concept
Background	Vegetables and fruits produced in the Jordan Valley have been traditionally directed to the domestic market or exported to other Arabian markets, but their market appraisal has been low because only a few of them are at the quality level for export. The products are facing the increasing competitiveness in the domestic market and in the export market in line with the international free trade agreement and the Greater Arab free trade agreement.	As regards the agricultural industry on the southern bank of the Dead Sea, the farmers earnings are extremely low because of geographical remoteness from large consuming regions, such as Amman. Therefore, the farmers are unavoidably living on or below the poverty level.
Objectives	In order to secure the high quality and price competitiveness of products as the Jordan brand, the technology of handling harvested products, which exerts substantial effects on the products, will be enhanced to achieve quality improvement. The efficiency will be further enhanced, with strengthened price competitiveness through development of the terminal for distribution of JAIP products and those toward domestic market,	The agricultural products distribution center is hard to develop and possess by any private personnel. Public development of such distribution center, namely, development of the facilities that poor farmers can manage jointly, will help establishing the efficient agricultural products distribution system.
Outline of facilities	<ul style="list-style-type: none"> • Hard components Facilities to preserve the freshness and quality of harvested agricultural products <ul style="list-style-type: none"> • Pre cooling system of a vacuum type, etc. • Grading machine, specific gravity/wind force/grain size, etc. • Packaging machine/line • Labeling machine • Refrigerating storage machine, ice storage system, etc. • Laboratory Distribution facilities/machines <ul style="list-style-type: none"> • Truck yard, refrigerator car Office <ul style="list-style-type: none"> • Marketing office • Carrier agent office <ul style="list-style-type: none"> • Soft components <ul style="list-style-type: none"> • Training of facilities handling personnel • Training of laboratory staffs • Training of marketing engineers • Preparation of various guidelines 	To be determined
Location	To be determined. The area in the neighborhood of KHB is ideal.	On the south side of the Dead Sea
Impact	Increase in the export for domestic and foreign markets through improvement of quality of shipping agricultural products and growth of earnings of producers and exporters	Increase in earnings of poor farmers
Cost	1.5 million JD (2.1 million US\$)	To be determined
Implementation	Facilities possessed by : MoA Facilities operated by : Joint public-private venture of the Government, local authorities, and private sector	Facilities possessed by : MoA or agricultural union Facilities operated by : agricultural union

Source: Concept paper prepared by Ministry of Agriculture and hearing result

5.2.6 Logistics Center Concept (Palestine Side)

The concept summarizes the results of several deliberations among authorities concerned from Palestine and Israel up to 2010, which consists of developing the logistics distribution center at five points on the West Bank of Palestine: 1) Jericho, 2) Rafah, 3) Tarqumiya, 4) Rantis, and 5) Jameelat. Detailed functions and locations of these centers are not yet determined. The Palestinian authorities concerned request that the centers are to ensure seamless utilization in connection with Israeli ports or to develop five centers as dry ports in which customs clearance and other export/import related operations can be controlled to certain degree. For specific locations of five centers, Israel proposes development in Area C and is intended to retain the authority over these centers. On the other hand, Palestine requests the development in area A in which Palestine could control.

5.2.7 North-South Shuna Road Improvement Project in Jordan Valley (Jordan Side)

(1) Road Section

The North-South Shuna Road improvement project covers the northern portion of the National Highway No. 65 running right across the Jordan Valley. This is the project covering the length of about 100 km starting at the intersection in North Shuna city, running southward through Deir Alla and South Shuna, and terminating at the intersection with the trunk road No. 40 (Dead Sea Highway). The traffic on the section has high ratio of trucks and buses and these vehicles are running at high speed in urban areas on the way to present many problems in terms of traffic safety. In urban areas, parking on the road is observed in many locations, causing congestions. Based on recognition of these problems, the scope of project is to improve the existing two-lane road into the four-lane road with median.

This project is positioned as the national development plan, and has completed already development of about 25 km. The Ministry of Public Works and Housing of Jordan is still studying a part (about 49 km) of the remaining section. For another remaining section (about 26 km), JICA conducted the feasibility study from 2010 to 2011.

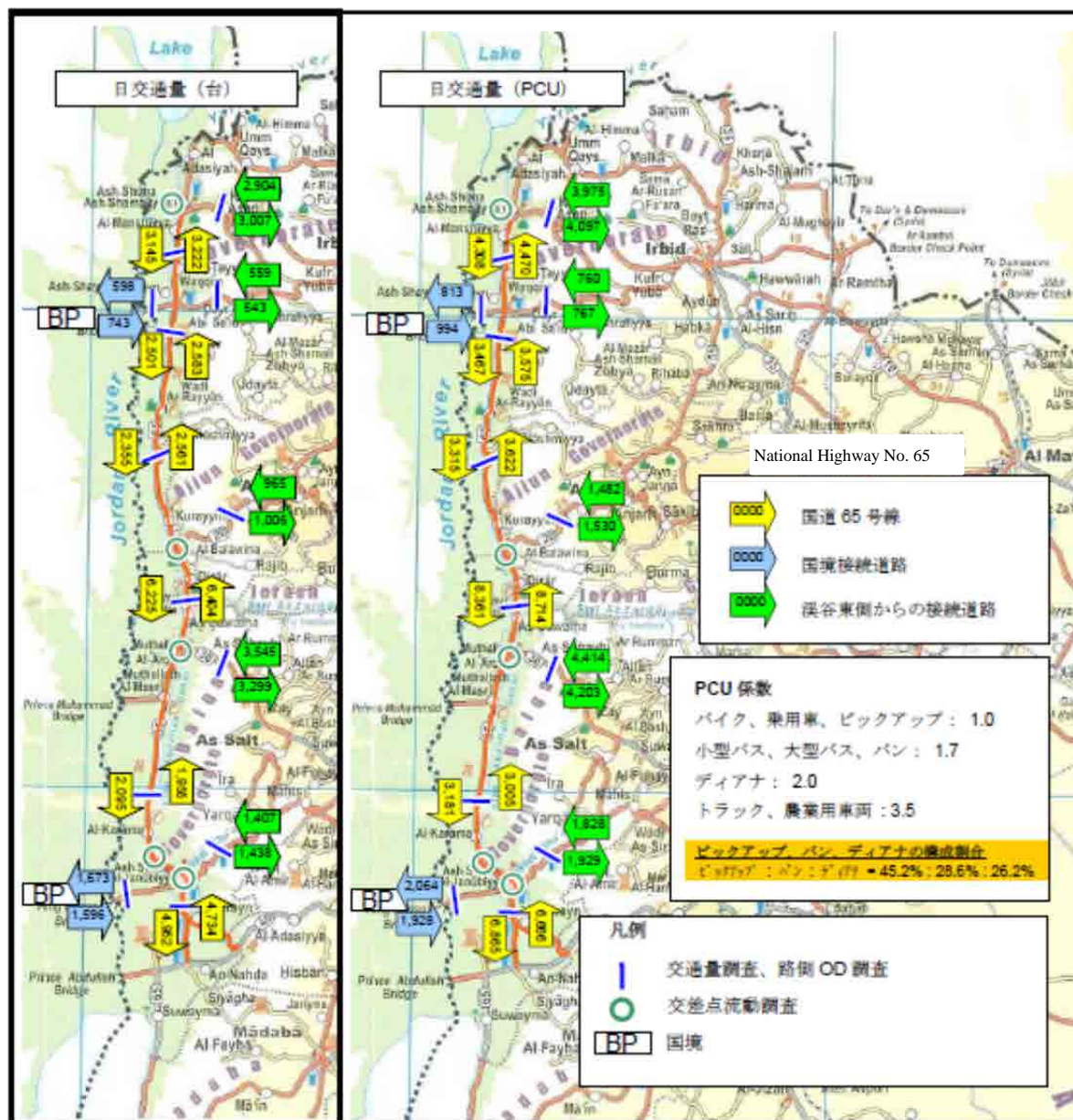
Table 5.2-7 State by section of the North -South Shuna Road

Section	Beginning	Ending	Length	Nus. of Lane	Status
1	North Shuna	Al Mansia	3.0	4	Completed
2	Al Mansia	Al Sheikh Hussein	10.2	2	Designed
3	Al Sheikh Hussein	Gematria	1.0	4	Completed
4	Gematria	North Tabaqat hahl	3.1	2	-
5	North Tabaqat Fahl	South Al Mashara	4.2	4	Completed
6	South Al Mashara	Abu Sid	16.1	2	-
7	Abu Sid	Al Arda	15.3	4	Completed
8	Al Arda	Al Kafrain	34.3	2	Designed
9	Al Kafrain	Al Rama-Al Jarad	4.8	2	Designed
10	Al Kafrain	Al Laudar	7.1	2	Designed

Source: Road Improvement Project in Jordan valley, JICA

(2) Traffic volume using the road

The traffic volume running on the North Shuna-South Shuna Road is higher than other sections at about 10,000 vehicles/day (about 13,400 PCU/day, see the figure below) around South Shuna near KHB, though varying depending on the section.



Source: Road Improvement Project in Jordan valley, JICA

Figure 5.2-8 Traffic volume along the North-South Shuna Road

(3) Present Condition

This project has not been approved as any grant project due to low feasibility in the result of JICA's study and so on. The rehabilitation of the road, therefore, has been implemented step by step on the Jordanian own budget. The Ministry of Public Works and Housing, especially, Jordan recognizes the necessity of rehabilitation for the section of about 10 km connecting the

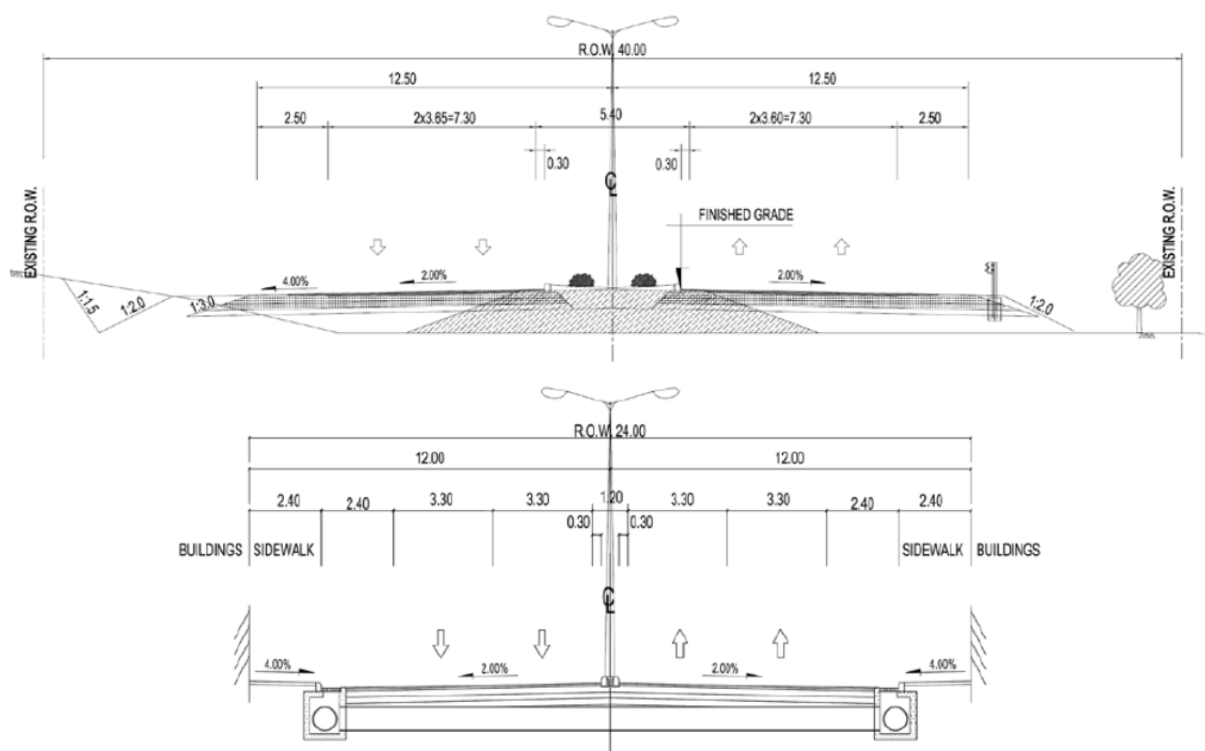
Dead Sea Highway No. 40 including Al Kafraïn up to KHB, in line with this KHB Upgrading Project, and has consigned undertaking of the detailed design to the local consultant.



Figure 5.2-9 Existing Road Condition

(4) Typical Cross Section

The figure below shows the typical cross section of the road. For the suburbs in general, four-lane road with median in the Right-of-Way (ROW = 40 m) is to be developed, In the urban area, the median component is reduced while securing ROW of 24 m.



Source: Survey on the road development plan in Jordan River Rift Valley, Jordan, by JICA

Figure 5.2-10 Typical Cross Section (upper : suburban area, lower : urban area)

5.2.8 Logistics Distribution Center Concept (Palestine Side)

In the Trade Corridors' Facilitation Project implemented by PALTRADA, etc. on the EU budget, it is proposed to reopen the Damya Bridge on the border currently closed. It is also proposed to develop the logistics distribution center on both sides (Jordan and Palestine) of this bridge. Though the Palestinian authorities concerned request strongly reopening of the Damya Bridge on the border. Such proposal may be based on expectation of expansion of the business opportunities of logistics business as well as economic growth. Simultaneously, it may be based on the consideration that Damya will offer redundancy in the present situation with the KHB point being the only one for crossing between Palestine and Jordan and that Damya is located at midpoint on the Jordan – Palestine border proving advantageous in terms of its potential of the position. At present, however, details are not established yet concerning the type of logistics distribution center to be developed and its location.

The Palestinian authority's concerned deals also with how the facilities should be, in addition to development of the new logistics distribution center, proposing the facility management based on the joint administration and operation by Palestine and Jordan.

Note however that, for the opening of border at Damya and how the facilities management should be, any change from the present situation should be extremely difficult considering the Israeli – Palestinian relationship at present. Jordanian authorities concerned often comments the difficulty of change of the existing system.

6. FRAMEWORK OF EXTERNAL TRADE AND LOGISTICS SYSTEM IN JORDAN VALLEY

There are now two commercial crossings for inter-regional logistics demands in Jordan Valley; the KHB between Jordan and Palestine and the SHB between Jordan and Israel.

Though there were two commercial crossings between Jordan and Palestine – the KHB (also referred to as “Karameh” or “Allenby” Bridge) and the Damya Bridge (also referred to as the “Prince Mohammed” or “Adam” Bridge), the Damya Bridge has been closed since 2002 because of the necessity of maintenance. Therefore, the KHB is the only one route for direct connection between Jordan and Palestine. The closure of the Damya Bridge has given the Palestine negative impact on economy and the lost potential income might be equivalent to 35 percent of the Palestinian GDP according to an article. The outlook for re-open of Damya bridge is not sure even though the Palestine has been requested to be resumed.

6.1 Customs Clearance Procedure at King Hussein Bridge

At the beginning, the necessary export and import processes, including present customs clearance and security inspection procedures, are overviewed.

This existing system might continue for near future in accordance with the opinion from the organization concerned.

6.1.1 Jordan Side

(1) Export Process

In case of export of Jordan origin products:

The following documents are required;

- ✓ Commercial invoice,
- ✓ Packing list,
- ✓ Certificate of origin, and
- ✓ Any other documents depending on the type of goods

Upon arrival of goods together with the shipping documents, the customs broker arranges the Customs Entry (Bayan). The customs ASYCUDA System automatically picks a line for the product:

- ✓ Red Line (must be physically inspected)
- ✓ Yellow Line (document authentication), and
- ✓ Green Line (immediate release of the goods)

In case of non-Jordanian goods (in transit):

The following documents are required;

- ✓ Commercial invoice,

- ✓ Packing list,
- ✓ Certificate of origin, and
- ✓ Any other documents depending on the type of goods

Upon arrival of goods, together with the shipping documents, the customs broker arranges the transit, the customs ASYCUDA System automatically picks a line for the product:

- ✓ Red Line (must be physically inspected)
- ✓ Yellow Line (document authentication), and
- ✓ Green Line (immediate release of the goods)

After inspection (if any), customs calculate the bank guarantee based on the commodities price, sticker is put on the truck, gate pass for the truck is issued, and finally the truck is released with/without escort by customs for certain products

In case of non-Jordanian goods from Aqaba Port (in transit)

● Customs process:

When containers arrive at Aqaba Container Terminal (ACT), it should be processed on custom clearance. Transfer the container to Aqaba Logistics Village for trans-loading, Load and/or repack the cargo into flatbed truck, and Transfer the truck to KHB

After across the bridge and enter into Palestine side;

- ✓ The custom broker prepares the Custom Entry and pays the customs duties and VAT to the Israeli Customs Authorities at least one day prior to the arrival of the goods.
- ✓ Arrival of both the Palestinian and Jordanian trucks at KHB.
- ✓ Jordanian truck enters a closed hanger for security scanning and customs inspection.
- ✓ Pallets loaded on to the Palestinian truck.
- ✓ Confirmation from Customs and the relevant Ministries, according to the type of goods, and
- ✓ Palestinian truck is released and leaves for the importer warehouse.

(2) Import Process

Import at KHB Truck Terminal

The following documents are required;

- ✓ Commercial invoice,
- ✓ Packing list,
- ✓ Certificate of origin, and
- ✓ Any other documents depending on the type of goods

● Customs Process:

- a) Upon arrival of goods together with the shipping documents, the customs broker arranges the Customs Entry (Bayan). The customs ASYCUDA System automatically picks a line for the product:

- Red Line (must be physically inspected)
- Yellow Line (document authentication), and
- Green Line (immediate release of the goods).

After the inspection and change to green line, finalize the other department issues (health, agriculture, etc.). In order to receive a gate pass, the customs broker pays the customs fee to the Jordan Customs on behalf of the importer, either in cash or by certified check. For certain products, the cargo will need approvals from other departments such as health and agriculture, and samples must be given to the responsible ministries for inspections. Then, the cargo will be released on the condition that it is not sold until the issuance of the final clearance from the required authorities.

In case of transit goods

Next procedure is required,

- ✓ Customs calculate the bank guarantee (depending on the value of the goods),
- ✓ Seal the truck,
- ✓ Issue gate pass for the truck,
- ✓ The truck is ready to leave KHB to the final transit gate in Jordan such as Queen Aria International Airport (QAIA), Aqaba Port, Umari border, etc.
- ✓ As the truck carrying certain commodities has been escorted by custom, 'Electronic tracking system' was introduced from last year.
- ✓ Finally, the products will be transferred to the transit gateway in Jordan.

6.1.2 Palestine (Israel) Side

Following procedures are summarized based on the description in "Import Export Guide PALESTINE" by PALTRADE.

(1) Import Procedure

The following steps are required.

- 1) The importer should notify the terminal through the clearing agent of his intention to import a shipment and will receive a scheduled time for crossing. The coordination should be conducted at least 24 hours in advance through the Israeli Terminals Authority. Also the clearing agent should be authorized to deal with Israeli customs at the Bridge Authority to clear goods.
- 2) The clearing agent should submit to the Israeli Customs a customs report, delegation, and a set of original documents including invoice, packing list, certificate of origin, and an import license and/or standard certificate. Truck driver should keep these relevant documents.
- 3) All import goods must be transferred through the back-to-back system and scanned by Israeli security. Containers may not leave the border crossing area due to the fact that

security inspection is carried out by a palletized scanner.

- 4) The trader or clearing agent should coordinate with the Palestinian or Israeli truck to make sure that no delays are incurred.
- 5) In the case of Jordanian trucks, goods are unloaded at a docking facility and placed on a conveyor that transports the pallets through the scanner machine within the security check area and to the truck waiting on the other side.
- 6) If Israeli customs has reason to suspect the goods, they will be checked manually.
- 7) Agricultural products undergo an on-the-spot regular test in the terminal where the Israeli Ministry of Agriculture has an office.
- 8) Having been inspected, goods are reloaded onto a Palestinian truck and a gate pass is given to release the goods.
- 9) The truck proceeds to the Palestinian side to its final destination.

General Information and Warnings (Imported Goods at Israel side)

- When the goods are delayed, for whatever reason upon the request of the Israeli Standards Institute, Ministry of Health, Ministry of Agriculture, then the goods will be stored at the terminal, for various periods of time, in an inadequate warehouse.
- Most of goods arrive at terminal on pallets and are handled by forklifts.
- Pallets must be small enough to fit into the scanners with a maximum height of 1.6 m. Imported cargo that cannot be scanned in the palletized scanners at the bridge must be trucked to Ashdod Port for scanning at the shipper's expense, otherwise will be returned to Jordanian side for further handling.
- Goods arriving in containers, such as refrigerated containers etc., are unloaded by forklifts and loaded onto Palestinian trucks.
- Israel Ministry of Agriculture examines the goods arriving from Jordan for Palestine. Actual inspection is carried out by Ministry of Health.
- Inspection by Israeli custom takes around 10 seconds per pallet. Imported cars need around half an hour for the security check. Also waiting time to enter the bridge is a half to one hour on average.

(2) Export Procedure

The process of exporting goods from Palestinian to Jordan includes:

- 1) The clearing agent prepares the customs exit document and submits it to the Israeli Customs Authorities at least one day prior to the arrival of the goods.
- 2) Loading of goods onto Palestinian trucks from the enterprise's warehouses, and arrival of the truck at the main gate.
- 3) Truck and driver pass through primary and secondary entry check points
- 4) Drivers entering KHB on a daily basis obtain special entry cards from the Israel Airports

Authority. Individual drivers obtain get approval one day in advance to enter KHB.

- 5) The truck is admitted to the waiting area of the cargo terminal.
- 6) Pallets are unloaded in the open area of the terminal. No outgoing scanning for security inspection is made by the Israeli Authorities.
- 7) Customs check the paper work.
- 8) Pallets are loaded on the Jordanian truck and released.
- 9) Customs clearance is completed and the gate pass is stamped
- 10) The Jordanian truck is released to the Jordanian side of the bridge

Other Important Information

- A private Israeli company is responsible for loading/unloading pallets.
- The check point for the goods to pass through in Jericho is 'Mousa Al'alami'.
- There are eight clearing agents at KHB, and now no licensed Palestinian agents.
- Working hours: 8:00 am to 8:00 pm.
- KHB is open every day except for Yom Kippur, The first day of Al-Adha feast, and Fridays and Saturdays.
- Perishables shipments are processed through a back-to-back system due to the lack of cooling facilities at the Bridge.
- The waiting time to enter the bridge is on average between half an hour and one, and loading of goods takes between half an hour and one.

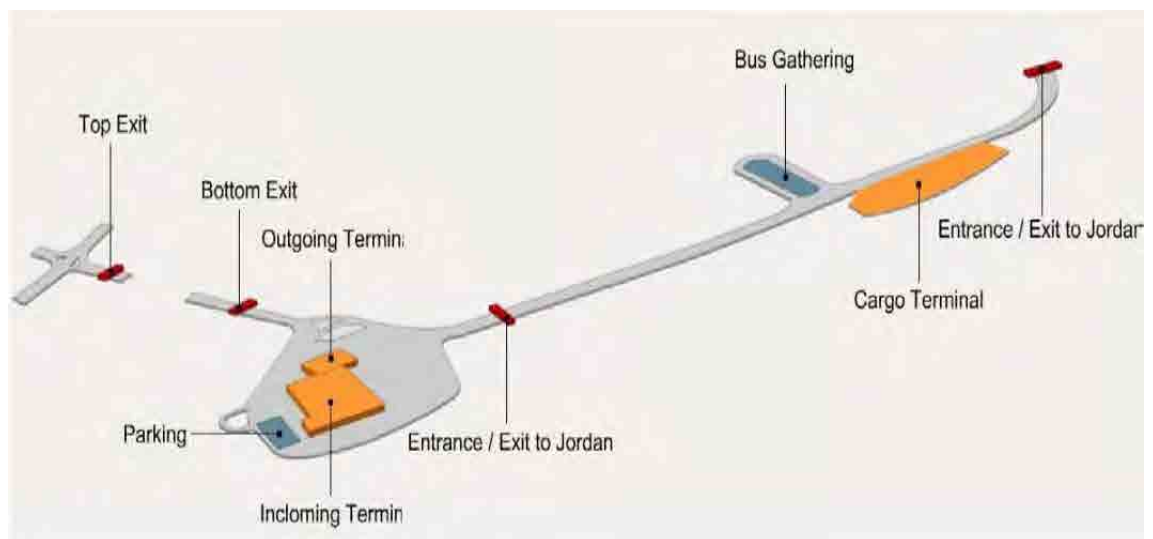


Figure 6.1-1 Schematic Plan of Cross Border Facilities at KHB (Palestinian Side)

6.2 Back-to-Back System

One of very significant features in logistics system between Palestine and Jordan, in Jordan Valley, is 'Back-to-Back' system. That is, all cargo is transferred from the truck to another truck

at KHB (Israel Side) Terminal and not transported directly between two countries as explained in chapter 6.1.

As the result, only Jordanian trucks (both loaded and empty) pass across KHB for cargo transport.

Export products from Jordan are carried by Jordan trucks crossing the bridge, unloaded at KHB terminal and reloaded to Palestinian trucks after security inspection. Meanwhile, the exports from Palestine that are carried to the terminal by Palestinian trucks, are transported to Jordan by the trucks arrived without any cargo from Jordan. Therefore, almost half of the truck traffic volume crossing the bridge is empty.

Most of all cargo is in the form of pallets and easy to be transferred to another truck by forklift at the yard in the terminal. In case of bulk cargo such as sand and gravel, it is stocked once at the exclusive yard within the terminal and reloaded again on demand.

Regarding container cargos, 'Door-to-Door' system is not applied as of now, and every container is opened and repacked on pallets at each terminal.

As explained in other chapter in this report, some improvement plans such as introduction of full-container scanning system in both terminals are being implemented in near future. Judging from these improvement plans, it can avoid opening the sealed containers relatively easily.

Even though, it is not so easy to stop 'Back-to-back' system completely, considering that there still might be certain volume of pallet cargo demands and be possible of transfer-transport of sealed container itself.

6.3 Transportation Agreements

Regarding the transportation agreement between two countries of Jordan and Palestine, the agreement can be found in the minutes on 'the Joint Palestinian-Jordanian Economic Committee' held on 4th-6th of July 2000.

This joint economic committee has been held since 26th of January 1995.

There are major three (3) themes:

First: Cooperation in trade exchange,

Second: Cooperation in investment field, and

Third: Cooperation in transportation field.

The copy of the M/M on the 3rd theme is as follows:

Both sides agreed on transporting goods between the two countries on the basis of direct transportation (Door-to-Door) starting from the 1st of august 2000 in accordance to:

1. Performing the agreement on all kinds of goods.
2. No restrictions on the number, kind, quality of trucks including...
3. The Jordanian trucks enter directly through the border entrance point between the two countries to the last destination for the goods in West Bank and Gaza.
4. Jordanian trucks should have a certificate of safety test issued by the Jordanian

Authorities before leaving the Jordanian area and after going through the Jordanian safety inspection.

5. Considering the days from Sunday to Thursday for entering the Jordanian trucks from Jordan to the West Bank that they come back to Jordan on the same day.

6. Considering the days from Sunday to Wednesday for entering the Jordanian trucks from Jordan to Gaza strip, with one condition: that they should return to Jordan in 24 hours.

7. The Palestinian trucks enter directly through the border check point to the final destination in Jordan.

8. Palestinian trucks should accompany a certificate of safety test issued by the Palestinian Authorities before leaving the Palestinian area and after going through the Palestinian safety inspection.

9. Considering the days from Sunday to Thursday for entering the Palestinian trucks from Palestine to Jordan on condition that they should return to the Palestinian land on the same day.

10. Both the Jordanian and Palestinian trucks are allowed to load goods in return in condition of doing that soon later

11. Freedom in entrance and exit of the trucks, the load, and the drivers to the entrance points without previous permission.

12. to allow empty trucks enter the others country only if they get a permit from the transportation ministry of the other country

13. Documents needed for drivers:

- A current driving license
- A current passport

14. Documents needed for the trucks:

- A current license
- An insurance policy

15. Documents needed for products:

- An approved business bill
- An approved certificate of origin
- A list of the loaded goods
- A certificate of security search for the truck and the goods, issued from Jordan
- Any other document needed for shipping agreed on by the two countries.

It's not clear actual performances of each item above, and it seems less implementations in accordance with the agreement. Because, this agreement is done only between Palestine and Jordan without any considerations by Israel.

6.4 Vehicle Registration and Transportation Control in Palestine

6.4.1 Vehicle Registration and Plate

Palestine

The Palestinian National Authority requires their residents to register their motor vehicles and display registration plates. On the right side is the Latin letter 'P' for Palestine; above that, the Arabic letter for (Falasteen).

(1) Private Vehicles

Private vehicles have white plates with Green numbers, the numbers have 7 digits, the first shows the district of registration.

(2) Public Transport

Vehicles serving the public transports (taxis, shared taxis and buses) have green plates with white numbers.

(3) Vehicles of the Authority

Vehicles belonging to the Palestinian Authorities, such as official cars, ambulances, fire brigade police and special police (military) use white plates with red numbers.

Israel

Most regulations regarding Israel vehicle registration plates are listed among the transport regulations, issued by the Ministry of Transportation.

(1) Civil registration plate

Israel civil registration plates are Yellow background and embossed with black number. Under the first dash of the number, there is a stamp of approval of the Standards Institute of Israel. On the left side of the plate, there is embossed Israel flag and beneath it the letters 'IL' and Israel written in Hebrew and Arabic.

Registration numbers consists of seven digits.

(2) Others

- Police: Red background with white number,
- Military service: black background and white number,
- Military police: blue background and white number,
- Diploma/Consular: white background and black number.

6.4.2 Restriction of Driving Vehicles

There are many restrictions of driving cars depending on their number plates in the West Bank and Israel, so called '*Green Number*' and '*Yellow Number*'.

- Vehicles with '*Green Number*' are forbidden to enter the territory of Israel even if the owner has a permit to go to Israel.
- '*Yellow Number*' is available to all Israelis and Palestinians living in the Israel. Vehicles

with its number plates can be driven anywhere.

- Even Palestinians living in the West Bank choose to buy '*Yellow Number*' cars as they are cheaper, however, the West Bank resident with such car will be fined or even arrested once he drives it outside of Area A.
- Palestinian taxis and buses are not allowed to enter the territory of Israel and all the passengers must get off before the checkpoint.

7. ANALYSIS FOR TRANSPORT AND LOGISTICS MOVEMENT

In order to understand the actual transportation and logistics states in the study area, the study was conducted on the actual conditions of local transportation. The study was conducted on each side of Jordan and Palestine by outsourcing the task to the local consultant.

7.1 Field Survey Outline

7.1.1 Survey Items

The study was conducted on five categories of items shown in the table below.

Table 7.1-1 Outline of Study Items

【Jordan】

	Study Items	Remarks
1	Traffic Count Survey	Five locations including Aqaba Port
2	Roadside OD Interview Survey	Same location as for the traffic count survey
3	Interview Survey for Users of KHB	50 truck samples and 100 passenger samples
4	Interview Survey for Private Logistics Companies	30 samples

【Palestine】

	Study Items	Remarks
1	Traffic Count Survey	Three locations near KHB in Jericho
2	Roadside OD Interview Survey	Two of above three locations
3	Interview Survey for Users of KHB	50 truck samples and 100 passenger samples
4	Interview Survey for Private Logistics Companies	100 samples
5	Port Statistical Data Collection	Available port statistical data collection

7.1.2 Survey Contents

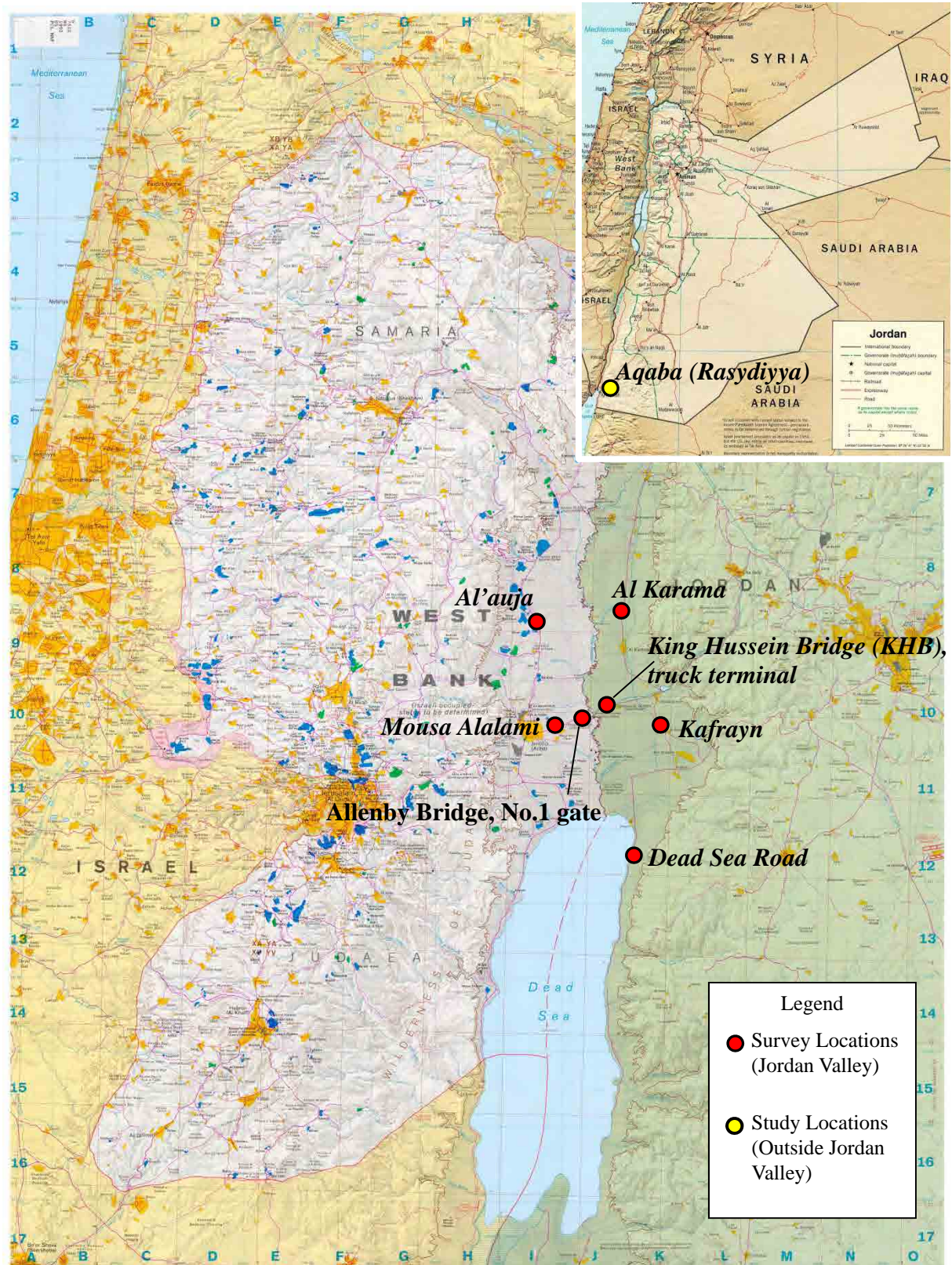
(1) Traffic Count Survey

Points to be noted are summarized in the table below.

Table 7.1-2 Points of the Traffic Count Survey

Item	Description
Study Location	<ul style="list-style-type: none"> ● Total of five locations near of KHB and Aqaba Port (Jordan side) ● Total of three locations near of KHB (Palestinian side) (See Fig. 7.1-1, Study location map)
Date and Time	<ul style="list-style-type: none"> ● Study time period: 14 hours of 6:00~20:00 (common) ● Date: One weekday and one weekend (Jordan); one weekday (Palestinian)
Vehicle Classification	<ul style="list-style-type: none"> ● Classification into six vehicle types at all spots excluding Aqaba Port (Rashdivya truck terminal) of Jordan (see Table 7.1-1) ● Classification performed for trucks only (three types) for Aqaba Port (Rashdivya truck terminal) of Jordan
Methodology	<ul style="list-style-type: none"> ● Counting of all vehicles with a manual or automatic counter (common) ● Counts entered in the spreadsheet every hour (common)

Source: Summary by Study Team



Source: Prepared by Study Team

Figure 7.1-1 Survey Locations

Vehicle Classification	Example
Motorbike	
Passenger Car, Taxi	
Bus	
Light truck (double-axle)	
Heavy truck (triple-axle)	
Trailer (Four-axle or more)	

Figure 7.1-2 Vehicles Classification and Examples

(2) Roadside OD Interview Survey

Points to be noted are summarized in the table below.

Table 7.1-3 Points to be Noted of Roadside OD Interview Survey

Item	Description
Survey Locations	<ul style="list-style-type: none"> ● Same locations as for the traffic count survey (See Figure 7.1-1, Study location map)
Date and Time	<ul style="list-style-type: none"> ● Study time period: 14 hours of 6:00~20:00 (common) ● Date: One weekday and one weekend (Jordan), one weekday (Palestinian); same day as for the traffic count survey
Methodology	<ul style="list-style-type: none"> ● Vehicles to be counted are trucks only (common). ● Allow vehicles to be stopped in any safe roadside. The interviewer performs hearing from the drivers. Guidance for vehicles is done in cooperation with authorities concerned, such as the police agency (common). ● Cooperation to ensure the safety is requested to the regulating authorities and authorities concerned (common for all points). ● Samples must not be less than 5% of the total traffic volume.
Questionnaire Items	<ul style="list-style-type: none"> ● Date and Time, Survey Period, Vehicle Classification ● Origin and Destination of the trip ● Commodities and weight

Source: Summary by Study Team

(3) Interview Survey of Users of KHB

Points to be noted are summarized in the table below.

Table 7.1-4 Points to be Noted of Interview Survey of Users of KHB

Item	Description
Target	<ul style="list-style-type: none"> ● Truck drivers at the truck terminal ● Passengers in the passenger terminal
Sampling size	<ul style="list-style-type: none"> ● Truck drivers: 50 samples (common) ● Passengers: 100 samples (common)
Methodology	<ul style="list-style-type: none"> ● The interviewer performs face-to-face Interview at the truck and passenger terminals (common).
Questionnaire Items	<ul style="list-style-type: none"> ● Date and time ● Name of the company (Truck driver Case) ● Nationality (Passenger case) ● Commodities and weight (Truck drivers Case) ● Origin and Destination ● Required time and Fare

Source: Summary by Study Team

(4) Interview Survey for Private Logistics Companies

Points to be noted are summarized in the table below.

Table 7.1-5 Points to be Noted of Interview Survey for Private Logistics Companies

Item	Description
Companies under survey	<ul style="list-style-type: none"> ● Principal consignor companies ● Principal shipping companies ● Other operators related to logistics
No. of samples	<ul style="list-style-type: none"> ● 30 samples (Jordan side), 100 samples (Palestinian side)
Survey method	<ul style="list-style-type: none"> ● Logistics operators engaged in physical distribution via King Hussein/Allenby Bridge are listed up on each side; Jordan and Palestine (common). ● Attention must be paid to ensure sampling from various industry types (common). ● Using the interview survey slip, questionnaire input is entered via direct hearing, telephone, internet, etc. (common).
Questionnaire entries	<ul style="list-style-type: none"> ● Date and time of survey ● Name of the company, date of foundation, branch state, address ● Major activities ● No. of employees ● Contents and weight of principal cargoes handled (truck drivers) ● Points of departure and arrival ● Required time and charges

Source: Summary by Study Team

7.2 Traffic Count Survey

7.2.1 List of the Survey Results

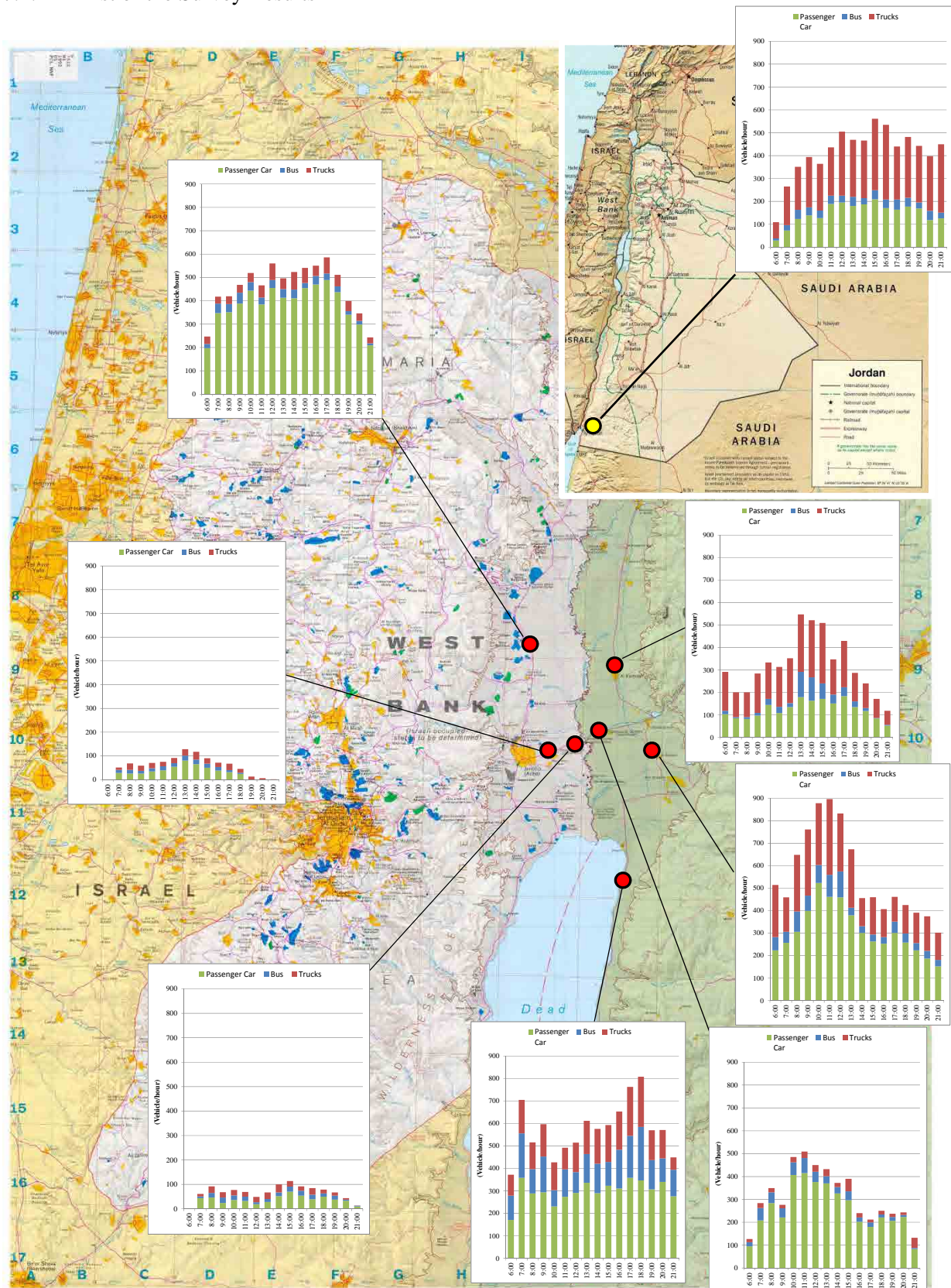
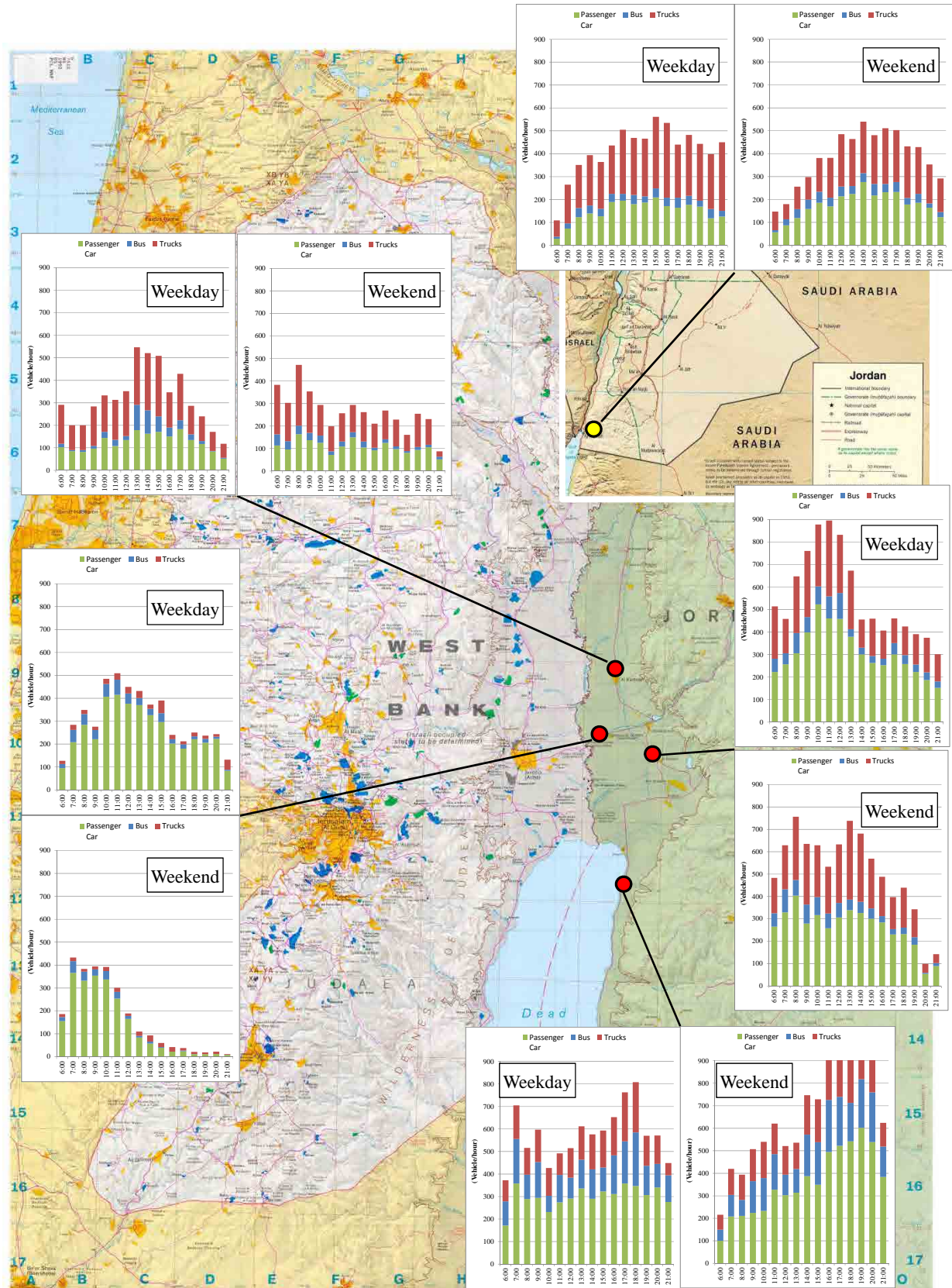


Figure 7.2-1 Traffic Volume Fluctuation by Location (Weekday)



7.2.2 Cargo Traffic Volume Crossing the KHB

The cargo transportation volume crossing the border at KHB on the both Jordan and Palestinian side was summarized according to the dairy time period. In consequence, on both Jordan and Palestinian side, the maximum number of incoming or outgoing trucks ranges approximately 20 and 25 vehicles per hour (2 - 3 minutes per vehicle) in each direction. This maximum figure is presumed to be the maximum number of vehicles handled per hour at pallet scanner inspection and entrance gate at KHB Israel side.

Traffic incoming into the truck terminal (on both Jordan and Palestinian sides) reaches the peak within two to three hours in the morning after opening the facilities. On the other hand, trucks outgoing from the truck terminal Increases gradually in about two hours, at the earliest, from opening of truck terminal because there are vehicles returning after completion of necessary activities and procedures (unloading for export and loading for import) within the terminal. The maximum traffic volume reaches within the period from noon to the evening.

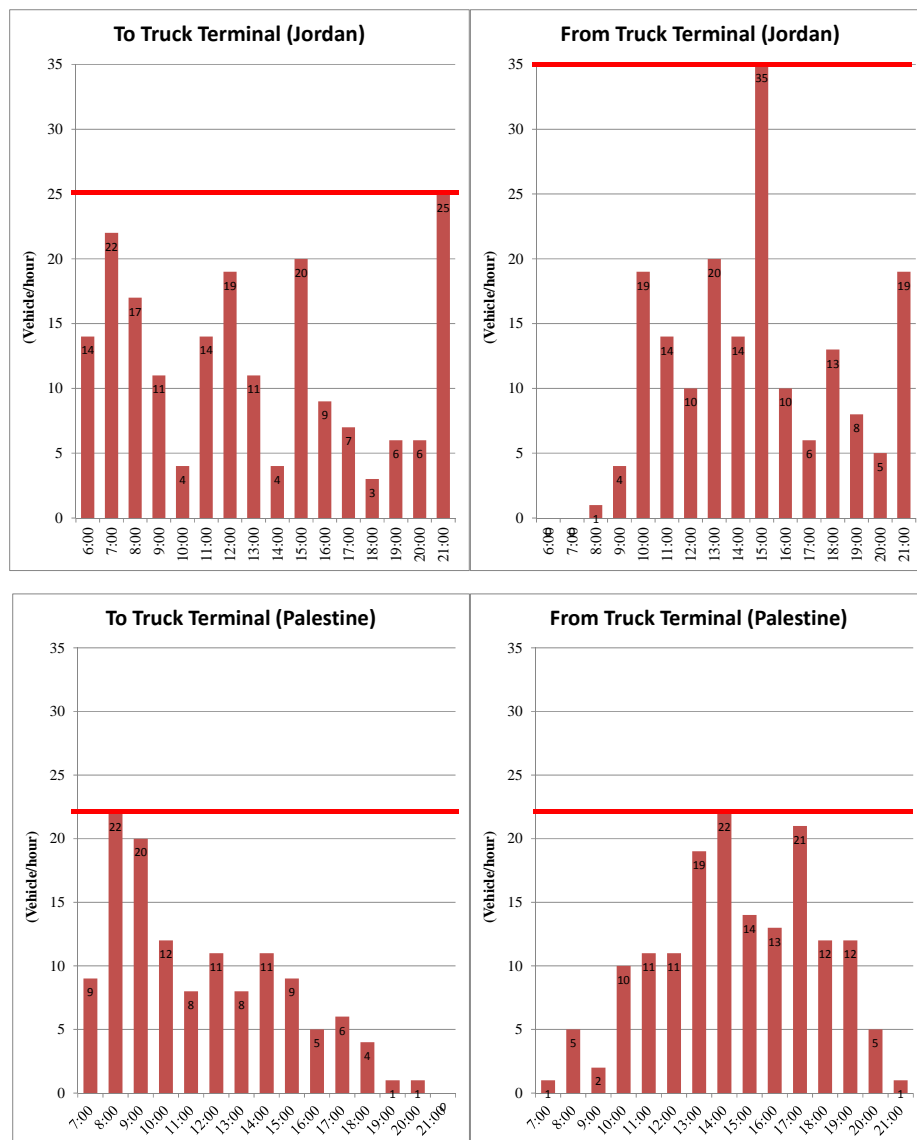


Figure 7.2-3 Nos. of Trucks at the KHB Border (Jordan and Israel)

The incoming/outgoing traffic into/from the truck terminal on the Palestine side consists mostly of Palestine-registered trucks as shown in the figure below. Namely, most of physical flow via KHB and Allenby Bridge include exports/imports from/into Palestine. Accordingly, in this situation, the facilities are used by Palestine-registered vehicles.

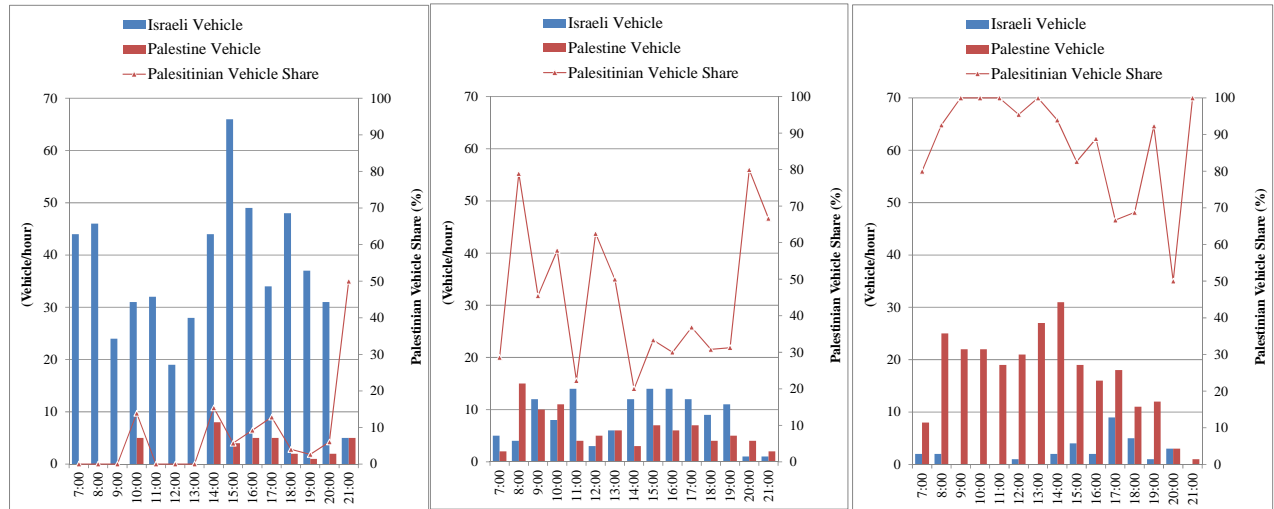


Figure 7.2-4 Nos. of Trucks Crossing the KHB (Israel side)

7.3 Roadside OD Interview Survey

7.3.1 Sample Size

The sampling size at each survey location where the OD survey was conducted is as shown in the table below. This survey was intended to understand the trends of truck cargoes, so that hearing was done for trucks only. The OD survey locations are classified into two categories. On one hand, the survey was conducted at/near truck terminal of border so as to understand mainly the origin – destination trip pattern crossing the border. On the other hand, the OD survey was conducted at the trunk road neighbouring the border, which was intended mainly to understand the features of logistics movement in the Jordan Valley and the share of cross-border traffic for such a regional cargo movement. According to the survey conducted along the trunk roads in the surrounding, hearing was done with the sample ratio of 2% to 7% of all trucks. Consequently, the average sampling size of 5% could be secured.

Table 7.3-16 Results of roadside OD survey samples

Survey Location	Total Volume (vehicle)	Nos. of trucks (vehicles)	Nos. of Sample (vehicles)	Sample Ratio (%)
(1) Border (KHB Jordan Side, KHB Israel Side)				
KHB truck terminal	370	370	58	15.7
Allenby No. 1 Gate	1,078	286	86	30.1
(2) Other points				
Kafrayn (Jordan)	8,945	3,124 (34.9%)	75	2.4
Dead Sea Road (Jordan)	9,219	2,248 (24.4%)	142	6.3
Al Karama (Jordan)	5,142	2,633 (51.2%)	114	4.3

Aqaba (Jordan)	6,668	3,767 (56.5%)	254	6.7
Al'auja (Palestine)	7,303	738 (10.1%)	54	7.3
(3) Total	37,277	12,510 (33.6%)	639	5.1

Source: Summary by Study Team

Number of trucks includes light trucks, heavy trucks, and trailers

7.3.2 Cross Border Traffic

Based on the results of Roadside OD Interview Survey, the condition of cross-border traffic at five locations (four on the Jordan side and one on the Palestine side) of trunk roads, excluding the entrance to KHB (Jordan side and Israel Side), was summarized.

For the condition of trading partner of the cargo crossing the KHB, it is known to be as follows; namely, 70% to 80% of cargo flow passing through KHB is only between Jordan and Palestine, while the remaining cargo is between Palestine and the Gulf area. The cargo flow in other areas could not be confirmed, but was known to be part of the trade transportation route of relatively short distance. The above results agree approximately with the statistical data summarized in Chapter 3. The content of the results backs up in this way the statistical data.

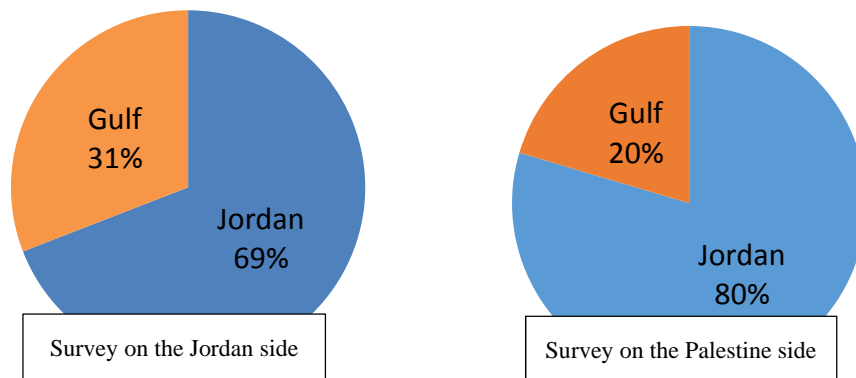


Figure 7.3-1 Share of the trade partners of Palestine

The condition of the cargo vehicles on the trunk road around KHB was summarized. The share of large trucks for total traffic volume on the trunk roads connecting to the KHB is generally high value. In particular, on the Jordan side, one-second or one-fourth of total traffic volume on the road is the large trucks. Of these trucks, the share of cross-border ones (the traffic using King Hussein Bridge) was 16.0% on the trunk road connecting to Amman of Jordan and 5% or less on other trunk roads. This is 13.0% on the Palestine side. Trucks traveling on the trunk road connecting Amman and KHB and on the Palestinian trunk roads are involved with high percentage in the cross-border traffic. On the other hand, there is no traffic driving on the Dead Sea Road while using KHB, and trucks starting from Aqaba and through KHB and crossing the border to Palestine could not be found. Evidently there is almost no cargo transportation system connecting KHB and Aqaba Port, which is also the multimodal long-distance transportation combined with maritime transportation of cargoes.

Table 7.3-2 Share of the Cross Border Traffic

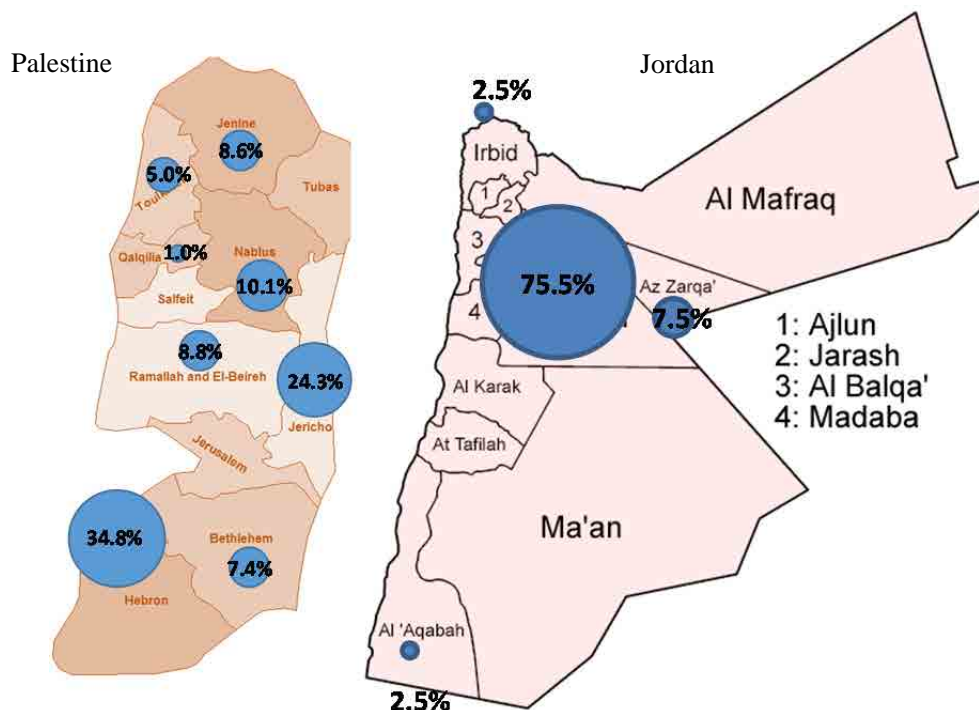
Survey Locations	Nos. of Trucks (vehicles)	Nos. of Samples (vehicles)	Cross-Border traffic (vehicles)	Ratio (%)
Kafrayn (Jordan)	3,124	75	12	16.0
Dead Sea Road (Jordan)	2,248	142	0	0
Al Karama (Jordan)	2,633	114	6	5.3
Aqaba (Jordan)	3,767	254	0	0
Al'auja (Palestine)	738	54	7	13.0
Total	12,510	639	25	3.9

Source: Summary by Study Team

7.3.3 OD Trip pattern in the West Bank and Jordan

Trucks passing the KHB have either the origin or destination in Palestine. Accordingly, the export and import cargoes from all over Palestine (West Bank) to Jordan and Gulf area are concentrated to KHB. Points of departure/arrival as is evident from the survey results are distributed as follows: about 35% in Hebron, about 24% in Jericho, and about 10% in Nablus.

On the Jordan side, 75% of cargoes bound for Palestine are dispatched from areas around Amman. This is because cement plants located in the suburb of Amman export large amount of cargoes toward Palestine and because imports from Palestine are delivered limitedly to the large city of Amman and its suburbs,

**Figure 7.3-2 Origin and Destination of Cargo using KHB in Palestine and Jordan**

7.4 Road Users Interview Survey of King Hussein Bridge

7.4.1 Interviewing for Truck Drivers

(1) Sample Size

The interview survey was carried out for truck drivers that were equivalent to 32.6% of the traffic using the truck terminal on the Jordan side and as well as 48.0% of that on the Palestine side.

Table 7.4-1 Nos. of Samples of Interview for Truck Drivers

Item	Jordan Side	Palestine Side
Nos. of vehicles using the terminal	178	127
Nos. of samples	58	61
Sample Size	32.6%	48.0%

Source: Summary by Study Team

(2) Process Time

As results of interview survey, the process time of export and import for trucks, i.e. time from enter the terminal (including the time for trucks to wait for entry) and until leave the terminal, was evaluated around five to seven hours in average excluding import trucks in Palestine side. It takes additional time for Jordanian trucks, in general, to complete all process required since back-to-back of cargoes is necessary inside of Israel side and Jordanian trucks have to cross the border whichever import and export. In relation to the fact, Palestinian export trucks also have to wait for import trucks coming from Jordan to coordinate with partner trucks.

Table 7.4-2 Process Time

Process Category	Jordan side	Palestine side
Export	323 min. (5 hrs 23 min.)	405 min. (6 hrs 45 min)
Import	393 min. (6 hrs 33 min.)	101 minutes (1 hr 41 min.)

Source: Summary by Study team

The result of comparison of the average process time for each procedure is shown in the figure below. This shows that the time of export trucks waiting outside the facilities before opening of the terminal is longer.

The details of the procedure for import and export differ between Jordan and Palestine. This is due to the facts that all of Jordanian trucks have to enter temporarily into Israel because the unloading facilities exist on the Israel side only, the cargo inspection system is different, etc.

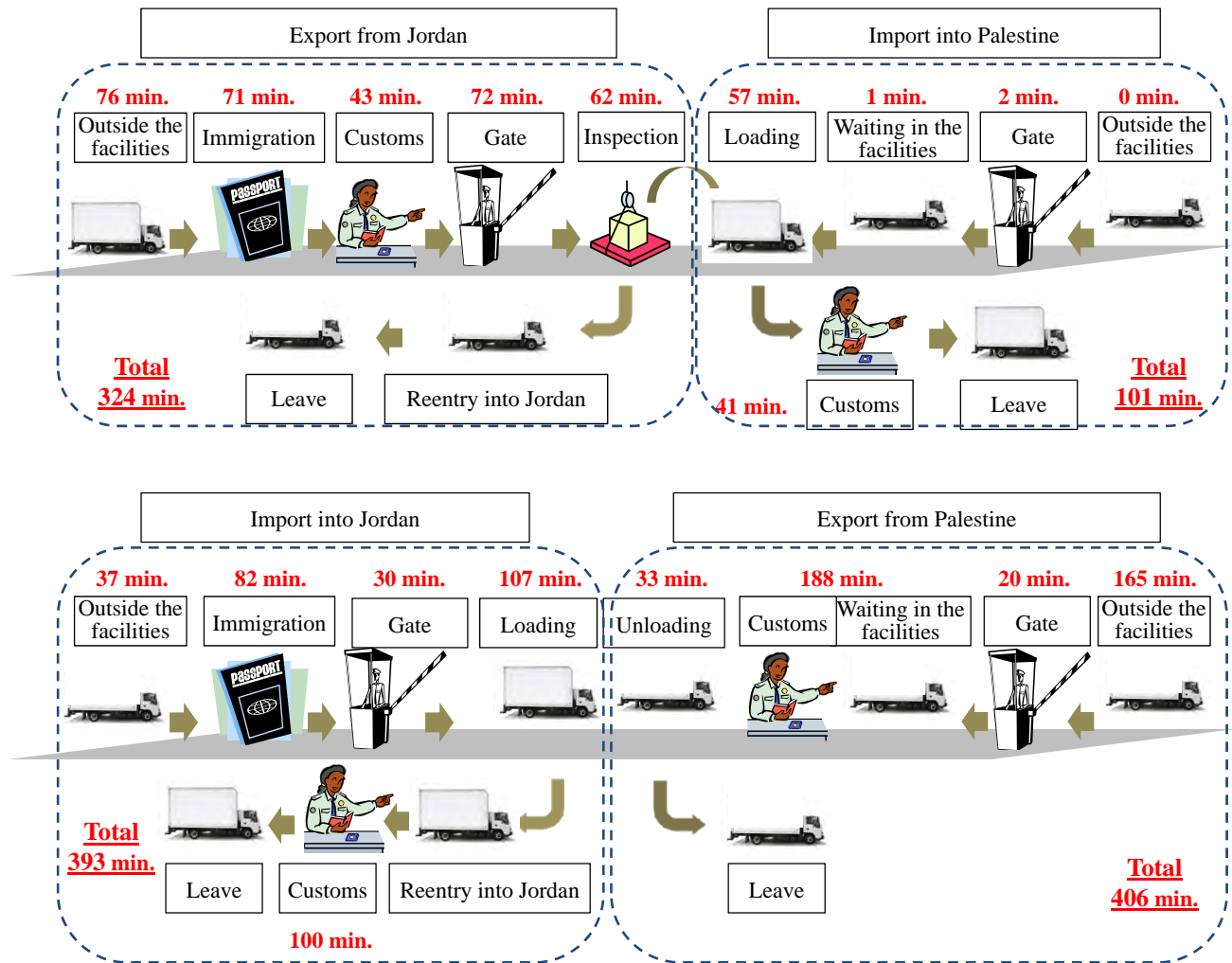
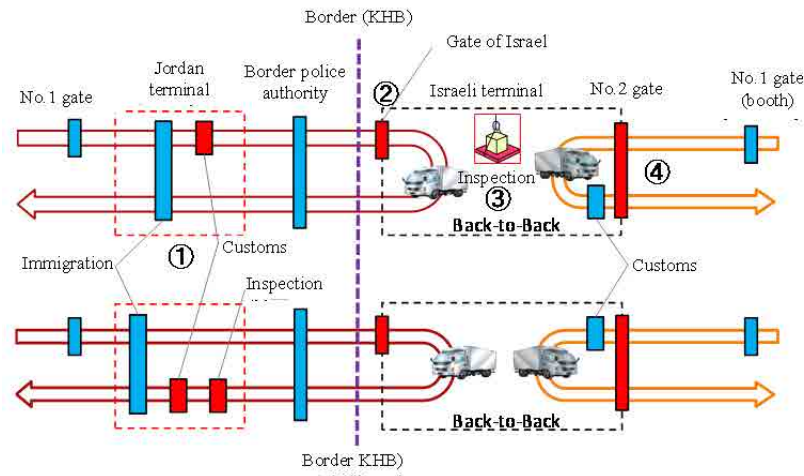


Figure 7.4-1 Required Time of Each Import/Export Procedures at KHB

(3) Bottleneck

Concerning bottlenecks at KHB, there are multiple locations and factors correlated in the composite manner and it is not easy to present any unequivocal definition in this respect. In other words, bottleneck points and their degree vary from day to day. Main bottleneck points are shown in next Figure.



Source: Summary by Study Team

Figure 7.4-2 Bottleneck for Import/Export at KHB

Table 7.4-3 Bottleneck state

No.	Bottleneck	Condition
1.	Size of Truck terminal on the Jordan side	<ul style="list-style-type: none"> The facility size is as small as about 2 ha, so that the sufficient space for truck is difficult to secure. There is no equipment necessary for cargo inspection. Originally, all of cargoes must be inspected visually. Actually, sample inspection is being made because of the time required for such inspection. Immigration and customs offices are not enough space. Capacity of data processing at office is insufficient due to limited space for relevant agent offices and PC hardware. Backup in case of emergency is not sufficient.
2.	Entry gate of truck terminal for incoming from Jordan side	<ul style="list-style-type: none"> Due to only one entry gate, cargoes and passengers (trucks and buses) are mixed and cause more traffic jam. Due to only one entry gate, there is no detour space in case of stop of faulty or dubious vehicles.
3.	Inspection equipment on the Israel side (pallet scanner)	<ul style="list-style-type: none"> There is only one small pallet scanner, so that inspection of all cargoes takes time. As the scanner is for pallets, there is no other way but to unload individual pallets from the truck for inspection. It is impossible to perform efficient inspection of truck as a whole.
4.	Entry 2nd gate of truck terminal for incoming from Palestine side	<ul style="list-style-type: none"> In order to enable reloading of cargoes, it is necessary to match the timing between Jordanian and Palestinian trucks. Since Jordanian trucks have to come to the facilities on the Israel side while crossing the border, Palestinian truck must wait, at No.2 gate, for Jordanian trucks to arrive. Since there is no space available for waiting at present, vehicles are parked on the road.

Source: Summary by Study Team

(4) Other Opinions

Through the interview survey for truck drivers, the following problems were pointed out in addition to the time necessary for various import/export related procedures.

- ✓ During the period of long-term holidays on the Israel side, the longer time than usual is required due to shortage of staffs, etc. This applies specifically to April and September.
- ✓ Since the facilities are not operated 24 hours a day and the process requires considerable time, the procedure may not be completed, in certain cases, unless it is started the first thing in the morning. There are cases therefore that the truck may take the trouble of arriving at the front of terminal the day before and of entering the terminal after spending the evening.
- ✓ There are also cases when the truck has to return while leaving the export cargoes as loaded when the import/export process is not completed inside the terminal on the Israel side. In such an event, the procedure is to be repeated the next day.

7.4.2 Interview for the Passengers

(1) Sample Size

The sample taken was 105 for the passenger terminal on the Jordan side and 112 for the passenger terminal on the Palestine side. They account for the sample ratio equivalent to about 4.5% of the users per day of the passenger terminal.

Table 7.4-4 Nos. of Samples for Interview for the Passengers

Item	Entry	Exit
No. of passengers per year	912,919	879,557
No. of passengers per day	2,501	2,409
No. of samples	112	105
Sample ratio	4.5%	4.4%

Source: Border and Passage General Department, Palestine, and Study Team

(2) Process Time

As a result of interview, it became evident that there exists a large gap in the time required to pass KHB between Jordan and Palestine. For entry from Palestine to Jordan, the average required time is about one hour. For entry from Jordan to Palestine, however, it takes about three hours in average.

Concerning the time of passengers to pass KHB, Quartet performed a similar survey in the past, whose result is also shown below. The result of this survey shows also that there is difference in the required time between directions. The result of process time “from Palestine to Jordan” in this study is shorter than results by Quartet in previous.

Table 7.4-5 Process Time for the Passenger at KHB

Direction	No. of samples	Average time (hours)	1.5 times or more of the average	Two times or more of the average
Jordan →West Bank (2011)	169	3 hours 47 minutes	16.0%	3.0%
West Bank →Jordan (2011)	202	2 hours 13minutes	9.6%	1.2%
Jordan →West Bank (2012)	129	2 hours 51minutes	6.1%	0.0%
Jordan →West Bank (2014)	112	2 hours 53minutes	8.9%	4.5%
West Bank →Jordan (2014)	105	1 hour 11minutes	11.4%	7.6%

Source: Quartet data and survey by the study team (The result of study this time is shown in the thick frame)

It is confirmed that the process time is extremely long during hours in the morning. In the afternoon period, on the other hand, approximately one to two hours are enough to pass. One of the reasons may be as follows. Namely, KHB is not open 24 hours a day and the users anticipate a risk that the bridge may be closed during early hours in the afternoon. Consequently, the users concentrate in the morning, resulting in deficiency of handling capacity of the passenger terminal and the longer process time.

When the time required for entry/exit is viewed in terms of the content of procedure, it is evident that the customs and immigration and the security inspection on the side of Jordan take the most time in the case of entry from Jordan to Palestine. This is considered mainly due to the Jordanian passenger terminal not of a size enough to handle the passengers peak demand.

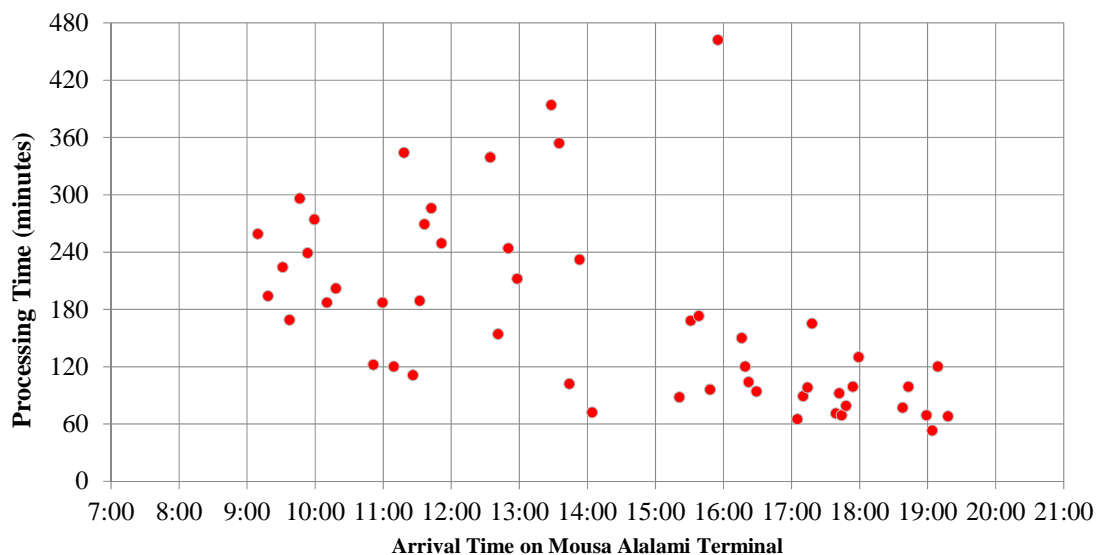
**Figure 7.4-3 Entry Process Time by Time Period (Jordan → Palestine)**

Table 7.4-6 Required Time by Process (Jordan → Palestine)

Item	In Jordan	In Israel	In Palestine
Customs and immigration	36 min.	27 min.	3 min.
Security Inspection	47 min.	18 min.	2 min.
Bus Boarding	27 min.	13 min.	-
Required time in each country	1 hr 50 min.	58 min.	5 min.
Total required time	2 hrs 53 min.		

Note: The required time on the Palestine side does not include the bus ride hours.

In the case of entry from Palestine to Jordan, on the other hand, the bus ride takes the longest process time. Namely, regarding passport control and securing check, there is not much trouble on both Palestine (Israel) side and Jordan side, with the procedure completed within about ten minutes. Regarding travel on the bus and specifically for the Palestine nationality, however, it is necessary to exchange three buses to enter Jordan, which takes trouble and time. In addition, the flow line is not separated for buses (passengers) and trucks (cargoes), so that passenger buses mix with trucks at the inlet gate, resulting in considerable time. Such unnecessary time requirement is pointed out as an issue to be solved.

Table 7.4-7 Required Time by Process (Palestine → Jordan)

Item	In Palestine	In Israel	In Jordan
Customs and Immigration	11 min.	8 min.	3 min.
Security Inspection	3 min.	5 min.	2 min.
Bus Boarding	13 min.	27 min.	-
Required time in each country	27 min.	39 min.	5 min.
Total required time	1 hr 11 min.		

Note: The required time on the Palestine side does not include the bus ride hours.

7.5 Private Logistics Company Survey

7.5.1 Samples Size

Interview survey for logistics own companies covered 30 Jordanian companies and 100 Palestinian companies. They were sampled evenly from categories, such as manufacturing, transportation, trade, etc. They were extracted also on the condition that they are engaged in either import or export. Specifically, they were arbitrarily selected from the company lists, such as “Exporters Directory, 2012.”

Table 7.5-1 Sector Composition of Interviewee

No.	Type	Jordan	Palestine	Total
1	Stone, stone materials, cement, construction materials	4	15	19
2	Foods and beverage	4	16	20
3	Pharmaceutical and cosmetics	0	4	4
4	Furniture	1	7	8
5	Metal and machine products	2	3	5
6	Chemical products	5	3	8
7	Fivers and textiles	1	5	6
8	Shoes and leathers	1	8	9
9	Handicrafts	0	3	3
10	Plastic products	2	3	5
11	Services (transportation)	7	17	24
12	Services (trade)	4	16	20
Total		31	100	131

Source: Summary by Study Team

7.5.2 Features of Private Logistics Companies

- ✓ Among sampled companies, ten are engaged in export to Palestine, with all cargoes transported on land. The route is presumed to use KHB.
- ✓ Industry type engaged in dealing with Palestine includes cement and chemical products.
- ✓ Export to Europe, Asia, and North Africa is mostly via Aqaba Port.
- ✓ For export to Gulf States, about 50% of the companies use transportation by sea from Aqaba, not transportation on land.
- ✓ There are also two companies engaged in export to Gaza Strip, using transportation on land.

8 FUTURE FREIGHT DEMAND ANALYSIS

8.1 Methodology

There are various freight demand forecasting methods, and two options, *i.e.* time series analysis and economic activity analysis approaches were considered to apply the study.

8.1.1 Time Series Analysis

In this approach, the future demand is forecasted based on the historical data, which shows the trend. Therefore, time becomes an indicator variable, and the forecast is based on understanding the changes of the freight over time.

The relationship of the time and data may be formulated as either linear or non-linear equation based on the nature of the trend curve, and linear regression is commonly used. The general equations for the linear and compound growth are respectively as follows:

$$F_n = (AGF)n + C$$

$$F_n = C(AGF)^n$$

Where

F_n : Freight volume at year n

n : Number of years

AGF : Average growth rate

C : Constant

The assumption that historical relationship will continue during the forecast period. Therefore, such a simple regression equations may be used to formulate the trend. This approach is convenient for short-term forecasts and when there are limited resources to estimate and calibrate a behavioural model. In this study, following demand analysis was applied because the target year is relatively long.

8.1.2 Economic Activity Analysis

There are generally two economic analysis approaches for the freight demand forecasting. The first is the growth factor method, which assumes that the freight changes proportionally with the changes of the economic activities. As a result, the growth factor of economic variables underlying the freight demand (*i.e.*, ratio of the forecast year values to base year values) is used as a growth factor to calculate the corresponding freight demand. Next figure explains the basic steps involved in this approach. The most important part of this method is identifying a suitable freight traffic classification with its corresponding economic indicators. A typical example is selecting the distribution of commodities and corresponding economic indicators at a base year. There are various commodity classifications systems (e.g., HS-code), which may base used for this purpose. The economic indicators may be the employment in each sector (commodity) or industry group. Some countries provide economic indicators like the employment in standardized form with future forecasts. With the

assumption that the freight changes proportionally with the changes in economic indicators, the future freight demand may be estimated by using the change in the economic indicator as a growth factor. It is challenging, however, to find such economic indicators in the appropriate form for the freight demand forecasting.

An alternative approach to the growth factor approach based on economic indicators is directly relating the freight traffic with the relevant economic variables driving its demand. This approach may use historical data, but instead of the time, economic variables become an independent variable to estimate the freight traffic, which is the dependent variable.

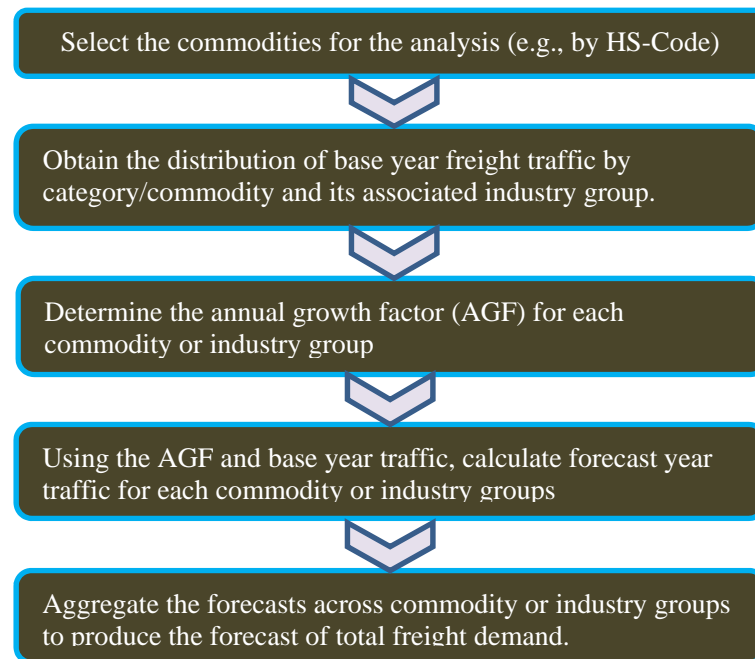


Figure 8.1-1 Growth factor approach based on economic indicators

8.2 Socio-Economic Frameworks

8.2.1 Socio-Economic Indicators for Analysis

The freight crossing the KHB is either origin from or destination to the Palestine, therefore, socio-economic indicators of Palestine were used for analysis. PCBS provides common socio-economic indicators, such as population, gross domestic product (GDP) and employment. The trend of the West Bank population, GDP and Employment are shown in Table and Figure below. These socio-economic data are related to the freight trip generation, and they may be used as socio-economic variables. There are, however, no mid- or long-term future forecasts of the socio-economic indicators mentioned above except for the population. Therefore, these socio-economic indicators should be projected to future freight demand forecast years of interest.

Table 8.2-1 Palestine Population (1997–2016)

Year	Population	Year	Population
1997	1,787,562	2007	2,323,469
1998	1,838,807	2008	2,385,180
1999	1,891,171	2009	2,448,433
2000	1,943,658	2010	2,513,283
2001	1,992,577	2011	2,580,168
2002	2,042,306	2012	2,649,020
2003	2,093,381	2013	2,719,112
2004	2,146,400	2014	2,790,331 (Forecast)
2005	2,203,738	2015	2,862,485 (Forecast)
2006	2,262,735	2016	2,935,368 (Forecast)

Source: Palestinian Central Bureau of Statistics, Palestine

The Palestinian GDP has sharply decreased in 2001. This may be attributed to the second Palestinian Intifada (uprising) started in 2000 and affected the economy. Within just two years (2000–2002) the West Bank GDP declined by about a quarter. The GDP, however, started to recover from 2002 and has been growing consistently since then.

The 2000 Intifada (uprising) similarly affected the employment. The number of the employed people decreased by 20% from 2000–2002. Since then it has been recovering and currently (2013) the West Bank number of employment increased to 589 thousand.

It is important to take into account the above economic disruptions that came along with the Intifada. Although it is not easy to predict future circumstance of the Palestinian Territory, the West Bank economic trend has been generally stable since the Intifada. The future forecasts are based on the assumption that this post-intifada economic development will continue and no major disruptions will occur. Therefore, post-intifada data will be used for future forecasts.

Table 8.2-2 West Bank GDP trend (1994–2012)

Year	Current price (million US\$)	Constant price (2004 million US\$)
1994	1,812	1,955
1995	2,096	2,102
1996	2,201	2,164
1997	2,453	2,493
1998	2,630	2,818
1999	2,874	3,149
2000	2,912	2,928
2001	2,642	2,616
2002	2,307	2,234
2003	2,476	2,452
2004	2,807	2,807
2005	2,929	2,877
2006	3,192	2,978
2007	3,797	3,317

2008	4,865	3,717
2009	5,111	3,980
2010	6,180	4,315
2011	7,337	4,765
2012		5,031

Source: Palestinian Central Bureau of Statistics

Table 8.2-3 West Bank employment trend (1995–2013)

Year	Total (Thousand)	Employment (Thousand)	Underemployment (Thousand)	Unemployment (Thousand)
1995	358	234	74	50
1996	392	265	50	77
1997	426	303	49	74
1998	452	362	38	52
1999	462	386	32	44
2000	460	374	30	56
2001	450	331	22	97
2002	450	298	25	127
2003	487	334	37	116
2004	513	353	43	117
2005	538	382	46	110
2006	575	412	55	108
2007	596	433	56	107
2008	609	445	44	120
2009	643	489	40	114
2010	665	500	51	114
2011	732	538	50	144
2012	762	584	38	139
2013	780	589	45	142

Source: Palestinian Central Bureau of Statistics

Since socio-economic variables will be projected to future years of interest on the assumption that past trend will continue in the future, it is recommended that the forecast period to be consistent with the observation period. The years of interest of this study are 2016, when containerization is expected to launch, 2020 and 2025 as mid- and long-term forecasts.

8.2.2 Framework of Socio-economic Indicators

Figure below shows the overall framework of the future freight traffic forecasting. The independent variables are selected from socio-economic indicators discussed in the earlier section, and the corresponding freight traffic observed over the past years is used as the independent variable. The relationship of the variables is established by using regression model.

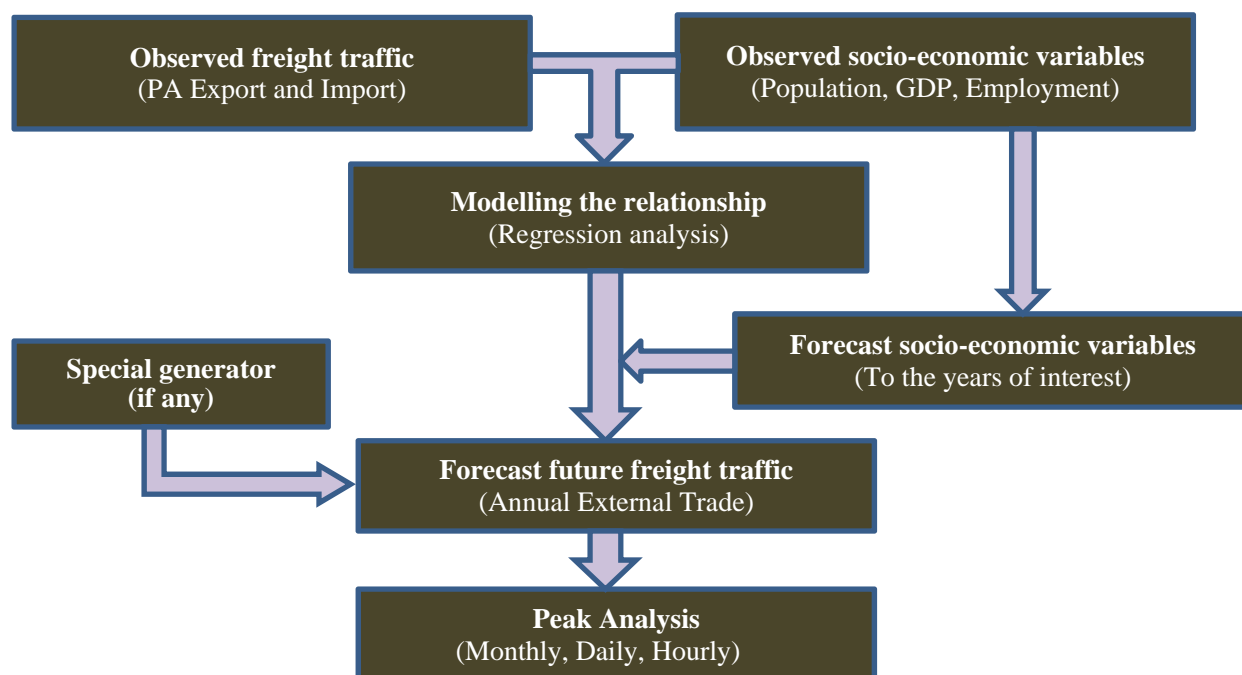


Figure 8.2-1 Framework of freight traffic forecasting

To forecast the future traffic volume, the study first forecast the socio-economic variables to the years of the interest. The forecasted socio-economic values are used to estimate the corresponding future traffic volume. Then, estimated traffic volume from Jericho Agro-Industrial Park (JAIP) as special freight generator is added to the forecasted volume. Finally, based on the surveyed and collected data the study estimates the freight traffic peaks.

8.3 Future Freight Demand Forecast

8.3.1 Forecasting KHB Freight Traffic

(1) Modelling

The freight traffic demand modelling is based on the data obtained by Jordan Customs.

As explained in the modelling methodology in previous section, there are several options for the freight traffic demand modelling. The simplest and easiest one is simply projecting the trend. This method is commonly used, particularly when there is limitation in resources. It should be used, however, with caution as this method is based on the assumption that the past trend will continues in the future.

Table 8.3-1 Freight volume crossing KHB (ton)

Year	Total	PA Exports	PA Imports
2009	243,997	112,515	131,482
2010	270,003	109,801	160,203
2011	355,507	134,566	220,942
2012	480,425	170,352	310,074
2013	527,921	179,479	348,442

Source: Jordan Customs

This study uses the economic indicators. The GDP, employment and population of the West Bank are known to be among the underlying factors behind the freight traffic demand. The study analysed the freight traffic and the different socio-economic variables, and found significant relationship. The modelling is based, however, on the GDP as it is commonly used indicator, which may generalize other economic activities. The modelling results for the PA-exports and PA-imports are given in Table below.

Table 8.3-2 Regression model result for PA exports through KHB

Variable	Parameter	Standard error	t-statistics	P-value
Intercept	-140329.76	62494.80	-2.25	0.1104
GDP 2004, US\$ (million)	60.54	13.37	4.53	0.0202

R-square=0.83

Table 8.3-3 Regression model result for PA imports through KHB

Variable	Parameter	Standard error	t-statistics	P-value
Intercept	-612946.13	124785.71	-4.91	0.0162
GDP at 2004,US\$ (million)	182.09	26.70	6.82	0.0064

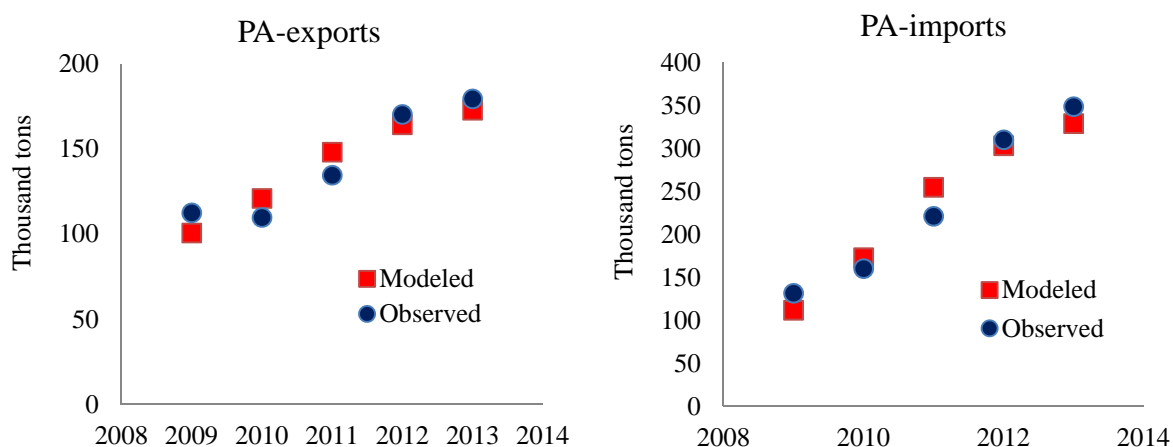
R-square=0.92

The GDP variable is statistically significant in both model results, and the R-squared value of the PA-export model and PA-import model is 0.83 and 0.92, respectively. The observed and modelled freight volumes are respectively shown in next Table and Figure.

Table 8.3-4 Observed and modeled KHB freight traffic

year	PA-exports (ton)		PA-imports (ton)	
	Observed	Modeled	Observed	Modeled
2009	112,515	100,605	131,482	111,706
2010	109,801	120,936	160,203	172,852
2011	134,566	148,137	220,942	254,666
2012	170,352	164,230	310,074	303,066
2013	179,479	172,803	348,442	328,853

Source: Jordan Customs and Study Team Estimation



Source: Jordan Customs and Study Team Estimation

Figure 8.3-1 Modeled and observed freight traffic of PA imports and exports through KHB

(2) Socio-economic data of the forecast years

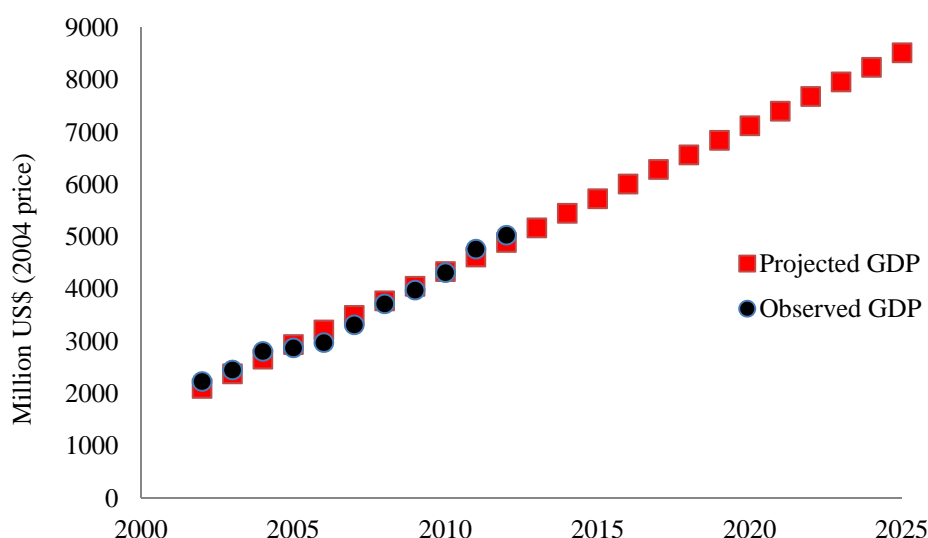
There are no future mid- or long-term forecasts of the socio-economic data. The study, therefore, projects the future socio-economic data to be used to forecast the future freight demand. The freight forecasting model is based on the constant price GDP of the West Bank. Regression model is used to project the GDP taking the time as an independent variable. The R-squared value of the estimation is 0.98, which is very high. The projection results are shown in next Table and Figure.

Table 8.3-5 West Bank GDP Projection

Year	Observed GDP (million US\$)	Forecasted GDP (million US\$)
2002	2,234	2,102
2003	2,452	2,381
2004	2,807	2,660
2005	2,877	2,939
2006	2,978	3,218
2007	3,317	3,497
2008	3,717	3,777
2009	3,980	4,056
2010	4,315	4,335
2011	4,765	4,614
2012	5,031	4,893
2013	-	5,172
2014	-	5,451
2015	-	5,730
2016	-	6,009
2017	-	6,289
2018	-	6,568
2019	-	6,847
2020	-	7,126
2021	-	7,405
2022	-	7,684
2023	-	7,963
2024	-	8,242
2025	-	8,521

Source: Study Team projected based on the observed data: PCBS

R-value: 0.98



Source: Study Team projected based on the observed data: PCBS

Figure 8.3-2 West Bank GDP projection (constant price)

(3) Forecasted PA exports and imports through KHB

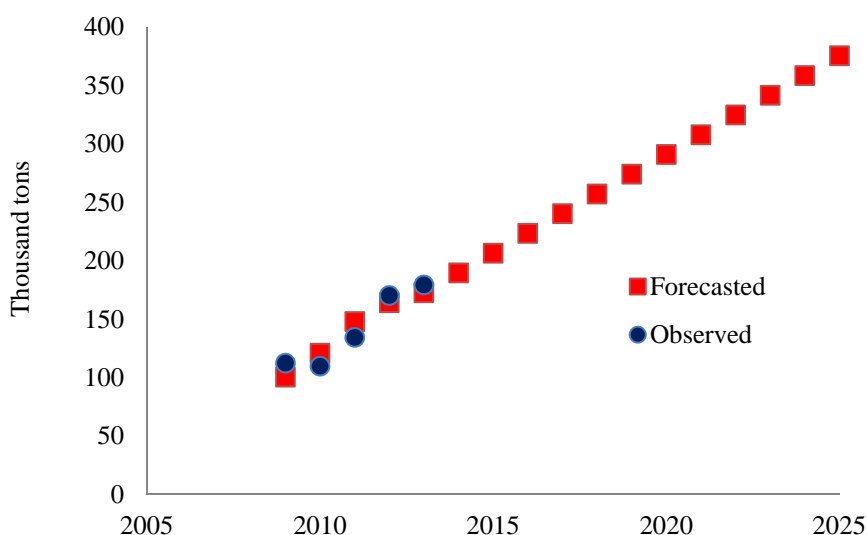
Table below shows forecasted freight traffic volume that the PA is expected to export through KHB. The forecast is based on the projected GDP and the freight-GDP relationship modelled at the beginning of this section.

Table 8.3-6 Forecasted PA exports through KHB

Year	GDP (@2004 million US\$)	Observed freight (tons)	Forecasted freight (tons)	Remark
2009	3,980	112515	100,605	
2010	4,315	109801	120,936	
2011	4,765	134566	148,137	
2012	5,031	170352	164,230	
2013	5,172	179479	172,803	
2014	5,451		189,702	
2015	5,730		206,600	
2016	6,009		223,498	Containerization at KHB (Israel)
2017	6,289		240,396	
2018	6,568		257,295	
2019	6,847		274,193	
2020	7,126		291,091	
2021	7,405		307,989	
2022	7,684		324,888	
2023	7,963		341,786	
2024	8,242		358,684	
2025	8,521		375,582	

Source: Study team projected based on the observed data

The result shows that the freight volume that PA exports through KHB would increase from 2013 to 2016, the year that containerization is expected to start, by 24.5% to 223,498 tons. The freight volume reaches 291,091 tons in 2020, an increase of 62.2% from 2013. By 2020 the PA exports through KHB will be 375,582 tons, 2.09 times of the 2013 volume. In general, the PA exports forecast through KHB show indicates that the export volume will increase at a rate of 6.4% from 2013 to 2025.



Source: Study Team projected

Figure 8.3-3 Forecasted PA exports through KHB

Similarly, next Table shows the forecasted PA imports through KHB. The PA imports through KHB grow at an average rate of 8.6% per year from 2013 to 2025, which is higher than the corresponding rate of imports (6.4%).

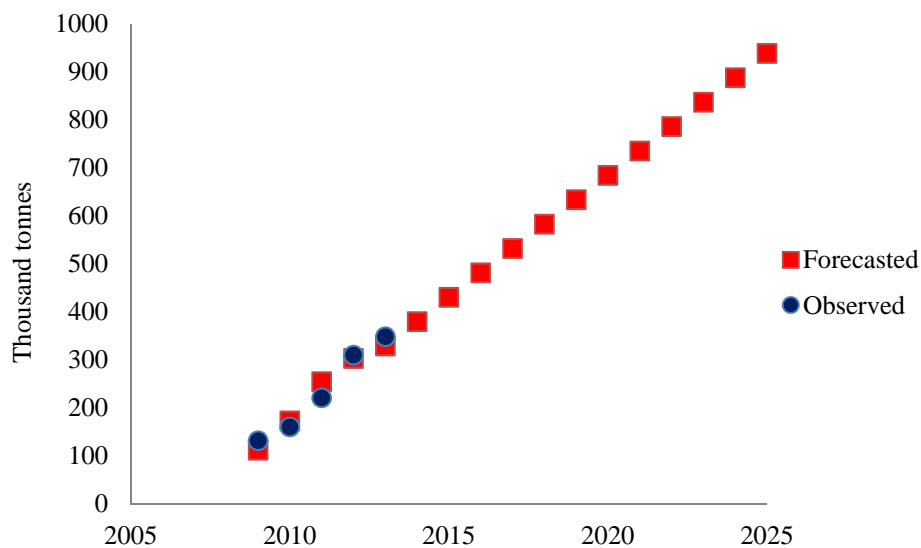
The PA is expected to import 481,326 tons of freight through KHB in 2016, showing an increase of 38.1% from 2013. The PA import through KHB expands to reach 684,623 tons in 2020, and 938,744 tons in 2025.

Table 8.3-7 Forecasted PA imports through KHB

Year	GDP (@2004 millionUS\$)	Observed freight (tons)	Forecasted freight (tons)	Remark
2009	3,980	131,482	111,706	
2010	4,315	160,203	172,852	
2011	4,765	220,942	254,666	
2012	5,031	310,074	303,066	
2013	5,172	348,442	328,853	
2014	5,451		379,677	
2015	5,730		430,502	
2016	6,009		481,326	Containerization at KHB (Israel)
2017	6,289		532,150	

2018	6,568	582,974
2019	6,847	633,799
2020	7,126	684,623
2021	7,405	735,447
2022	7,684	786,271
2023	7,963	837,096
2024	8,242	887,920
2025	8,521	938,744

Source: Study Team projected

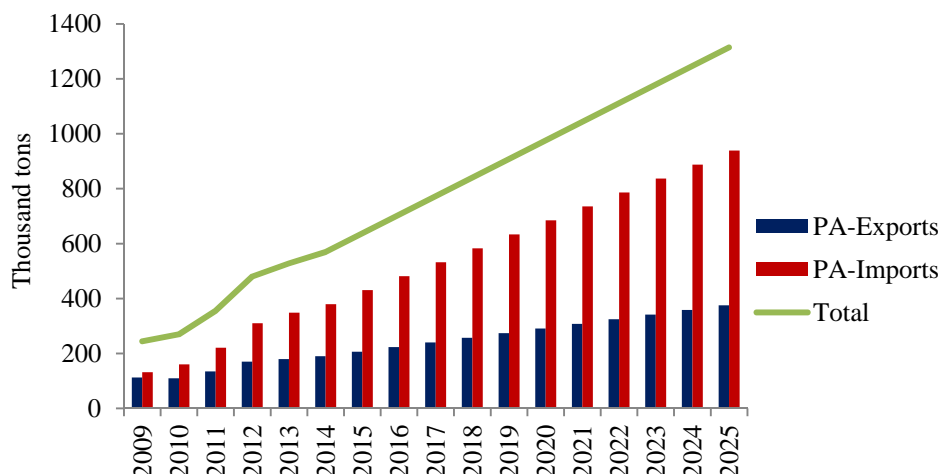


Source: Study Team projected

Figure 8.3-4 Forecasted PA imports through KHB

(4) Total freight traffic of KHB

In 2013 the PA export through KHB accounted for just 34% of the total freight. This is a significant drop from 2009, when the export was 46% of the total volume. This export-import gap is expected to continue, although it may be at a lesser rate. The forecasted data indicate that the PA export will account for 32% of the total KHB freight traffic in 2016. This will reach 30% in 2020 and 29% in 2025.



Source: Study Team projected

Figure 8.3-5 Forecasted PA export and import through KHB with the total

So far the freight traffic is forecasted based on annual and volume basis. For facility design or performance evaluation, however, trucks traffic and at shorter time frame is required. The following section converts the forecasted annual traffic volume to traffic rate that is suitable for facility design or performance evaluation taking the temporal variations into account.

(5) Temporal Variations

The traffic volume of a corridor may vary significantly within various months of the year, or within days of the week. Even there is considerable variation of the traffic within various hours of the day. It is important to analyse these variations to identify a suitable rate for design of facilities. For these temporal variations of the traffic, the study conducted a survey besides collecting a time series data of the KHB freight traffic.

First, the annual average daily freight volume of the forecasted data is calculated by dividing the total freight by the operating days. Currently, KHB freight terminal operates in the weekdays only, and closes in the local weekends (Friday and Saturday). Therefore, strictly speaking the volume here refers to the annual average weekday freight volume, however, as there is only weekday freight traffic the study keeps referring to this as AADV.

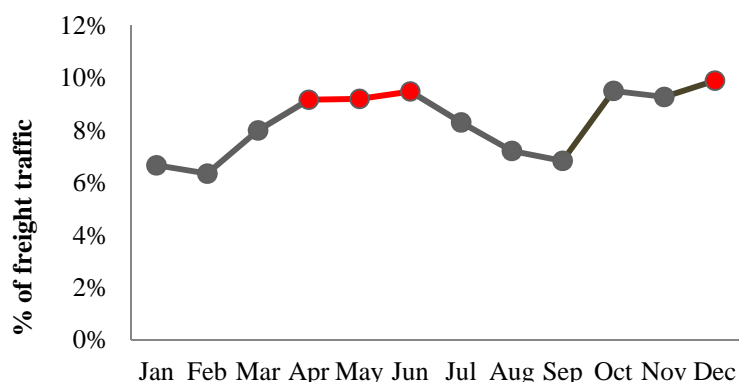
Table 8.3-8 Forecasted Average Daily Freight Volume crossing KHB

Year	Yearly Volume (ton)	Annual Average Daily Volume (ton)
2009	243997	938
2010	270003	1038
2011	355507	1367
2012	480425	1848
2013	527921	2030
2014	569379	2190
2015	637102	2450
2016	704824	2711

2017	772547	2971
2018	840269	3232
2019	907992	3492
2020	975714	3753
2021	1043437	4013
2022	1111159	4274
2023	1178882	4534
2024	1246604	4795
2025	1314327	5055

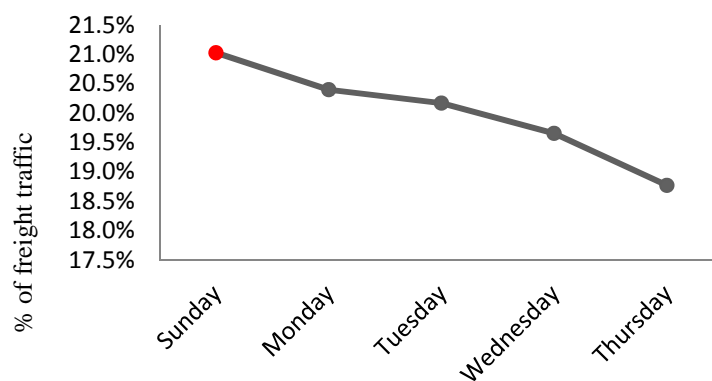
Source: Study Team projected

The above daily volume is calculated by dividing the annual volume equally over the days of the year that KHB provides service. That is, however, is not the reality as there would be seasonal variation, and differences of volume within days of the week. The study analysed the seasonal variation using customs data over five years. Higher freight volume is generally observed about the middle or the end of the year. Similarly, the study analysed the variation of the traffic over days of the week. It is also clear from the figure that highest freight volume of the week occurs on Sundays, the first local weekday of the week.



Source: Jordan Customs

Figure 8.3-6 Monthly distribution of KHB freight (2009–2013)



Source: Jordan Customs

Figure 8.3-7 Weekly distribution of KHB freight (2009–2013)

The above pattern analysis confirms that the KHB traffic count result on May and on Sunday represent higher traffic period. The Table below shows seasonal (monthly) and daily adjustment factors. The survey day traffic should be adjusted for the monthly and daily variations to get the AADV.

Table 8.3-9 Seasonal Adjustment Factors

Month	2009	2010	2011	2012	2013	Average
Jan	1.1	1.1	1.6	1.0	1.5	1.27
Feb	1.1	1.3	1.6	1.6	1.1	1.33
Mar	1.1	1.2	1.1	0.9	1.1	1.08
Apr	0.9	1.1	1.1	0.8	0.8	0.96
May	0.7	1.2	0.9	0.9	0.9	0.93
Jun	0.8	1.2	0.9	0.9	0.8	0.91
Jul	0.9	1.0	1.1	1.0	1.0	0.99
Aug	0.9	0.8	1.0	1.4	1.4	1.11
Sep	1.3	1.1	1.2	1.3	1.2	1.22
Oct	1.1	0.8	0.6	1.0	1.0	0.90
Nov	1.3	0.8	1.1	1.0	0.7	0.96
Dec	1.2	0.8	0.7	0.9	0.8	0.89

Source: Prepared by Study Team

Table 8.3-10 Weekly Adjustment Factor

Week	2009	2010	2011	2012	2013	Average
Sunday	0.98	0.91	0.94	0.96	0.96	0.95
Monday	0.99	1.02	0.96	0.99	0.98	0.99
Tuesday	1.06	0.97	0.99	0.95	1.01	1.00
Wednesday	1.05	1.00	1.07	0.99	1.00	1.02
Thursday	0.93	1.12	1.05	1.11	1.05	1.05

Source: Prepared by Study Team

The above analysis clarifies monthly as well as daily variation of the KHB freight traffic. However, for engineering purpose traffic rate in yet shorter period, hourly basis is necessary. The hourly traffic variation is calculated based on the survey data. Conventionally, daily traffic represents 24 hours, but KHB operates limited hours in a day. As a result, although the survey was conducted from 6:00–22:00, the distribution is limited to the traffic of operating hours of KHB.

The hourly traffic distribution shows higher proportion at the opening hour of KHB, with the peak of the day during 3–4 p.m. Some of the trucks arrive before the bridge starts operation making the traffic at the beginning of the service higher. In these early hours only traffic bound for Palestinian Territory is observed on the Jordanian side.

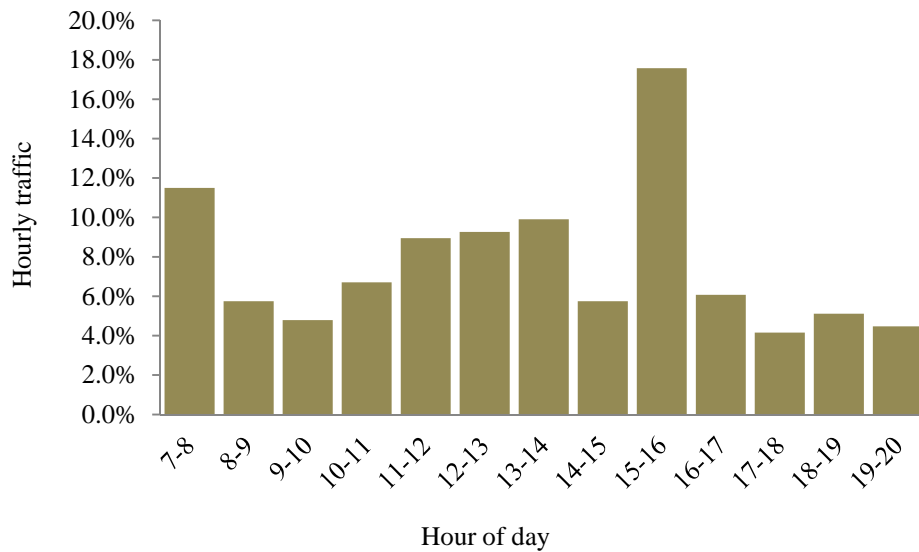


Figure 8.3-8 KHB hourly traffic variation

The traffic volume may vary on daily basis, but the distribution is hardly expected to change significantly over days or years. Therefore, it is assumed that future freight traffic will show similar distribution. Extending the operating hours of the bridge in the future would only make the traffic to distribute over longer period, reducing the current distribution proportion.

(6) Design hour truck traffic

As mentioned in previous sections, the design of the facilities is commonly based on an hourly level traffic. The hourly traffic volume selected for the design is commonly referred to as design hour traffic volume. The hourly traffic volume varies by day and by month and specifying the design hour needs a careful consideration. Previous section analysed temporal variation of the KHB, and the analyses have shown that how traffic varies by a month of the year, and by a day of the week. In principle, the design hour volume is selected so that the economic feasibility and level of service of the facility to be provided are balanced

AASHTO and other similar manuals suggest that a facility should be designed so that its capacity will be exceeded for duration of not more 30 hours throughout a year, in general. This design hourly volume is known as the 30th highest hourly volume (30 HV). The 30 HV has to be actually decided, but necessary data are not easily available, particularly for studies in developing countries like this one. Therefore, the peak-hour factor is applied for design hour in this study. The peak-hour traffic volume is 17.6% of the average daily traffic and it is used as the design hour volume. Moreover, for better understanding of the fluctuation or extreme situations the traffic volume for high, average and low traffic days are estimated.

First, loaded truck traffic is calculated followed by the total traffic. Each traffic volume is split into two directions (export and import) as the following discussion shows.

To determine the loaded truck freight traffic, the study analysed average loads of the loaded trucks crossing KHB. As the Table below shows, the average annual freight volume carried

by each truck has been increasing. Although the volume carried by each truck may increase in the future, which means lesser truck traffic for the same freight volume, the study uses the 2013 average values to determine the future total loaded truck traffic.

Table 8.3-11 Annual average loads per truck (2010–13) *tons/truck*

	2010	2011	2012	2013
PA Export	14.84	17.61	19.12	20.00
PA Import	14.37	14.55	17.42	18.27
Average	14.56	15.57	17.99	18.83

Only loaded trucks, and exclude empty trucks crossing the bridge

Source: Prepared by Study Team

Based on the above annual average per truck loads the daily number of truck crossing KHB is estimated as shown in next Table and Figure. To get the total truck traffic, which includes empty trucks, crossing the bridge the proportion of the empty trucks crossing the bridge is estimated first. The empty truck is estimated from the trend of empty truck traffic ratio recorded by the Jordan Customs. It is based on the assumption that the average trend observed over the last four years (2010–13) will continue.

Table 8.3-12 Trucks crossing KHB (trucks)

	PA-exports			PA-imports			Grand-total
	Loaded	Empty	Sub-total	Loaded	Empty	Sub-total	
2010	7399	9723	17122	11149	5238	16387	33509
2011	7643	12627	20270	15190	5219	20409	40679
2012	8909	14896	23805	17803	6564	24367	48172
2013	8972	16569	25541	19068	6952	26020	51561

Source: Jordan Customs

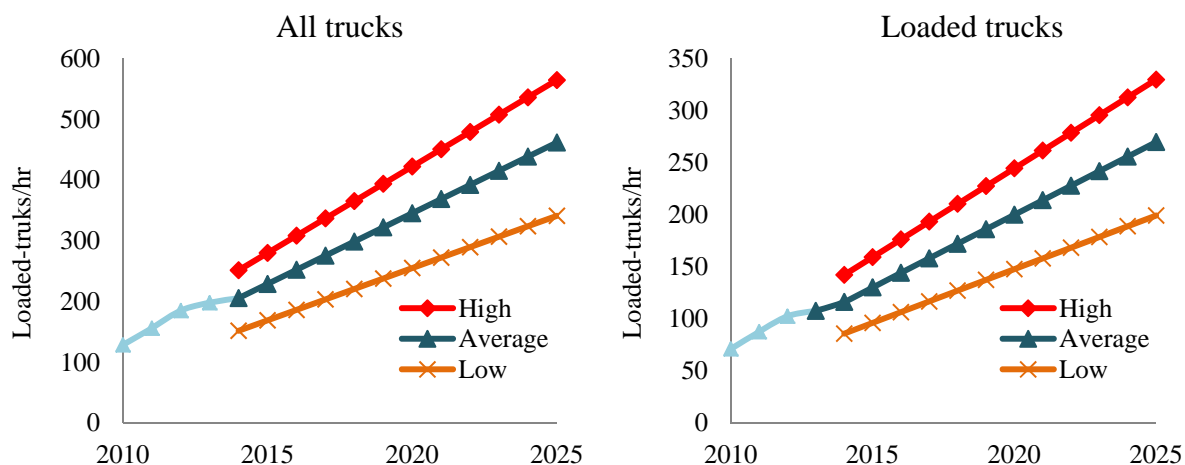
The empty truck proportion significantly varies for trucks in the PA-export direction and those in the PA-import direction. Therefore, the loaded and total traffic is calculated for each direction separately and then combined

Table 8.3-13 Forecasted daily truck traffic (trucks)

Year	All trucks			Loaded trucks		
	High	Average	Low	High	Average	Low
2010		129			71	
2011		156			88	
2012		185			103	
2013		198			108	
2014	252	206	152	142	116	86
2015	280	229	169	159	130	96
2016	308	252	186	176	144	107
2017	337	276	204	193	158	117
2018	365	299	221	211	172	127

2019	394	322	238	228	186	138
2020	422	346	255	245	200	148
2021	451	369	272	262	214	158
2022	479	392	290	279	228	168
2023	508	415	307	296	242	179
2024	536	439	324	313	256	189
2025	565	462	341	330	270	199

Source: Study Team projected



Source: Study Team projected

Figure 8.3-9 Forecasted daily truck traffic crossing KHB

According to the result, 252 trucks will cross KHB on average in 2016, out of which 144 are loaded in both direction. In 2020 the number of the trucks through KHB will reach 346, out of which 200 are loaded trucks. By 2025 the KHB traffic is expected to grow to 462 trucks on average traffic day.

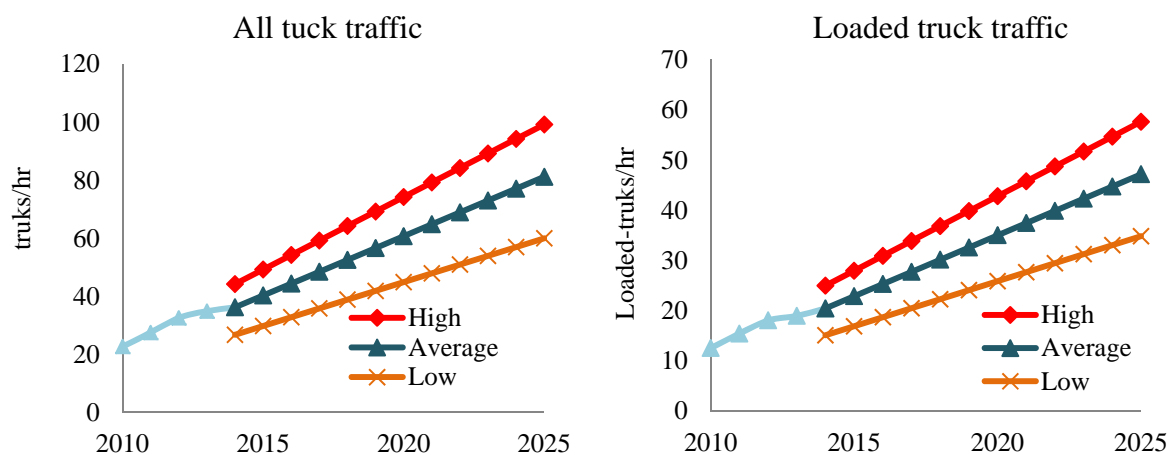
Having estimated the daily traffic, the next step is analysing hourly variation of the traffic. As discussed at the beginning of this section, hourly level traffic is important for design. As already discussed at the beginning of this section, the peak hour traffic, which account for the 17.6% of the daily traffic, is considered as the 30 HV. Therefore, the study shows the peak hour traffic of the forecasted years.

Table and Figure below show the peak hour traffic crossing KHB. In average day the peak hour traffic of loaded traffic will be 44 trucks in 2016, 61 trucks in 2020, and 81 trucks in 2025.

Table 8.3-14 Peak hour truck traffic (trucks)

	All trucks			Loaded trucks		
	High	Average	Low	High	Average	Low
2010		23			13	
2011		27			15	
2012		33			18	
2013		35			19	
2014	44	36	27	25	20	15
2015	49	40	30	28	23	17
2016	54	44	33	31	25	19
2017	59	48	36	34	28	20
2018	64	53	39	37	30	22
2019	69	57	42	40	33	24
2020	74	61	45	43	35	26
2021	79	65	48	46	37	28
2022	84	69	51	49	40	29
2023	89	73	54	52	42	31
2024	94	77	57	55	45	33
2025	99	81	60	58	47	35

Source: Study Team projected



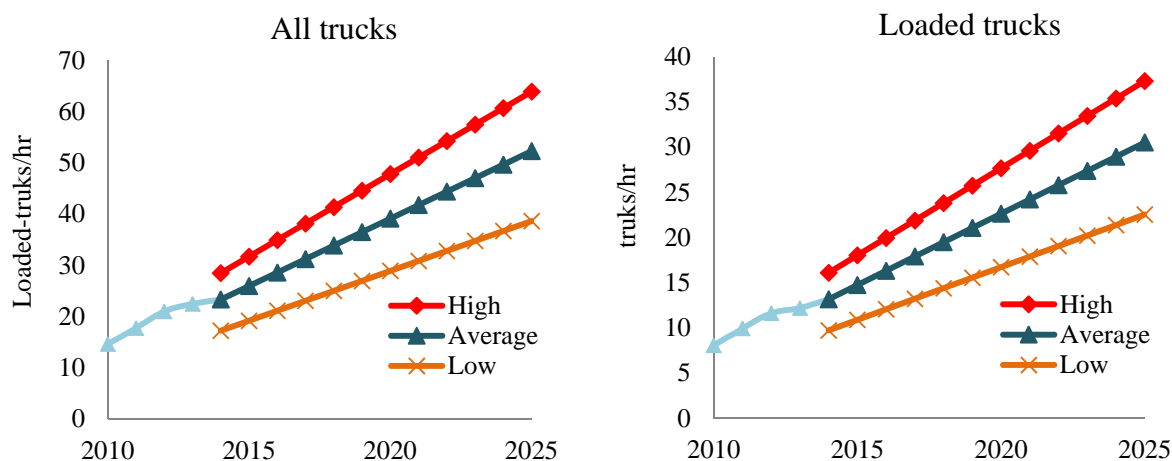
Source: Study Team projected

Figure 8.3-10 Peak hour total and loaded truck traffic of KHB**(7) Directional hourly volume**

The one way traffic volume in the predominant direction of the design hour is commonly referred to as the directional design-hour volume. For rural and sub-rural roads the volume may range from 55 to 80% of the ADT, AASHTO states. For the KHB traffic the design hour (peak hour) directional traffic volume is calculated based on the field survey data, and it is 64.4% of the ADT in PA-export direction from Palestine to Jordan.

Table 8.3-15 Directional design hour truck traffic (from Palestine to Jordan)

Year	All trucks (Trucks)			Loaded trucks (Trucks)		
	High	Average	Low	High	Average	Low
2010		15			8	
2011		18			10	
2012		21			12	
2013		22			12	
2014	28	23	17	16	13	10
2015	32	26	19	18	15	11
2016	35	29	21	20	16	12
2017	38	31	23	22	18	13
2018	41	34	25	24	19	14
2019	45	36	27	26	21	16
2020	48	39	29	28	23	17
2021	51	42	31	30	24	18
2022	54	44	33	32	26	19
2023	57	47	35	33	27	20
2024	61	50	37	35	29	21
2025	64	52	39	37	31	23



Source: Study Team projected

Figure 8.3-11 Directional design hour truck traffic

Although the highest traffic is observed in the afternoon, at the design hour, similar directional traffic is observed in the morning peak hour. In the morning peak hour, the truck traffic bound for Palestinian Territory at the opening of the bridge account for 10.5% of the ADT (all bound for Palestine). For reference, the morning peak hour traffic is given in Table below.

Table 8.3-16 Morning peak hour truck traffic (from Jordan to Palestine)

Year	All trucks (trucks)			Loaded trucks (trucks)		
	High	Average	Low	High	Average	Low
2010		15			8	
2011		18			10	
2012		21			12	
2013		23			12	
2014	29	24	17	16	13	10
2015	32	26	19	18	15	11
2016	35	29	21	20	17	12
2017	39	32	23	22	18	13
2018	42	34	25	24	20	15
2019	45	37	27	26	21	16
2020	49	40	29	28	23	17
2021	52	42	31	30	25	18
2022	55	45	33	32	26	19
2023	58	48	35	34	28	21
2024	62	50	37	36	29	22
2025	65	53	39	38	31	23

Source: Study Team projected

8.3.2 Forecasting KHB Passenger Traffic

The number of passengers crossing KHB is consistently increasing. In 2013 alone, 1.77 million passengers (in both directions) crossed the bridge. This shows a 17.3% increase from the 2009 passenger traffic, which Figure was 1.51 million. The passenger has increased at an average annual rate of 4.1% in the last five years (2009–2013).

Table 8.3-17 KHB passenger traffic

Year	From Palestine	To Palestine	Total
2009	729,015	778,598	1,507,613
2010	803,878	869,604	1,673,482
2011	808,139	857,064	1,665,203
2012	834,833	891,226	1,726,059
2013	860,314	907,433	1,767,747

Source: Jordan Public Security Department

Passengers crossing into Palestine are more than those from Palestine; however, the difference is limited, and the passengers crossing into Palestine account for 51.6% of the total on average.

The passenger traffic is expected to increase in the future. The study forecasted the future KHB passenger traffics using the socio-economic indicators discussed in previous Section. Passenger traffic in each direction is modelled separately based on the West Bank population (i.e., as the independent variable). The regression model results for passengers coming from Palestine, and those toward Palestine are respectively shown in next Table.

Table 8.3-18 Models results for KHB passenger from Palestine

	Coefficients	Standard error	t-Stat.	P-value
Intercept	-307.84	236.93	-1.30	0.29
West Bank Pop. (000)	0.43	0.09	4.71	0.018

R-squared =0.84

Table 8.3-19 Models results for KHB passengers toward Palestine

	Coefficients	Standard error	t-Stat.	P-value
Intercept	-198.57	328.94	-0.60	0.59
West Bank Pop. (000)	0.41	0.13	3.22	0.05

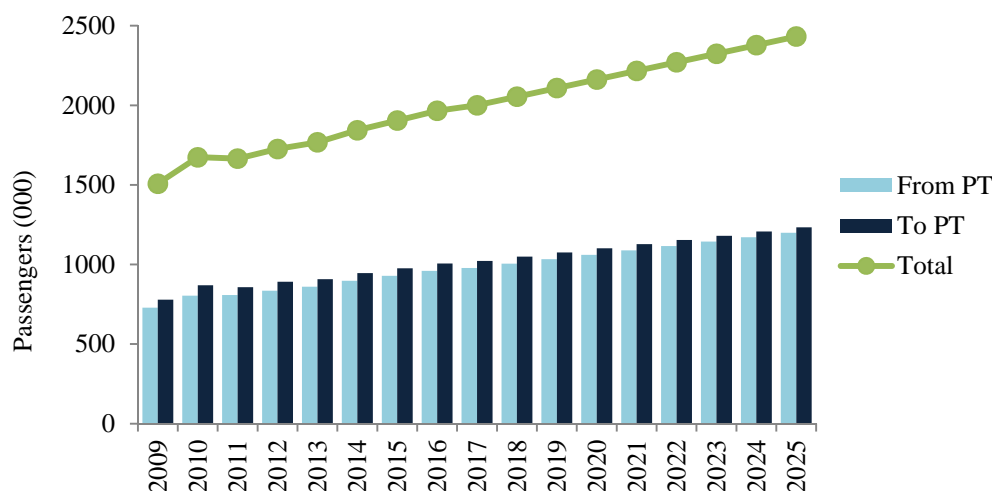
R-squared =0.70

The forecasted KHB passenger traffic is shown in next Table and Figure. The total passenger traffic which was 1.78 million is expected to be two million by 2017. The number of passengers crossing KHB will reach 2.16 and 2.43 million in 2020 and 2025 respectively. The KHB traffic estimation shows that the passenger will increase at an average annual rate of 2.7% from 2014 to 2025.

Table 8.3-20 Forecasted KHB passenger traffic

Year	Total (thousand)	From Pal. Territory	To Pal. Territory
2009	1556	750	806
2010	1610	778	833
2011	1666	806	860
2012	1724	836	888
2013	1783	866	917
2014	1843	897	946
2015	1904	928	976
2016	1966	960	1006
2017	2000	978	1023
2018	2054	1005	1049
2019	2108	1033	1075
2020	2162	1061	1102
2021	2216	1088	1128
2022	2270	1116	1154
2023	2324	1144	1180
2024	2378	1171	1207
2025	2432	1199	1233

Source: Study Team projected



Source: Study Team projected

Figure 8.3-12 Trend of KHB passengers

8.4 Verification of the Facility Size

Based on future freight demand as calculated previous section, verification on the new truck terminal has been conducted which is potential bottleneck for the existing truck terminal at KHB. Specifically, verification has been performed in terms of the Size (Truck parking capacity) and cargo inspection system. The newly planned facility scale of the Jordanian truck terminal is as follows.

Table 8.3-21 Projected Parking Scale in new Truck Terminal at KHB

Truck Parking Space	Option 1 (Door-to-Door)	Option 2 (Back-to-Back)
Departure	130	107
Arrival	116	55
Transship	-	20
Sub Total	246	182

Source : KHB Design Paper, Ministry of Public Works

8.4.1 Parking Capacity

The number of trucks projected for KHB in 2025 is estimated to be 565 vehicles per day in high season, which is equivalent to 99 vehicles in peak hour. On the other hand, the process time for export and import is as following Table. Every truck for export and import are parking for any activities stated in the table.

Table 8.3-22 Jordanian KHB truck terminal utilization time

Process	Time Required
Immigration and customs clearance for export trucks	114 min.
Immigration for import trucks	82 min.
Customs clearance of import trucks	100 min.
Average	99 min.

Source : Prepared by Study Team

The required number of parking lots for trucks is generally determined based on the demand of peak time during the high season. This demand is calculated using the equation shown below. In this case, the rotation factor is defined as the frequency of usage per hour of the parking lot. In this case, the average required time of above three processes is 99 minutes and the rotation factor is assumed one hour (60 minutes) / 99 minutes = 0.61.

Required parking capacity (number of lots) = No. of vehicles at peak hour / Rotation Factor

For the truck demand at peak hour during high season in 2025, the required parking capacity is calculated to be 163lots. The number of required lots by calculation is within the projected number in both option 1 and 2 in KHB upgrading plan.

8.4.2 Inspection System (Scanner)

The inspection capacity of large scaled scanner or mobile type scanner which is operated in QAIA and others by the Jordan customs is more than 100 vehicles per hour. This inspection ability could cover the truck demand in 2025.

9. LOGISTICS PROBLEMS AND ISSUES FOR JORDAN VALLEY

The problems and issues identified in above the contents of the study are summarized following.

9.1 Problems on Logistics in Jordan Valley

9.1.1 Inefficient Transportation System

The inefficient system causes high cost structure on Fare and Time. Such a system makes regional products (Jordan and Palestine) high and it highly decrease competitiveness of local products. This is the one of the key factors by which regional economic growth has been refrained.

(1) Back-to-Back System at Border Crossing

Jordanian and Palestinian (Israeli) vehicles cannot entry into other territory. This system is extremely constraints on smooth transportation and quite opposite policy against the common Door-to-Door system over the world. When shippers order the transportation of goods, for example, the cost is likely to be high since additional process for coordination with a couple of logistics companies is required. Besides additional cost, back-to-Back system has a risk of damage and spoiling the goods due to careless check at opening and/or loading/unloading activity.

Since large scaled forwarders who have own transportation network cannot control the distribution route, market prices of transportation in region also remain to high level.

(2) Movement Restriction for Palestinian Vehicles

Most of trucks passing KHB in Palestine side are Palestine registered vehicles. The fact is attributed to nothing but restriction of movement in Palestine territory only. Without such movement restriction, wide-area transportation connecting Palestine and Israel might have existed originally in the diversified pattern, generating the convenience for users and the price competitiveness.

In addition, in the present situation, the Palestine-registered vehicles are obliged to have many inspection at temporary check points even when traveling within Palestine territory. The fact also causes time loss and damage to cargoes in the course of inspection, etc. in the similar manner as described in the previous paragraph.

9.1.2 Competitiveness as a Wide-area Logistics Route

The KHB located in the Jordan Valley points to the Mediterranean and Red Sea, and is at the strategic position of the traffic route connecting to Europe, Africa, Middle East, etc. This area is historically a place where the civilization developed since ancient. Most of cargoes passing through the Jordan Valley, however, are short trip transportation flow between Jordan and Palestine. It means that geographical high potential is not made practical use fully at all, and the fact became an obstacle to restrain the regional economic

growing.

For example, the import from Asia to Palestine accounts for about 10% of the total cargo amount. Considering the route, the one of using KHB after unloading at Aqaba port would be shorter in distance. But the import share of cargoes for Palestine transported via the KHB remains as low as only about 2%. It is presumed that most of cargoes from Asia are transported through another route (Israel route via the Suez Canal).

9.1.3 Incomplete and Insufficient of Quarantine Facilities

Not only the KHB but also all of other land border facilities in Jordan have no quarantine facilities. It is confirmed by interviewing by organization concerned that such situation is negative effects as shown below.

- ✓ The quarantine system at KHB is to take the sample of quarantine objects and to send it to the quarantine facilities of Agriculture Center, Ministry of Agriculture in Amman. It takes about one week till the inspection result is certified.
- ✓ Usually, quarantine inspection is covered by random sampling method at rate of about one every 10 vehicles in average. But the global standard is, of course, 100% inspection.
- ✓ The KHB upgrading plan studied by Quartet and Ministry of Public Works and Housing does not contain any study on the quarantine facilities. It is quite normal consideration according to practice so far, but miscommunication with MoA about quarantine system at KHB is also one of the reasons to missing.
- ✓ The existing quarantine office at KHB is in the poor condition. Actually, the office has only the refrigerator (same as home use) for storage of samples and two office buildings (each roughly 10 square meters only).
- ✓ The quarantine operation is highly demanded practically that sampling must be done approximately every day. It is about 50 samples in a day at high demand season.
- ✓ Trucks are allowed to release and go for the destination even if the quarantine inspection in Amman is not completed. However, the agreement is exchanged between the shippers and custom office in Jordan that commodities inside trucks could not be opened unless the quarantine result is certified. Actually, it is not confirmed that shippers always keep the rule about quarantine guideline.

9.2 Problems on Utilization of Ling Hussein Bridge

9.2.1 Shortage of the Capacity of Truck Parking Space and Cargo Handling

The scale of truck terminal in Jordan side, especially truck parking lot and office spaces for handling cargo, is insufficient to deal the demand. As stated in Chapter 7 result of field survey, parking space of truck in Jordan side, entrance gate for Jordanian trucks at Israel side, and cargo inspection equipment (scanner) in Israel side are probable bottleneck.

9.2.2 Complicated Procedure of Passenger (Israel and Jordan) and Long-time process (Jordan)

For passengers of Palestine nationality, crossing the border requires immigration control, security inspection on each of Jordan, Israel, and Palestine. For this purpose, both Jordan and Palestine have buildings different from the ordinary facilities for foreigners and have the separate shuttle buses to travel between facilities and to cross the border. The procedure and system have become troublesome, coercing inconvenience to the users. In addition, the facility scale cannot be said to be enough to meet the demand. The fact-finding survey in the site identified that, in the Jordan side facilities, it takes long time to complete the procedure particularly during the peak hours.

9.2.3 Poor Coordination in terms of the Contents and Progress for KHB Upgrading between Two Countries (Jordan and Israel)

It is favorable that improvement plan of the border facilities at KHB is being implemented on both Jordan and Israel sides. On the other hand, however, hearing of the authorities concerned had made it clear the details of Israeli improvement project, which is ahead of that of Palestine, are not thoroughly known to the Palestinian authorities concerned and not in step with those of the Jordanian side project.

Specifically, concerning how development of the reloading facilities should be, Israel is proceeding with the proposed improvement while reflecting the policy of executing back-to-back system at home as conventional, but such policy is not shared to the satisfactory extent with Jordan. In consequence, Jordan is reviewing the plan appropriate to both back-to-back and door-to-door systems and has not yet reached the conclusion which system is to be employed.

9.2.4 Necessity of accommodation for the Israeli KHB Improvement (containerization) (Jordan)

A focus in the KHB improvement concept is to accommodate the facilities capable of handling the passage of containerized cargoes. It was known from the hearing of authorities concerned of both countries that they agreed in this respect.

At present, the Israeli border improvement work is scheduled to be completed in 2016. On the Jordan side, however, the improvement is not yet even on the design stage (that is, the procedure is still on the gross review level with the concept paper).

In principle, the containerized cargoes are to be transported through the seamless transportation system, without being opened in the way. Namely, an efficient container transportation requires an introduction of the system enabling inspection of the container contents without opening. Unless such system is introduced, increasing cargo congestion, worse than the present, may be expected on the Jordan side in the situation where the future cargo demand is expected to grow as estimated in the previous chapter.

Accordingly, by the time of completion of Israeli improvement in 2016, the system (scanner) must be introduced for inspection of containers. However, development of a new terminal on the Jordan side is delayed and any specific development policy and

preparation, including the measures to be taken up to introduction of the scanner, have not been completed.

9.2.5 Congestion caused by Unbalanced Passenger Demand due to limited Operation Hours (Jordan, Israel)

As is evident from the fact-finding survey in the site, the operating hours of the KHB are not 24 hours, but varies from day to day. Accordingly, the users demand tends to concentrate in the morning because they want to pass the border as early as possible. The facilities may be capable of handling the demand when the demands of cargoes and passengers are small. It is evident in the recent remarkable increase in the users that the facility capacity cannot catch up the demand.

9.3 Technical and Political Consideration for the Issues

Assuming to solve the issues related to the Jordan Valley as a whole and KHB as summarized previously, the issues may be classified into technical and political. Since the situation among the relation of target counties are too complicated to propose good solution. It is necessary to hold the discussions and coordination on the national level through like the four parties meeting upon the Corridor of Peace and Prosperity. Consequently, it is difficult to show the concrete project to improve for political issues at present. It is important, however, to solve such issues someday, and sustainable monitoring and support from the Jordan side and/or Palestine side through the continuous data collection survey is required.

Table 9.3-1 Classification of Problems and Issues

Issues	Issue Classification and Action for Solution
① Decline of transport efficiency and quality maintain of goods due to Back-to-Back system	●System change is Political issue
② Decline of transport efficiency due to movement restriction of Palestine-registered vehicles	●System change is Political issue
③ Sluggish regional economic growth because potential of wide-area logistics route is not fully used	○Promotion of containerization will prove helpful. Various measures for early achievement necessary.
④ Risk of import of cargoes concerned due to incompleteness of the quarantine facilities	○Inclusion in KHB improvement review items necessary
⑤ Long process time due to insufficient scale of KHB truck terminal	○Improvement of the facilities to the adequate size necessary
⑥ Deterioration of passenger services and long process time due to complicated passenger process	●System change is Political issue
⑦ System inconsistency due to insufficient negotiation between two countries in line with KHB improvement	○Confirmation of the contents of the leading Israeli improvement work and identification of the Jordanian terminal configuration necessary
⑧ Concern about delay in measures of containerization due to delay in improvement of Jordanian KHB	○Study on temporary measures up to completion of improvement of Jordanian terminal necessary
⑨ Congestion promoted due to unbalanced demand of users in line with restrictions of KHB operating hours	●System change is Political issue

Legend: ○ Technical Issues, ● Political Issues

Source: Summary by Study Team

10. POLICY FOR THE LOGISTICS IMPROVEMENT IN JORDAN VALLEY

10.1 Policies for solution

Efficiency improvement of logistics planned at the King Hussein Bridge, the greatest bottleneck of logistics in the Jordan River Rift Valley, through its improvement is considered the authentic and most effective measure conceivable at present. The reasons are as follows:

- ✓ The policy of containerization for the King Hussein Bridge has been agreed upon among three countries of Israel, Palestine, and Jordan, so that the environment and conditions for development are already in place.
- ✓ The improvement project on the Israel side is one step ahead of other countries, and Jordan is expected to put into practice the improvement project without delay.
- ✓ All of land border facilities in the Jordan Valley are those requiring reloading, and it is expected that containers itself are to enable transfer to the door to door system for transportation of containerized cargoes. This is the first undertaking ever attempted on the border in the Jordan Rift Valley and will also be the critical pilot project determining the trends of logistics in the region as a whole in the future.
- ✓ Efficiency improvement of the logistics through containerization is expected to contribute to increase in the current trade volume between the West Bank of Jordan and Arab countries. In addition, marine container transportation will be easier, which is expected to help increasing the trade volume via the West Bank of Jordan and Aqaba Port.
- ✓ This project has a potential of encouraging increase in the export from the West Bank of Jordan and thus will support JAIP that will be started to operate soon. This will be the project meeting the concept of the “Corridor for Peace and Prosperity” as Japan has proposed.

10.2 Long list and Screening for Proposed Improvement Project

The candidate measures conceivable when viewed according to the policy described above are as follows.

Table 10.2-1 List of Improvement Facilities for Logistics (Related to Improvement of KHB)

Proposals	Contents	Issue for implementation
KHB introduction of mobile scanner (inside the existing facilities)	<ul style="list-style-type: none"> It is necessary to introduce the mobile scanner for containerized cargoes on the Jordan side by 2016 when handling of containerized cargoes starts after completion of the improvement project on the Israel side. Currently, development of a new terminal is under way at the initiative of Ministry of Public Works and Housing. Though it is necessary to introduce a scanner by 2016, it is planned to introduce a mobile (vehicle mounted) scanner that can be moved later. The stationary scanner is to be introduced for a new terminal and a mobile type will be operated for vehicles of cargoes other than those containerized. 	<ul style="list-style-type: none"> If the scanner is to be introduced by 2016, preparation study should be started soon.
Detailed Design of the KHB improvement	<ul style="list-style-type: none"> The structural detailed design will be implemented on the basis of the concept plan for improvement of the Jordan border facilities currently implemented by the Quartet. Cargo and passenger terminals are included. 	<ul style="list-style-type: none"> Coordination with other donors (Germany, Netherlands), including feasibility of the design by Jordan herself. It is afraid that the time for design may require long time due to wide scope of works. It is necessary to proceed with the review efficiently to keep pace with the improvement project of Israel that is ahead of others.
Implementation of KHB Truck Terminal (Land Preparation, Inner Roads, Access Road, Parking, Container yard)	<ul style="list-style-type: none"> In an intention of promoting export via the West Bank, Israel is preparing for improvement of facilities to cope with containerization. This idea meets our proposed concept of "the corridor for peace and prosperity." In this context, promotion of efficiency improvement in step with the above activity is indispensable on the Jordan side on the same border. This project plans development of the truck terminal (container yard and clearing for the yard) for the above purpose. In addition, the space and route will be established for introduction of the stationary scanner that is higher in performance than the mobile type planned for the existing terminal. 	<ul style="list-style-type: none"> There is no adequate scheme as JICA assistance. It is necessary to check the possibility to cover the development of proposed facilities by the Grant Aid program of JICA.
KHB scanner introduction (In the new facilities)	<ul style="list-style-type: none"> The mobile scanner has an X-ray output lower than fixed scanner, so that it may not demonstrate sufficient transmission for arms or weapons of mass destruction. In such an event, visual inspection by opening the cargoes will 	<ul style="list-style-type: none"> Two times installation of x-ray is not realistic. It is necessary to check the possibility to install multiple x-ray equipment at once

	<p>be necessary. Mobile scanner may be said to be inferior more or less in terms of ensuring efficient inspection.</p> <ul style="list-style-type: none"> • Increase of the cargoes is expected in the future. It is necessary to implement cargo inspection with short time. It is, therefore, also expected to install large scanners such as a fixed type or a re-locatable stationary type. 	time.
KHB quarantine facilities development	<ul style="list-style-type: none"> • By developing the quarantine facilities (laboratory, cleaning facilities, administrative building), which are not included in the existing facilities, the currently incomplete quarantine system which is not undertaking 100% inspection now can be strengthened. • At present, the administrative building, though small in size, the sample storage facilities, transport of the samples to Amman for inspection are makeshift measures. In consideration of increase in cargoes along with improvement of KHB and the capacity of inspection facilities in Amman, the above facilities will be introduced along with development of KHB new facilities. 	<ul style="list-style-type: none"> • The concept paper prepared by the Quartet does not contain the quarantine facilities.

Source: Prepared by Study Team

Concerning the logistics improvement policies, excluding the King Hussein Bridge, the candidate projects as shown below was selected from the existing project candidates and their feasibility were studied. From the study results, it may be assumed that the project implementation is either difficult or uncertain.

Table 10.2-2 List of Proposed Facilities Improvements for Logistics (Miscellaneous)

Proposals	Contents	Subject for implementation
KHB Access Road	<ul style="list-style-type: none"> In the trunk road connecting Amman with the KHB, widening to the four-lane width and rehabilitation will be made for the section of about 10 km from the point near the terminal of Highway No.40 to South Shuna. 	<ul style="list-style-type: none"> ROW is basically secured, but some private illegally occupy the land beside road. There is no adequate scheme to implement as JICA assistance. The past study concluded that it was not feasible.
Logistics Centre in the Jordan Valley	<p>(Original concept)</p> <ul style="list-style-type: none"> The facilities will be constructed for the purpose of securing high quality of Jordanian agricultural products, specifically for the purpose of preservation of freshness and quality after harvesting to prevent substantial adverse effect on products. Simultaneously, the distribution center will be developed to ensure efficient distribution of JAIP products and other export products from Palestine. <p>(Current concept)</p> <ul style="list-style-type: none"> The joint agricultural products processing plant and distribution center will be developed for the benefit of producers (poor peasants) in the south. These producers are more disadvantageous than those in the northern part of Jordan River Rift Valley because the former lacks the large-scale consuming region. 	<ul style="list-style-type: none"> The current development concept does not meet the Palestine support policy "Corridor for Peace and Prosperity" There is no adequate scheme as JICA assistance.

Source: Prepared by Study Team

10.3 Contents of Proposed Improvement Project

For each of alternatives summarized in the previous section, specific contents are introduced below. Table 10.3-1 shows the schedule assumed for the timing of implementing these projects.

10.3.1 Installation of the Mobile Type Scanner into the Existing Terminal

Hearing to the authorities concerned was done on the future transition assumed from the current cargo handling state at the King Hussein Bridge. On the basis of information thus obtained, the probable development flow was summarized (Figure 10.3-1). Prerequisites derived up to now are as shown below:

- ✓ Development of the Israeli facilities compatible with containerization will be completed in 2016.
- ✓ For improvement on the Jordan side, the basic research has just been completed and the detailed design is scheduled in the future. In consequence, the completion including implementation of the detailed design will be in 2017 and after.
- ✓ It is the policy of Israel to introduce containerized cargoes as soon as possible. This means that the containers may flow into Jordan at a time when Jordan has not yet completed development of compatible facilities.
- ✓ Both countries have not yet reached agreement on whether a Back-to-Back or Door-to-Door system is employed in the final stage when the facilities improvement is completed on the Jordan side (2017 and after).

On the basis of these prerequisites, it is highly possible that Option-2 based on the Door-to-Door system is selected in 2015 when facilities improvement on the Israeli side is completed (Figure 10.3-1). Subsequently, by 2017, Israel and Jordan will decide which of the Back-to-Back system or the Door-to-Door system is employed.

In 2015, containerized cargoes will pass through Jordan. It is known that, as compared with the conventional open truck cargoes, cargoes loaded in containers require substantial time for inspection covering the inside of containers. This reflects the contemplation of the similar cases occurring in Aqaba Port. Namely, there was no container scanner in those days, so that the staffs suffered extremely inefficiency because they had to open all of containers for inspection. In consequence, the Jordanian custom authority, which practically introduce scanners, request strongly the introduction of either type of scanner by 2016 for efficient execution of the inspection.

Considering these conditions and in the current situation where development of a new terminal is expected, introduction of the stationary scanner in the existing facilities is considered not practical in terms of the cost and trouble though possible physically. It is therefore desirable to introduce an easily-transferrable large mobile scanner compatible with containerized cargoes. The custom authority requires the scanner for containerized

cargoes to have three performances as follows. They are approximately similar to those for scanners introduced in the Queen Alia International Airport and Al Karama border facilities.

- ✓ Transmission capacity: 300mm or more of steel plate
- ✓ Inspection rate: 100 units or more per hour
- ✓ Type: Compatible with the drive-through mode

These requirements can be met by the mobile scanner. Following factors may also prove the advantages of introducing the mobile scanner in the existing facilities.

(1) Time availability

Assuming the Japanese assistance, there is not much time left up to 2016 when the study for preparation, the cabinet approval, exchange of diplomatic documents, and implementation are taken into account. Installation of large stationary scanner will require such infrastructures as a building, etc., so that, when compared with the case of introducing the mobile scanner, more time will be required for design, procurement, and execution phases. Should the preparation be started immediately, the possibility of completion by 2016 is extremely low.

(2) Installation space

The area of the existing truck terminal is about 2 ha. In certain instances, trucks cannot be completely accommodated in the parking space within the facilities and overflow into the road. Introduction of a stationary scanner requiring development of the building, etc. in this situation is extremely disadvantageous because it occupies the original parking space during as well as after construction.

(3) Bearing of the transfer costs

Basically, the buildings of concrete structure will be demolished at a time of transfer and newly constructed at a new location. The required cost is assumed to be around ¥100 million to ¥200 million when the costs up to construction of the new building is included.

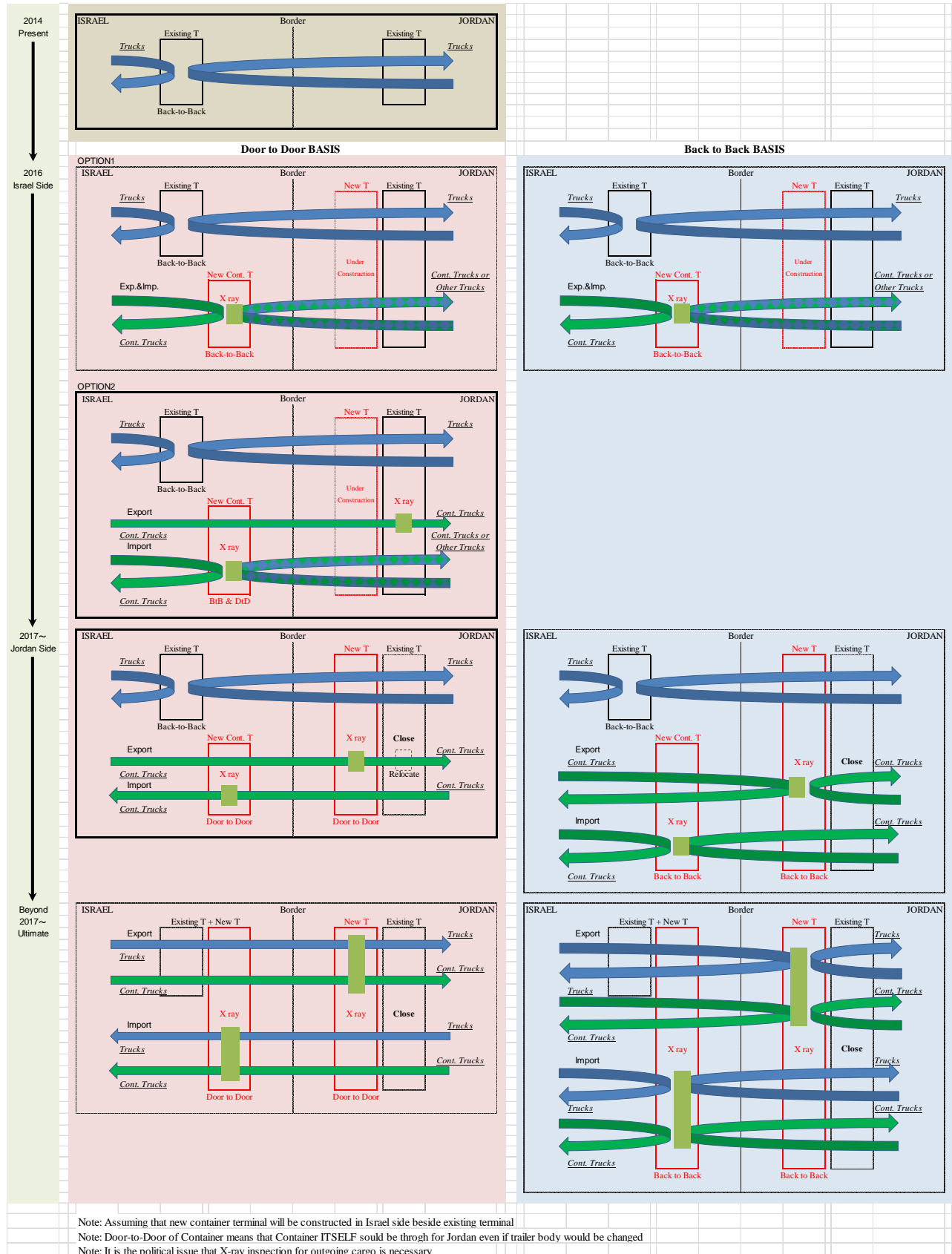
(4) Troubles in case of construction and transfer

For construction of fixed buildings, their positioning only may require the time for various necessary adjustments. Since the state of underground installations of existing facilities is reported to be not known, the risk may arise due to separate delay caused by breakage of cables and their relocation. The similar risk exists in the newly relocated places. Actually, the troubles similar to those described above have occurred in Aqaba Port and Al-Karama. It is wise to avoid such situation as much as possible because of extremely time-restricted situation. The Jordan Customs Authority, the body for development, requests strongly to avoid the introduction requiring transfer from the past experiences.

Table 10.3-1 Cost Estimation of Mobile Type Scanner

Item	Estimate cost (Million US\$)		
1.Construction	0.0	—	
2.Equipment (Mobile scanner)	2.5	~	3.0
3.Soft component	0.0	~	0.1
4.Construction Supervision	0.5	~	
5.Other	0.0	~	—
Total :	3.0	~	3.7

Source: Sturdy Team projected



Source: Prepared by Study Team

Figure 10.3-1 Probable Containerization Flow

10.3.2 Review of the detailed design of the KHB (Jordan side)

Since the matters as listed below are not well justified, verification becomes necessary at a time of detailed design. As the detained design covers wide-varying design review as described below, it is considered necessary to take at least 12 months for the review.

There is information at present that the Netherlands and Germany have expressed interest in the review of detailed design. According to the Quartet implementing review on the improvement on the Jordan side, this is still in the interest expressing stage and Japan is well included as an assumed donor.

Additional review items

- ✓ Addition of the container yard (loading facilities, yard for containers with/without loads)
- ✓ Review of the access road type and intersection type
- ✓ Addition of the quarantine facilities

Review items

- ✓ Topographic and geologic surveys
- ✓ Estimation of passenger demand and validation of the facility size appropriate to the demand
- ✓ Estimation of cargo demand and validation of the facility size (parking lot) appropriate to the demand
- ✓ Final section of the Back-to-Back or Door-to-Door system
- ✓ Development design (cut and embankment, traffic line, storm water drainage channel)
- ✓ Buildings layout (passenger terminal CIQ facilities)
- ✓ Equipment introduction plan (scanner and other inspection equipment)
- ✓ Building design (front view, elevation view, sectional view)
- ✓ Road geometric design (front view, vertical view, sectional view)
- ✓ Determination of the road pavement composition
- ✓ Survey and cost estimation
- ✓ Development of the project implementation plan (phase-to-phase development implementation plan)

10.3.3 Phase I improvement of the King Hussein Bridge (Jordan side)

Phase I improvement includes the following details, which is based on the assumption of development under Japanese Assistance. The details of improvement are limited to the scope based on consideration relative to the scheme feasible in Jordan.

- ✓ Land development (ground levelling for the truck terminal)
 - ✓ Development of the access road (the section connecting the main road to the truck terminal)
 - ✓ Development (pavement) of the road within the truck terminal
 - ✓ Inspection facilities (large stationary scanner, visual inspection space, detailed inspection space)
-

Table 10.3-2 Cost Estimation of KHB Border Crossing (Jordan Side)

Item	Estimate cost (Million US\$)		
1.Construction	9.8		11.5
2.Equipment (Large size scanner)	3.1	~	3.7
3.Soft component	0.5	~	1.0
4.Construction Supervision	0.7	~	1.0
5.Other	0.0	~	—
Total :	14.1	~	17.2

Source: Sturdy Team projected

10.4 Impact of the Proposed Improvement Projects

10.4.1 Impact on Installation of the Mobile Type Scanner

(1) Inspection rate of security and customs inspection

The inspection rate of large cargo vehicles by the X-ray inspection system with high output and material identification capacity can be improved from 0% (reference of 2011) to 100% (at project completion). The sample compatible inspection rate including visual check can be improved from about 10% (the hearing result of 2014) to 100%.

(2) Time required for security and customs inspections

The time required per one X-ray inspection of large cargo vehicles, which is currently around three to 15 minutes (hearing result of 2014) can be reduced to 0.5 minutes (at project completion). The inspection time required for containerized cargoes is expected to be about twice that for open trucks at present (hearing result as above). The time required at present for one inspection, which will be as long as six minutes to 30 minutes without the scanner, can be reduced to 0.5 minutes if this is introduced.

10.4.2 Impact on Phase 1 Improvement of KHB (Jordan side)

(1) Securing of the sufficient truck parking capacity

The existing facilities are so narrow in the site area that it occurs frequently that trucks overflow out of facilities and are waiting outside the facilities. For the truck terminal to be newly developed the facilities of the scale compatible with the existing cargo demand are planned and truck congestions could be improved.

(2) Efficiency improvement of the QIC service

As the quarantine facilities, which have not existed from the beginning, are provided and included in the truck terminal, the procedure of transporting the extracted sample to Amman becomes unnecessary. In addition, the inspection time, that is to be one week in average including the sample transportation, can be reduced to enable obtaining of the

result in the same day or the next day.

The offices for immigration and for customs clearance are currently limited in available space in the existing building, which presented constraints in terms of the number of agents that can move in as well as in terms of backup functions. Once the improvement is completed, more agents can move in and more PC terminals and other can be installed. This in turn is expected to enhance the processing rate substantially.

10.5 Implementation Plan

For the implementation plan (draft) summarized previously, the development schedule is planned. The key to control the situation in this case is the KHB improvement project on the Israel side, which is scheduled to be opened for service by the middle of 2016. The inspection system (scanner) whose operation for containerized cargoes will be permitted along with project completion will be introduced into a new terminal position on the Jordan side in 2017 and after at the earliest time when considering the preparation state at present. Accordingly, the schedule was assumed to allow introduction of mobile scanner for the purpose of temporary compensation by 2016.

Table 10.5-1 Time Schedule for New Proposed Projects and Related Projects

Country	Classification	Items	2014			2015				2016				2017		
			II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III
Jordan	KHB Improvement plan	New														
		Installation of mobile type scanner (installation in the existing terminal) at KHB														
		D/D for KHB Improvement Plan in Jordan														
		Implementation KHB improvement of truck terminal (access road, land preparation etc.) Phase-1 (Component1)														
		Installation of scanner (in new terminal) Phase-1 (Component2)														
		Other terminal facilities Phase-2 (Passenger, quarantine facilities included)														
Palestinians and Israel	Related to JAIP	Related														
		JAIP access road														
		JAIP														

I (Jan-Mar), II (Apr-Jun), III (Jul-Sep), IV (Oct-Dec)

Remarks: 1. Among candidate projects described previously, those whose development is difficult for the time being are excluded.
2. GACCSE: Grant aid for cooperation on counter-terrorism and security enhancement

11. CONCLUSION AND RECOMMENDATION

11.1 Conclusions

1.1.1 The Fact on External Trade Condition

- ✓ The external trade volume from/to Jordan and Palestine has been increased recently by 5 – 10 percent.
- ✓ The growing rate for volume of external trade crossing KHB is larger than national/state level, reach to 18 % per year.
- ✓ Almost all freight crossing KHB is either originated from Palestine or destined to Palestine.
- ✓ The majority of export from Palestine is stone, iron scrap, plastic products, olive products, and vegetable. The major import goods to Palestine is sands, cements, and beverages.
- ✓ The main partner of external trade crossing KHB from/to Palestine is Jordan, and followed by the share of Saudi Arabia and Iraq, and few coverage of Asian countries.
- ✓ The KHB is important for the Palestine on main external trade and its role has been raised, however, the actual flow is insufficient toward the demand potential from Asian countries.

1.1.2 The Fact on Relevant Improvement Project

- ✓ Only KHB improvement project (Jordan side and Israel side) is seems well progress in spite of many projects and concept concerning to logistics improvement in Jordan Valley.
- ✓ The detailed design of KHB improvement in Jordan side is not started, and it is the stage of only concept discussion among the organization concerned.
- ✓ The Civil work of KHB improvement in Israeli side will start soon, and all necessary facilities and equipment for containerization is supposed to be installed.

1.1.3 The Fact of Issues on KHB Border Crossing Facilities and Process handled

- ✓ The Scale of KHB truck terminal of Jordan side is too small to handle demand freight volume, which is the size one-tenth of the terminal in Israeli side.
- ✓ It takes around 5 to 6 hours to process procedures of export and import for both counties Jordan and Palestine.
- ✓ The clearing agency should arrange and coordinate with both trucks of Jordan and Palestine for activity of Back-to-Back, however, it is difficult to coordinate due to traffic jam.
- ✓ The quarantine system does not meet standard requirement because only sampling method is applied as KHB system.
- ✓ The operation time for commercial cargo crossing is limited only daytime and weekday.
- ✓ There are multiple bottlenecks in KHB border crossing in Jordan side and Israel side. Major bottleneck is identified, i.e. small capacity of truck terminal of Jordan side, entry gate to Israeli side, and capacity of inspection by pallet scanner in Israel side.

1.1.4 Outlook

- ✓ The freight volume crossing KHB is expected to be increased steady for time being.
- ✓ It is commonly opinion among the persons concerned that no system change on Back-to-Back system and vehicle movement restriction for Palestine in Jordan Valley.

The following improvement policy could be summarized based on these fact findings on study.

- ✓ The most significant problem in terms of logistics in Jordan Valley is an obstacle to the regional economic growth in spite of high logistics potential of the international competitiveness because transportation becomes highly expensive (time and expenses) due to restriction in vehicle movement as agreed upon among Jordan, Israel, and Palestine as well as inconveniences for border crossing.
- ✓ The biggest bottlenecks in terms of the cross border transportation in Jordan valley are border facilities between Jordan and Israel (SHB) and between Jordan and Palestine (KHB). In particular, the terminal facilities on the Jordan side are as small in scale as to cause extremely difficult situation to meet the demand requirement.
- ✓ For the Palestinian export except for Israel, the most share of trade is covered by the route via KHB. The percentage of passing KHB for Palestine is growing year by year as the export gate and corridor from the Palestine.
- ✓ The cargo volume passing though KHB amounted to 528 thousand tons in 2013. This is equivalent to about two times in the last five years. As the result of summarizing trends of future logistics demand, further increasing is expected in the future; 705 thousand tons in 2016 (1.3 times increase from 2013), 976 thousand tons in 2020 (1.8 times increase from 2013), and 1,314 thousand tons (2.5 times increase from 2013).
- ✓ The bottleneck at the KHB border terminal exists on both Jordan and Israel sides. On the Israel side, the upgrading project of KHB border terminal will start soon and the bottleneck is expected to be removed by 2016.
- ✓ Containerization for border crossing will prove extremely effective in improving the logistics efficiency by supplementing the Back-to-Back system that has caused the greatest transfer constraint. For this purpose, introduction of the efficient container inspection system on the Jordan side is mandatory.
- ✓ There exists the agreement on containerization for the process at KHB among Jordan, Israel, and Palestine. Namely, any political subjects concerning introduction have been cleared.

11.2 Recommendations

Concerning the measures for logistics improvement of the Jordan Valley, the attempt for improvement of the KHB terminal may be currently the most realistic measure; the KHB terminal that is the biggest bottleneck in the region and at the same time the most important

export gate and corridor for Palestine. To implement such measure, the recommendations to be put into practice in the future are summarized below:

- ✓ The KHB border terminal improvement project is already under way ahead of others in Israel and is expected to be completed by the middle of 2016. The improvement plan on the Jordan side is delayed and must not be delayed further.
- ✓ In this context, review of the detailed design of the KHB terminal improvement project in Jordan should be pushed forward in line with the procurement project of the mobile container scanner to be introduced tentatively in the existing terminal facilities. It is essential to set about preparation as early as possible.
- ✓ It is told that the Ministry of Public Works and Housing of Jordan and the Quartet engaged in improvement of the Jordanian KHB terminal are scheduled to hold the donor meeting for allocation of development of the border terminal in near future. After the donor meeting, it is essential to establish the scope of improvement as soon as possible, to coordinate allocation of facility development among donors, and to implement the decision as soon as possible. In this event, it is expected that each donor shall make commitment in concerning introduction of the mobile scanner to be developed early and concerning detailed design of KHB.
- ✓ It is recommended that truck terminal shall be developed prior to passenger terminal. Especially, the following component to facilitate smooth traffic flow of container, i.e. truck lane in terminal, parking space, inspection equipment (scanner) and access road to the terminal shall be developed as phase 1 stage.
- ✓ It is recommended that sustainable monitoring for latest situation on Back-to-Back system and vehicle movement restriction in Palestine, which is one of the most significant factors to affect logistics condition in Jordan Valley. In order to that, continuous discussion with organization concerned from Jordan, Palestine and Israel.
- ✓ It is highly recommended that further data collection survey from the viewpoint of Palestine as well as Jordan shall be covered so that new project on logistics improvement in Jordan Valley shall be always timely proposed at such event.

APENDICES

Appendix-1

C/P List (Jordan and Palestine)

【Jordan Side】

NO.	Organization	Position	Mobile phone	E-mail
1	M. Public Works and Housing (MOPWH)			
	Sami Halaseh	Minister		
	Ms. Laila Tahsamneh	MoPWH, Engineer	079-907-7091	Laila.Tahsamneh@MPWH.gov.jo
	Ms. Eman Obeidat	MoPWH	079-906-4490	esobeidat77@yahoo.com
	Ms. Wafa Haddadin	MoPWH	079-633-3253	
	Eman Obeidat	MOPWH, Director	079-906-4490	esobeidat77@yahoo.com
	Zaid Shwayat	MOPWH, Engineer	077-731-3553	z.hasem@yahoo.com
2	Ministry of Planning & Int'l Cooperation (MOPIC)			
	Nasser A. Al-Zou'bi	Head of Jordanian American Relations Div., Int'l Coop. Dep.	079-555-4146	nasser.z@mop.gov.jo
	Ayoub Yassin	MOPIC	079-532-0060	ayoub.yassin@mop.gov.jo
3	Jordan Customs (JC)			
	Osama Ahmad	CUSTOMS	079-532-0060	osama@customs.gov.jo
	Asad M.E Al Megali	CUSTOMS		asad.m@custom.gov.jo
	Mohmoud Awdeh	CUSTOMS	079-836-3333	mahd@customs.gov.jo
	Dr.Arif Al Fitiani	CUSTOMS	079-500-0512	ariff@customs.gov.jo
	Jehad Sawaged	CUSTOMS		jehadsawaged@customs.jo
	Abdallah Alzghoul	CUSTOMS		zghoul@customs.gov.jo
4	Ministry of Industry and Trade (MOIT)			
	Hassan Al-nsour	Head of Business Investment Dep.	079-551-8145	hassan.ns@mit.gov.jo
	Abeer Rame'jne	Industrial Engineer	079-950-8604	abeer.r@mit.gov.jo
5	Ministry of Agriculture (MOA)			
	Dr. Salah Tarawneh	MOA, General Secretaty for Marketing	079-558-6235	salah_r@moa.gov.jo
	Fuad S. Al Muhaisen	MOA. S.G.A for project	079-905-9499	muhaisen002@hotmail.com
	Ayman Al-Sali	Marketing Director	079-567-9794	aymansaltia@hotmail.com
	Ahmed Al fayad	MOA, Head of quality Dep.	079-990-8521	fayada7s@yahoo.com
6	Land Transport Regulatory Commissions (LTRC)			
	Jamil Mujahed	Director General	06-515-0346	
	Zuhair Hattar	Director	079-553-1853	zuhair.hattar@ltrc.gov.jo
7	King Hussein Bridge Border			
	Mansour abuazzaw	Manager, Customs	079-774-1071	mnsourabuazzaw@yahoo.com
	Hussein Al Shahwan	General Security	079-019-0067	
	Sami Al Hyari	Deputy Director of Police	079-593-3488	
	Saad Al Kharonf	Agriculture Center, Head Assistance	079-501-6537	saad_kharonf@yahoo.com
	Mohammed B. Bnisaseen	General Security	079-722-5841	
8	Ministry of Transport (MOT)			
	Laith Dababneh	Secretary General	06-551-7211	ldababneh@mot.gov.jo
	Naim Hassan	Director of Development and Strategic Planning		nhassan@mot.gov.jo
9	Jordan Valley Authority (JVA)			
	Saad Abu Hammour	Secretaty General		saad_abuhammour@mwi.gov.jo
	Nayef Seder		079-765-3873	nseder@gmail.com
	Fouad ejilat	Assistant Secretaty General	079-730-9950	fuadejilat@yahoo.com
	Tarqwash	Director	079-021-2309	
	Khalil albsi	Director	079-903-5691	
10	Jordan Air Cargo, QAIA (JAC)			
	Musrafa Abuhasan	Service Manager	079-877-9377	mabuhafar@jac.jo
	Mohamed Sanwar	Finance Manager	079-514-0993	msanwar@jac.jo
11	Aqaba Development Corporation (ADC)			
	Ghssan A.Ghanem	Chief Executive Officer		gghanem@adc.jo
12	Aqaba Container Terminal (ACT)			
	Nabeel Bani Salman	Customer Service Representative	077-544-1224	nabelhani@act.com.jo
	Kamal Alhraishtat	Commercial Manager	077-544-1223	kamalahraishtat@act.com.jo
13	Aqaba Port Corporatipon (APC)			
	Capt. Mansour M. H. Qoqazah	Ass. Director for Operation, Marine & Specialized Berths		c.mansour@aqabaports.gov.jo
	Mahmoud H. A. Hayaaneh	Head of Public Relations & Marketing Div.	077- 546-3451	haya964@yahoo.com
14	Aqaba Special Economic Zone Authority (ASEZA)			
	Ahmad E. Al-khattab	Commissioner Assistant for Revenue & Customs		akhattab@aseza.jo

【パレスチナ側カウンターパート】

NO.	Organization	Position	Mobile phone	E-mail
1	KHB Border Authority - Jericho			
	Nazmi Mhanna	General Manager of borders and crossings		
	Iyad Salameh	Border Authority		
2	Paltrade - Ramallah			
	Hanan Taha	CEO, Paltrade	059-941-7919	htaha@paltrade.org
	Shawqi Maktoob	Trade Policy Manager		
3	Ministry of Planning and Administrative Development (MOPAD) - Ramallah			
	Minister	Minister		
	Bashar Jumaa	Policy Advisor, PLO		bjumaa@nad-nsu.ps
	Dana Erekat	Special Advisor to the Minister	059-910-0433	derekat@mop.gov.ps
	Ibrahim Abd Elrahem			
	Ahmad Saleh			
4	Ministry of Transport (MOT) - Ramallah			
	Nabil Al Dmeidi	Minister	059-967-4476	nabildmeidi@gmail.com
	Ali Shaat			
	Ammar Yasin	GM, Interbal Edit		
	Mohammad Jaradat	Tech. CEO, MOT	059-967-1230	m.jaradat@mot.gov.ps
	Jamal Shqeir			
	Omar Alrifaa			
	Ghadah Al Weheidi			
5	Palestine Shippers' Council - Ramallah			
	Maha Abu Shusheh	Shippers' Council	059-885-7581	maha@abushusheh.ps
6	Palestine Investment and Economic Free Zones Authority (PIEFZA) - Ramallah			
	Ali Shaat	CEO, PIEFZA	059-960-1888	aashaat@yahoo.com
	Ahmad Hassasneh	G.D	059-993-2001	
	Khaled Al Amleh	Acting Director of JAIP	059-788-8699	kh.amleh@piefza.org
	Nadal Al Jaabari	Marketing Dep.	059-925-3141	nedalal@yahoo.com
	Dana Albalawi	Director's Assistant		d.albalawi1234@gmail.com
7	Quartet - Jerusalem			
	Tim Williams	Movemet & Access Advisor	054-677-3149	twilliams@quartetrep.org
8	Ministry of National Economy (MONE) - Ramallah			
	Taisir Amre	Deputy Minister	059-599-7772	taisira@met.gov.ps
	Hasan Abd Eljabaar	Minister Advisor	059-925-8119	hasanj@met.gov.ps

Appendix-2

Survey Sheet for Field Traffic and Interview Survey

			Traffic Survey on Improvement Project for Logistics Infrastructure in Jordan Valley Region											
Traffic Volume Count Survey									JICA Study Team					

Survey Date					Direction		From			To				
Survey Point Name														
Surveyor					Checker									
Supervisor					Encoder									

Time		Type of Vehicle						Event/Accident
From	To	Motorbike	Passenger Car	Bus	Light Truck	Heavy Truck	Trailer	
6:00	7:00							
7:00	8:00							
8:00	9:00							
9:00	10:00							
10:00	11:00							
11:00	12:00							
12:00	13:00							
13:00	14:00							
14:00	15:00							
15:00	16:00							
16:00	17:00							
17:00	18:00							
18:00	19:00							
19:00	20:00							
20:00	21:00							
21:00	22:00							
22:00	23:00							
23:00	0:00							
0:00	1:00							
1:00	2:00							
2:00	3:00							
3:00	4:00							
4:00	5:00							
5:00	6:00							

Roadside OD Interview Survey		Traffic Survey on Logistics Improvement in Jordan Valley (Jordan Side)		TYC, JICA Study Team	
Survey Date		Direction	From	To	
Survey Point Name					
Surveyor		Checker			
Supervisor		Encoder			
1. Plate Number					
2. Survey Time	:	:		:	
3. Vehicle Type	a. Light Truck b. Heavy Truck c. Trailer	a. Light Truck b. Heavy Truck c. Trailer		a. Light Truck b. Heavy Truck c. Trailer	
4. Origin of Trip					
(Region/Country)					
(State/City)					
(Port/Free Zone)	if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone	if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone		if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone	
5. Destination of Trip					
(Region/Country)					
(State/City)					
(Port/Free Zone)	if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone	if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone		if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone	
6. Type of Goods	1. Edible Vegetables & Roots 2. Edible Fruit & Nuts 3. Other edible foods 4. Cereals 5. Fats & Oil 6. Other preparation foods 7. Beverages, Spirits & Vinegar 8. Salt, Sulphur, Earths & Stone 9. Chemical Products 10. Pharmaceutical Products 11. Plastics & Articles thereof 12. Woods & Article Wood 13. Carpets, Textile, Footware & Gaiters 14. Articles of Stones, Plaster & Cement 15. Iron, Steel & Articles thereof 16. Electric & Machinery 17. Furnitures 18. Others <div></div>	1. Edible Vegetables & Roots 2. Edible Fruit & Nuts 3. Other edible foods 4. Cereals 5. Fats & Oil 6. Other preparation foods 7. Beverages, Spirits & Vinegar 8. Salt, Sulphur, Earths & Stone 9. Chemical Products 10. Pharmaceutical Products 11. Plastics & Articles thereof 12. Woods & Article Wood 13. Carpets, Textile, Footwear & Gaiters 14. Articles of Stones, Plaster & Cement 15. Iron, Steel & Articles thereof 16. Electric & Machinery 17. Furniture 18. Others <div></div>		1. Edible Vegetables & Roots 2. Edible Fruit & Nuts 3. Other edible foods 4. Cereals 5. Fats & Oil 6. Other preparation foods 7. Beverages, Spirits & Vinegar 8. Salt, Sulphur, Earths & Stone 9. Chemical Products 10. Pharmaceutical Products 11. Plastics & Articles thereof 12. Woods & Article Wood 13. Carpets, Textile, Footwear & Gaiters 14. Articles of Stones, Plaster & Cement 15. Iron, Steel & Articles thereof 16. Electric & Machinery 17. Furniture 18. Others <div></div>	
7. Load	Actual Load <div></div> (ton,litre) Load Capacity <div></div> (ton,litre)	Actual Load <div></div> (ton,litre) Load Capacity <div></div> (ton,litre)		Actual Load <div></div> (ton,litre) Load Capacity <div></div> (ton,litre)	

Users' Interview Survey (Passenger)		Traffic Survey on Logistics Improvement in Jordan Valley (Jordan Side)				JICA Study Team	
Survey Date							
Survey Point Name							
Surveyor				Checker			
Supervisor				Encoder			
1.Nationality							
2.Survey Time		:		:		:	
3.Arrival/Departure		a. Arrival b. Departure		a. Arrival b. Departure		a. Arrival b. Departure	
4.VIP Service		<input type="checkbox"/> YES <input type="checkbox"/> No		<input type="checkbox"/> YES <input type="checkbox"/> No		<input type="checkbox"/> YES <input type="checkbox"/> No	
5. Purpose of Trip		a. Business b. Holiday c. Transit d. Back home e. Others		a. Business b. Holiday c. Transit d. Back home e. Others		a. Business b. Holiday c. Transit d. Back home e. Others	
6. Trip Chain							
(Home)							
(Origin of Trip)							
(Destination of Trip)							
(Any previous loc.)							
7. Process Time (minutes)							
For Arrival		1. Security/Tax (PA) (min)		1. Security/Tax (PA) (min)		1. Security/Tax (PA) (min)	
		2. Passport Control (PA) (min)		2. Passport Control (PA) (min)		2. Passport Control (PA) (min)	
		3. Boarding Bus (PA-JO) (min)		3. Boarding Bus (PA-JO) (min)		3. Boarding Bus (PA-JO) (min)	
		4. Security (JO) (min)		4. Security (JO) (min)		4. Security (JO) (min)	
		5. Passport Control (JO) (min)		5. Passport Control (JO) (min)		5. Passport Control (JO) (min)	
For Departure		1. Security/Tax (JO) (min)		1. Security/Tax (JO) (min)		1. Security/Tax (JO) (min)	
		2. Passport Control (JO) (min)		2. Passport Control (JO) (min)		2. Passport Control (JO) (min)	
		3. Boarding Bus (PA-JO) (min)		3. Boarding Bus (PA-JO) (min)		3. Boarding Bus (PA-JO) (min)	

Users' Interview Survey (Trucks)		Traffic Survey on Logistics Improvement in Jordan Valley (Jordan Side)				JICA Study Team	
Survey Date				Surveyor			
1. Plate Number							
2. Survey Time		:		:		:	
3. Forwarders' Category		a. Transportation (Truck) Company		a. Transportation (Truck) Company		a. Transportation (Truck) Company	
		b. Trading Company		b. Trading Company		b. Trading Company	
		c. Clearing Agency		c. Clearing Agency		c. Clearing Agency	
		d. Agriculture, Material Supply		d. Agriculture, Material Supply		d. Agriculture, Material Supply	
		e. Industrial, Product Manufacturing		e. Industrial, Product Manufacturing		e. Industrial, Product Manufacturing	
4. Shipping Type		a. Export Only		a. Export Only		a. Export Only	
		b. Import Only		b. Import Only		b. Import Only	
		c. Export and Import		c. Export and Import		c. Export and Import	
		d. Transit (Out)		d. Transit (Out)		d. Transit (Out)	
		e. Transit (In)		e. Transit (In)		e. Transit (In)	
5. Origin of Trip							
(Region/Country)							
(State/City)							
(Port/Free Zone)		if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone		if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone		if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone	
6. Destination of Trip							
(Region/Country)							
(State/City)							
(Port/Free Zone)		if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone		if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone		if so, check <input type="checkbox"/> Port <input type="checkbox"/> Free Zone	
7. Type of Goods		1. Edible Vegetables & Roots		1. Edible Vegetables & Roots		1. Edible Vegetables & Roots	
		2. Edible Fruit & Nuts		2. Edible Fruit & Nuts		2. Edible Fruit & Nuts	
		3. Other edible foods		3. Other edible foods		3. Other edible foods	
		4. Cereals		4. Cereals		4. Cereals	
		5. Fats & Oil		5. Fats & Oil		5. Fats & Oil	
		6. Other preparation foods		6. Other preparation foods		6. Other preparation foods	
		7. Beverages, Spirits & Vinegar		7. Beverages, Spirits & Vinegar		7. Beverages, Spirits & Vinegar	
		8. Salt, Sulphur, Earths & Stone		8. Salt, Sulphur, Earths & Stone		8. Salt, Sulphur, Earths & Stone	
		9. Chemical Products		9. Chemical Products		9. Chemical Products	
		10. Pharmaceutical Products		10. Pharmaceutical Products		10. Pharmaceutical Products	
		11. Plastics & Articles thereof		11. Plastics & Articles thereof		11. Plastics & Articles thereof	
		12. Woods & Article Wood		12. Woods & Article Wood		12. Woods & Article Wood	
		13. Carpets, Textile, Footwear & Gaiters		13. Carpets, Textile, Footwear & Gaiters		13. Carpets, Textile, Footwear & Gaiters	
		14. Articles of Stones, Plaster & Cement		14. Articles of Stones, Plaster & Cement		14. Articles of Stones, Plaster & Cement	
		15. Iron, Steel & Articles thereof		15. Iron, Steel & Articles thereof		15. Iron, Steel & Articles thereof	
		16. Electric & Machinery		16. Electric & Machinery		16. Electric & Machinery	
		17. Furnitures		17. Furniture		17. Furniture	
		18. Others ()		18. Others ()		18. Others ()	
8. Process Time							
Export/Transit (Out)		1. Standing outside terminal		1. Standing outside terminal		1. Standing outside terminal	
		2. Custom Clearance		2. Custom Clearance		2. Custom Clearance	
		3. Driver's Immigration		3. Driver's Immigration		3. Driver's Immigration	
		4. Cargo Inspection (JO)		4. Cargo Inspection (JO)		4. Cargo Inspection (JO)	
		5. Gate Entrance Check (PA)		5. Gate Entrance Check (PA)		5. Gate Entrance Check (PA)	
		6. Cargo Inspection (PA)		6. Cargo Inspection (PA)		6. Cargo Inspection (PA)	
		7. Unloading (PA)		7. Unloading (PA)		7. Unloading (PA)	
Import/Transit (In)		1. Standing outside terminal		1. Standing outside terminal		1. Standing outside terminal	
		2. Driver's Immigration		2. Driver's Immigration		2. Driver's Immigration	
		3. Gate Entrance Check (PA)		3. Gate Entrance Check (PA)		3. Gate Entrance Check (PA)	
		4. Loading (PA)		4. Loading (PA)		4. Loading (PA)	
		5. Cargo Inspection (PA)		5. Cargo Inspection (PA)		5. Cargo Inspection (PA)	
		6. Custom Clearance (JO)		6. Custom Clearance (JO)		6. Custom Clearance (JO)	
		7. Cargo Inspection (JO)		7. Cargo Inspection (JO)		7. Cargo Inspection (JO)	

A. Company Profile											
Company Name				Address				Seq. #			
Establish (Year)								Country			
Employee (Nos.)		staff		Person in charge				Date			
Area (m2)		m2		TEL							
Branch				Mail							

C. Annual Basis Statistics										
[EXPOER]					[IMPORT]					
Annual Turnover					JD		Annual Turnover		JD	
Handling Freight Volume (Tonnage)					ton		Handling Freight Volume (Tonnage)		ton	
Handling Freight Volume (Number of Trucks)					Veh.		Handling Freight Volume (Number of Trucks)		Veh.	
Percentage of Export					%		Percentage of Import		%	
Availability Marine Container		YES	NO				Availability Marine Container		YES	NO
Shipping Type		Own	Outsource				Shipping Type		Own	Outsource
Average Loading Ratio (%)					%		Average Loading Ratio (%)		%	

Zone Code	Region/Country	State/City	Port	Free Zone
101	Jordan	Ajlun		<input type="checkbox"/>
102		Amman		<input type="checkbox"/>
103		Aqaba	<input type="checkbox"/>	<input type="checkbox"/>
104		Balqa		<input type="checkbox"/>
105		Irbid		<input type="checkbox"/>
106		Jerash		<input type="checkbox"/>
107		Karak		<input type="checkbox"/>
108		Ma'an		<input type="checkbox"/>
109		Madaba		<input type="checkbox"/>
110		Mafrq		<input type="checkbox"/>
111		Tafilah		<input type="checkbox"/>
112		Zarqa		<input type="checkbox"/>
201	Palestine	Jenine		<input type="checkbox"/>
202		Toulkarem		<input type="checkbox"/>
203		Qalqilia		<input type="checkbox"/>
204		Salfeit		<input type="checkbox"/>
205		Nablus		<input type="checkbox"/>
206		Tubas		<input type="checkbox"/>
207		Jericho		<input type="checkbox"/>
208		Ramallah and El-Beireh		<input type="checkbox"/>
209		Jerusalem		<input type="checkbox"/>
210		Bethlehem		<input type="checkbox"/>
211		Hebron		<input type="checkbox"/>
212		Gaza	<input type="checkbox"/>	<input type="checkbox"/>
301	Israel		<input type="checkbox"/>	
302	Syria, Lebanon			
303	Iraq, Kuwait, Iran			
304	Saudi, Qatar, UAE, Oman, Yemen			
401	Arab African Countries			
402	Sab Saharan Africa			
501	Turkey			
502	Europe			
601	Central-Asia, Russia			
602	South-, East-South-, East Asia			
700	Oceania			
800	America			

Appendix-3

Meeting Schedule List

Schedule for the time being on Data Collection Survey for Logistics Improvement in Jordan Valley							
No.	Date	Day	Time	Meeting / Event	Attendees	Location	Notes
1	9 March	Sun	10:00	JICA Jordan Office	Mr. Tanaka, Mr. Wakui, Mr. Adel	Amman, # JICA	Done
			14:00	Ministry of Public Works and Housing	Minister	Amman, # MoPWH	Done
2	10 March	Mon	10:00	Ministry of Planning and International Cooperation		Amman, #MoPIC	Done
			11:30	Jordan Customs		Amman	Done
3	11 March	Tue	9:00	Ministry of Industry and Trade		Amman, #MoIT	Done
			10:30	Ministry of Agriculture		Amman, #MOA	Done
			12:00	Land Transport Regulatory Commission		Amman, #MOT	Done
4	12 March	Wed	10:00	Meeting with crossing and borders authority & site visit to Allenby bridge (Jordan side)		#King Hussein Bridge	Done
			PM	Working at JICA		Amman	-
5	13 Mach	Thu	8:30	TV Meeting JICA	JICA HQ, JICA JO, JICA PA	#Each office	Done
			13:00	Meeting with crossing and borders authority & site visit to Allenby bridge(PA side)	Mr. Nazmi, Mr. Iyad & others	Jericho #Allenby bridge	Done
			14:30	Move to Ramallah			-
			16:00	Paltrade	Ms. Hanan Taha(CEO) Shawqi Makhtoub(Trade Policy Manager)	Ramallah #Paltrade office	Done
6	14 Mach	Fri	9:00	JAIP Site visit, Field Survey Locations			Done
			14:00	EOJ		Tel-Aviv, #EOJ	Done
			15:30	JICA	Mr. Izumi Tanaka Mr. Tatsuya Hayase	Tel-Aviv, #JICA	Done
			16:30	Dinner		Tel-Aviv, #Yona	Done
			18:30	Move to Ramallah			-
7	15 March	Sat					-
8	16 March	Sun	10:00	MoPAD	Minister Ms. Dana & Dr. Ibrahim	Ramallah, #MOPAD office	Done
			14:00	MoT	Mr. Ammar Yasin (Acting Deputy Minister) Mr. Walid Elastal	Ramallah, #MoT office	Done
9	17 March	Mon	10:00	PIEFZA	Dr. Ali Shaath (Director General) Mr. Hasasneh	Ramallah, #PIEFZA office	Done
			13:00	Quartet office	Dr. Tim Williams	Jerusalem, #Quartet office	Done
			15:30	MoNE	Dr. Taisir Amre (Deputy Minister). Dr. Ali Shath (the new General Manager of PIEFZA) Mr. Hasan Abdeljabbar (Advisor to the Minister) Eng. Manal Farhan (Acting Director General for Industry and Natural Resources). Ms. Manal Dasoqi (Acting Director General of Trade)	Ramallah, #Mone office	Done
10	18 March	Tue	9:00	Move to Jericho & Site Check			-
			10:00	Move to Amman			-
11	19 March	Wed	10:00	Ministry of Transport	Mr.Naeem Hassan (Director of Studies)	Amman, #MOT	Done
			12:00	Jordan Valley Authority	Mr.Saad Abuhammour	Amman, #MWI	Done
			14:00	ACE consultant		Amman, #MoPWH	Done
12	20 March	Thu	12:00	Cargo Terminal at QA Airport		Amman, #QA Airport	Done
13	23 March	Sun	9:00	Land Transport Requalty Commission (Administration)	Mr.Jameel Mojahed (General Director)	Amman, #LTRS	Done
14	25 March	Tue	8:00	Leaving Hotel			-
			12:30	Agaba Development Company		Agaba, #ACT office	Done
			14:00	Agaba Container Terminal		Agaba, #ACT office	Done
			9:00	Agaba Port Corporation	with Nafith	Agaba, #APC office	Done
15	26 March	Wed	10:30	Special Economic Zones Authority		Agaba, #SEZA office	Done
			13:30	Nafith Office in Rashdiyya		Rashdiyya-Agaba, #Nafith office	Done
			15:00	Leaving Agaba		Agaba	-
16	27 March	Thu	13:00	Jordan Customs	Mr. Mahmood Al Teti (Statics and Studies department)	Amman	Done
			16:00	JICA JO	Mr. Hoshi	Amman	Done
17	2 April	Wed	10:30	Jordan Customs		Amman, #Customs Office	Done
18	3 April	Thu		Police Station	To extend the VISA for Team Member	Amman	Done
18	6 April	Sun	12:00	KHB Crossing & Border Authority c/o MOA, Customs		Amman #KHB office	Done
19	7 April	Mon	AM	Police Station		Amman	Done
19	8 April	Tue	9:30	Ministry of Public Works and Housing	Ms. Eman	Amman #MPOWH Office	Done
			17:00	JICA Jordan		Amman #JICA Office	Done
20	9 April	Wed	10:00	Sheikh Hussein Bridge	IT Custom Manager	#Sheikh Hussein Bridge	Done
20	9 April	Wed	9:00	Move to Ramallah thru KHB border		Mr. Yamauchi	-
21	10-Apr	Thu	10:00	Sub Contractors		Nablus	Done
22	11 April	Sat	9:00	Move to Jericho, Ramallah thru KHB border		Mr. Hamatsu, Mr. Yabe	-
			12:00	JAIP Reconnaissance			Done
23	13 April	Sun	9:00	Palestine Investment Promotion Agency		Ramallah, #PIPA Office	Done
			11:00	JAIP Developer		Ramallah, #PIRCA Office	Done
			13:30	COGAT		Ramallah, #COGAT Office	Done
			15:00	JICA Palestine		Ramallah, #JICA Office	Done
24	14 April	Mon	9:00	JCspd Office		Jericho, #JCspd Office	Done
			10:00	Move to Amman, thru KHB border			-
25	15 April	Tue	8:00	Quartet Meeting	Dr. Tim	Amman, #Intercontinental Hotel	Done
26	16 April	Wed	12:30	TV Meeting JICA	JICA HQ, JICA JO, JICA PA	#Each Office	Done
27	21 April	Mon	9:00	Move to Palestine thru KHB			
			15:00	Sub Contractor		Nablus	Done
28	22 April	Tue		Ministry of Public Works and Housing		Amman, #MOPWH Office	Done
28	22 April	Tue	10:00	Crossing & Border Authority		Jericho, #Border Office	Done
			11:00	Site Reconnaissance		Jericho, #Mousa Al Alami	Done
			15:00	JETRO		Tel-Aviv, #JETRO Office	Done
29	23 April	Wed	9:00	Site Survey		Jericho, #Field	Done
			11:30	Move to Amman thru KHB			
30	24 April	Wed	9:30	Customs Office		Amman, #Customs Office	Done
31	29 April	Tue	9:00	Move to Palestine thru KHB			
			16:00	Sub Contractor		Nablus, #UG Office	Done
32	30 April	Wed	9:00	JICA		Ramallah, #JICA Office	Done
			14:00	Embassy of Japan, Palestine		Ramallah, #EOJ	Done
33	1 May	Thu	15:30	COGAT, Ministry of Foreign Affairs		Tel-Aviv, #COGAT	Done
			17:30	JICA		Tel-Aviv #JICA Office	Done
34	2 May	Fri	11:00	Move to Amman thru KHB			
35	4 May	Sun	10:00	Police Station	To extend the VISA	Mr. Hamatsu	Done
36	6 May	Tue	9:00	Move to Jericho thru KHB		Mr. Hamatsu	
			14:00	Sub Contractor		Nablus	Done
37	7 May	Wed	7:00	Monitoring Survey		Jerchi, #Field, by Mr. Hamatsu	
			11:00	Reconnaissance Allenby Border & Meeting		Jerchi, #Allenby Border	Done
			14:00	Back to Amman thru KHB		Mr. Horii, Mr. Otsu, Mr. Hamatsu	
38	8-May	Thu	14:00	Monitoring Survey		Jerchi, #Field, by Mr. Yamauchi	
			10:00	Back to Amman thru KHB		Mr. Yamauchi	
39	15 May	Thu	17:30	JICA Jordan		Amman, #JICA Office	Done
40	18-May	Sun	10:30	Embassy of Japan		Tel-Aviv or Ramallah	Done