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MINISTRY OF TOURISM AND ANTIQUITIES
THE HASHEMITE KINGDOM OF JORDAN

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

THE STUDY
ON
THE TOURISM DEVELOPMENT PLAN IN THE HASHEMITE KINGDOM OF
JORDAN

PART I (VOLUME 2)
NATIONAL TOURISM DEVELOPMENT STRATEGY AND POLICY
(SECTORAL DEVELOPMENT)

FINAL REPORT
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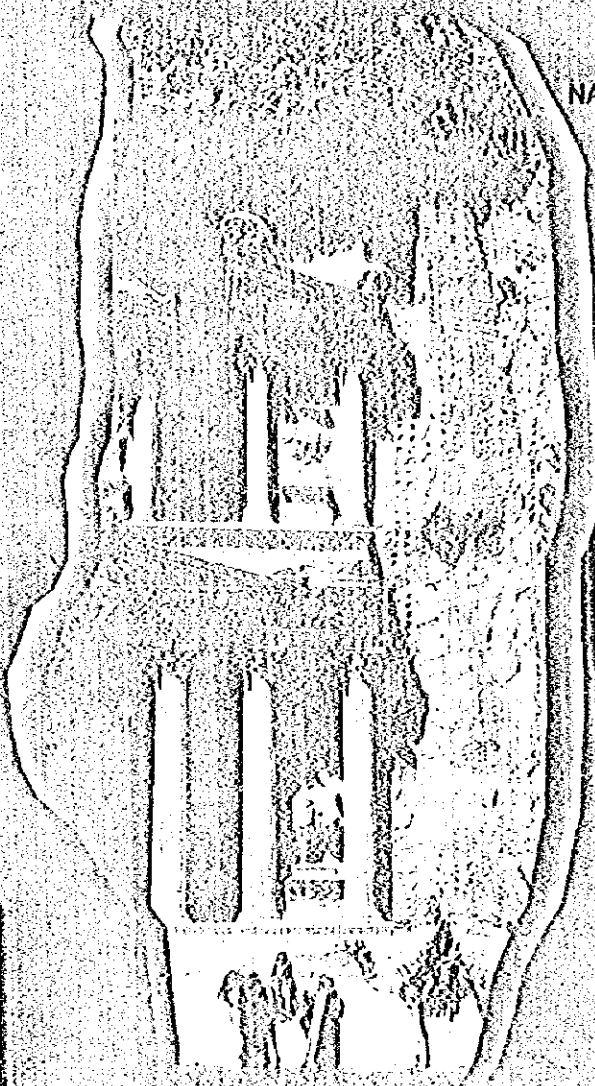
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Spelling of geographical names: cities, tourist sites, etc.,
in this report is based on the authorized maps issued by
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Abbreviations

ARA	:	Aqaba Region Authority
BOT	:	Build, Operate and Transfer
CERM	:	Cultural Environment Resources Management
CIDA	:	Canadian International Development Agency
DOA	:	Department of Antiquities
DOE	:	Department of Environment (of the MMRAE)
EIA	:	Environmental Impact Assessment
EIB	:	European Investment Bank
EMTA	:	Eastern Mediterranean Tourism Association
GAM	:	Greater Amman Municipality
GCC	:	Gulf Cooperation Council
GDP	:	Gross Domestic Product
GEC	:	General Environment Corporation
GOJ	:	Government of Jordan
GTZ	:	Gesellschaft für Technische Zusammenarbeit
HQ	:	Headquarters
IDB	:	Industrial Development Bank
IEE	:	Initial Environmental Examination
ILO	:	International Labor Organization
JATA	:	Japan Association of Travel Agents
JD	:	Jordan Dinar(s)
JETT	:	Jordan Express Tourist Transport
JIC	:	Jordan Investment Corporation
JICA	:	Japan International Cooperation Agency
JTB	:	Jordan Tourism Board
JTB	:	Japan Travel Bureau
JTI	:	Jordan Tourism Investment
JVA	:	Jordan Valley Authority
MEMR	:	Ministry of Energy & Mineral Resources
MENA	:	Middle East and North Africa
MICE	:	Meeting, Incentive, Convention and Event
MIGA	:	Multilateral Investment Guarantee Agency
MIS/TDN	:	Management Information System/Tourism Data Network
MMRAE	:	Ministry of Municipal, Rural Affairs and Environment
MOA	:	Ministry of Agriculture

MOE	:	Ministry of Education
MOHE	:	Ministry of Higher Education
MOIT	:	Ministry of Industry and Trade
MOL	:	Ministry of Labor
MOP	:	Ministry of Planning
MOT	:	Ministry of Transport
MOTA	:	Ministry of Tourism and Antiquities
MPWH	:	Ministry of Public Works & Housing
MWIWA	:	Ministry of Water, Irrigation & Water Authority
NGO	:	Non Governmental Organization
NIC	:	National Information Center
OECP	:	Overseas Economic Cooperation Fund of Japan
QAIA	:	Queen Alia International Airport
RJ	:	Royal Jordanian Airlines
RSCN	:	Royal Society for the Conservation of Nature
SDC	:	Salt Development Corporation
SDF	:	Saudi Development Fund
SIT	:	Special Interest Tourism
SSC	:	Social Security Corporation
TCC	:	Telecommunications Corporation
TDA	:	Egyptian Tourism Development Authority
TID	:	Tourism Investment Development (of the SSC)
TOR	:	Terms of Reference
UNESCO	:	United Nations Educational Scientific and Cultural Organization
USAID	:	United States Agency for International Development
VTC	:	Vocational Training Corporation
WB	:	World Bank
WTO	:	World Tourism Organization

CURRENCY EQUIVALENTS

(As of January 1996)

Currency Unit	=	Jordan Dinar (JD)
	=	1,000 fils
JD1.0	=	US\$1.41
US\$1.0	=	JD0.708

PART I (VOLUME 2)
NATIONAL TOURISM DEVELOPMENT STRATEGY AND POLICY
(SECTORAL DEVELOPMENT)

Chapter 1.

Introduction

Chapter 1. Introduction

This report is Volume 2 of Part I of the Final Report of the Study on the Tourism Development Plan in the Hashemite Kingdom of Jordan, which was carried out under the technical assistance project for the Kingdom of Jordan provided by the Japan International Cooperation Agency.

The Final Report consists of four volumes as follows:

Executive Summary

Part I: National Tourism Development Policy and Strategy

- Volume 1: Tourism Development
- Volume 2: Sectoral Development

Part II: Development Plans for Priority Areas (in 1 volume)

Tables of contents of the volumes other than this one are attached immediately after the table of contents of this volume for reference.

Part I describes the evaluation of the existing situation concerning tourism development in Jordan and the formulation of national tourism development strategy and policy. Volume 1 and Volume 2 are separated for clarity and convenience. In Volume 1 the main themes of tourism development are clearly conveyed to the reader without providing too many details of the sectoral issues, which would detract from the main purpose, i.e., of providing a coherent view of tourism development. Sectoral issues of infrastructure and environment require detailed information in order to be useful to practitioners, and these are presented in Volume 2; there is some (inevitable) repetition in Volume 2, but the authors have tried to keep this to a minimum.

This volume therefore is meant for those directly involved with the development of the transport, water supply, sewerage and drainage, hygiene and waste management, environmental management, and power and communication sectors, as guidelines for their effort in developing their respective sectors related to tourism development.

PART I (VOLUME 2)
NATIONAL TOURISM DEVELOPMENT STRATEGY AND POLICY
(SECTORAL DEVELOPMENT)

Chapter 2.

The Nation, Land and Economy

1. Introduction

2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References

7. Appendix

8. Acknowledgements

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13. Data Availability

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Chapter 2. The Nation, Land and Economy

2.1 Natural and Physical Settings

2.1.1 Location

Jordan is located in the heart of the Middle East and is the meeting point of 3 continents: Asia, Africa and Europe. It covers an area of approximately 89,000 square km, or one fourth of the area of Japan. Jordan is bordered on the north by Syria, on the east by Iraq and Saudi Arabia, and on the south by Saudi Arabia and the Gulf of Aqaba and the West Bank Palestinian homeland and Israel on the west.

2.1.2 Physical Features

The physical features of Jordan divide into three distinct areas from west to east: the Rift valley, the highland plateau, and the desert. The highland plateau constitutes the central urban axis running from Irbid in the north to Aqaba to the south and is divided into four areas by three deep gorges (wadis): Wadi Zarqa forms the boundary between the northern and central areas, Wadi Mujib the boundary between the central and upper south areas and Wadi Hasa the boundary between the upper south and lower south.

The topographical units of Jordan are from west to east the Jordan rift valley (Ghor area), the escarpment and/or highlands, the highland plateau, and the desert, which is called the Badia region.

2.1.3 Climate

The climate is dominated by Mediterranean and arid tropical conditions. Four climatic types have been identified according to the temperatures and rainfall characteristics: Mediterranean, Irano-Turanian, Saharo-Arabian, and Sudanian (Figure 2.1.1).

The geographical distribution of the main natural physiographic and biogeographic areas is described in Table 2.1.1. Figure 2.1.2 shows the geographical location of these natural areas.

Table 2.1.1 Main Natural Areas in Jordan

(units: rainfall in mm/year; biogeographic feature; land use; topographic level)

Physiographic areas	Subdivision of physiographic areas	Natural conditions	Social conditions/pressures	Major cultural, historical, landscape interest
Jordan valley (Upper Ghor)	Jordan valley (Upper Ghor)	rainfall 200/400; Irano-Turanian: riparian vegetation; scrub steppe; agriculture; -250/0m	irrigated culture, use of fertilisers, pesticides, plastic litter, soil salinization	none
Dead Sea	Dead Sea basin	rainfall 75/250 Saharo-Arabian: Riparian plants; scrub; halophytes; flat to rolling, saline, erosion, -400/0m	irrigated agriculture development, potash industry, connecting highway	Dead Sea shore Ma'in spa
Rift Wadi Araba	Wadi Araba 1,500 km ²	rainfall 40/80 Saharo-Arabian or sub-sudanian: desert scrub; flat to rolling desert	overgrazing, highway	none except panoramic view on highlands
Escarpment	Northern escarpment	rainfall 150/200 Irano-Turanian: shrub steppe; rugged/rocky -100/+900m	grazing	Umm Qays Pella
	Southern escarpment	rainfall 75/250 Irano-Turanian: scrub steppe; rugged/rocky 0/+1000m	grazing	Ma'in Mukawir
Irbid Madaba	Irbid Madaba	rainfall 200/500 Mediterranean: forests; hills/plain +100/+900m	urban/industrial settlements	Amman Madaba
Highlands	Ajlun Highlands	rainfall 500/700 Mediterranean: forests, steep hills +600/+1250m	urban sprawl, and villages	Jerash Dibbin forest Zai forest
	Karak plateau	rainfall 200/400 Mediterranean: scrub; flat, rolling, hilly +800/+1250m	cultivation, grazing, small urban areas	Karak
	Southern Highlands	rainfall 150/350 Mediterranean: low canopy forest; steppe transition; hilly, mountainous +1000/+1850m	cultivation small urban areas	Shawbak Petra Dana

Table 2.1.1 Main Natural Areas in Jordan (continued)

(units: rainfall in mm/year; biogeographic feature; land use; topographic level)

Physiographic areas	Subdivision of physiographic areas	Natural conditions	Social conditions/pressures	Major cultural, historical, landscape interest
Northern steppe	Northern steppe	rainfall 100/300 Irano-Turanian: low shrubs; rolling, hilly +600/+900m	over-grazing military use villages, Zarqa city	none
Southern steppe	Southern steppe	rainfall 100/200 Irano-Turanian and Saharo-Arabian: scrub; rolling hilly +900/+1700m	over-grazing small settlements	none
Eastern desert	Burq Hammada/Badia Plateau	rainfall 40/200 Irano-Turanian to Saharo-Arabian: scrub steppe; small pockets of species rich plant communities; Burq: flat limestone desert +600/+750m; Badia: rolling desert +500/+1100m	overgrazing firewood collection; no disturbance in Badia	none; there are however 2 important projects: - establishment of Burq biosphere reserve; - project for the sustainable development of Badia desert
	Azraq oasis	rainfall 30/80 Irano-Turanian to Saharo-Arabian, and sub-sudanian: scrub steppe; rich biodiversity in pools, marshes, meadows; flat limestone hammada desert +600/+800m	settlements in the oasis; highway, nomadic pastoralism	Azraq oasis; desert castles; The area has been an ecological disaster due to overpumping of water; actually under rehabilitation
	Bayir Hammada	rainfall 30/100 mainly Saharo- Arabian: scrub; flat limestone hammada desert, with hills, massifs +600/+1250m	nomadic pastoralism highway in south Ma'an city planned highway from Ma'an to Azraq	none
	Hisma	rainfall 30/100 mainly Saharo- Arabian: rich biodiversity as borderland between Sudanian and Saharo- Arabian influences; steep, mountainous, deeply dissected +300/+1750m	grazing, firewood collection, small settlements, highways and railway, passage tourism	Wadi Ram
Gulf of Aqaba	Gulf of Aqaba	rainfall less than 50; conditions of Wadi Araba, and rich Red Sea marine biodiversity due to coral reef habitat;	industrial/shipping activity; urbanization; tourism development;	proximity of Wadi Ram; diving; historical remains;

Source: Royal Society for the Conservation of Nature

Figure 2.1.1 Main Climatic Zones in Jordan (Source: DOE)

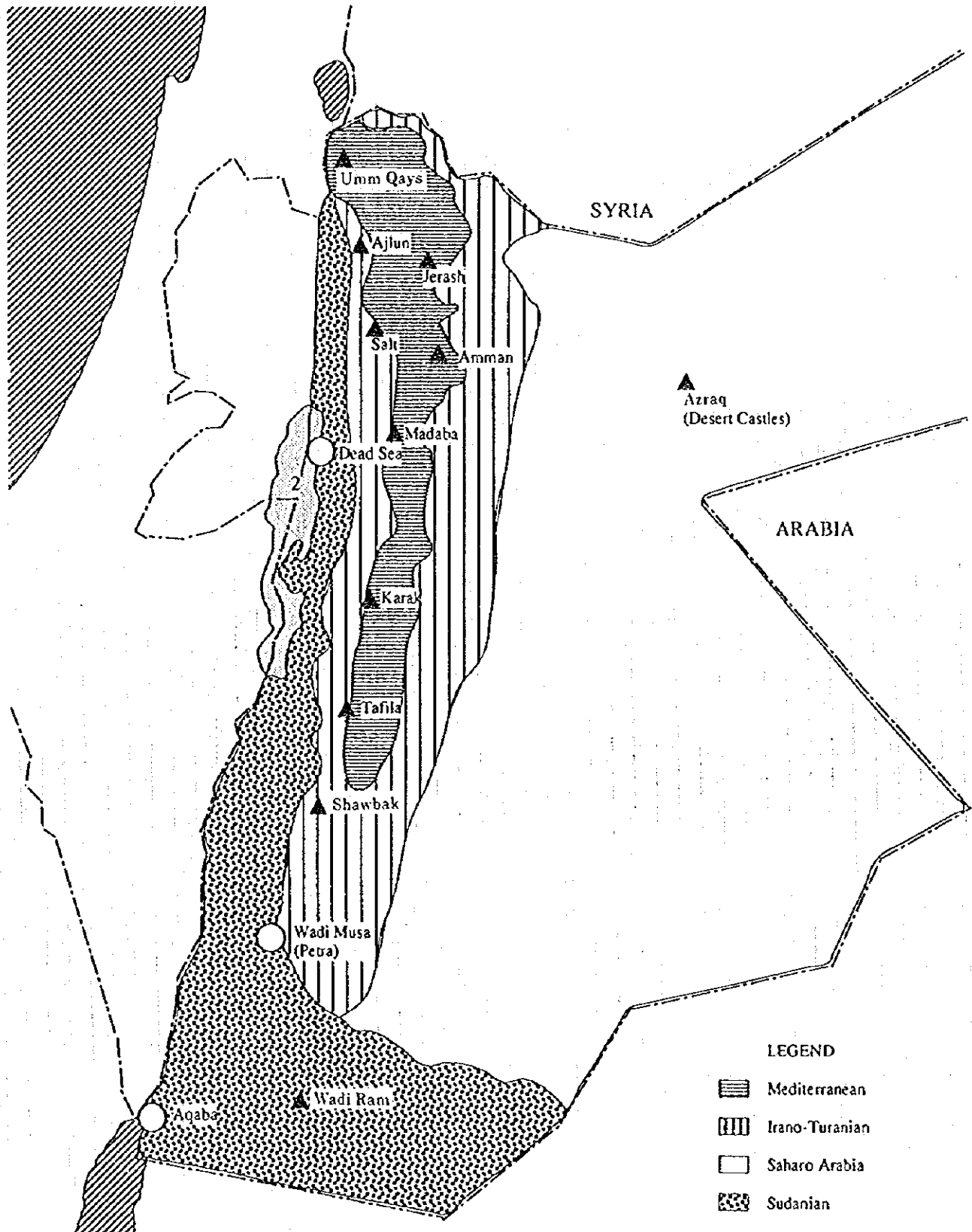
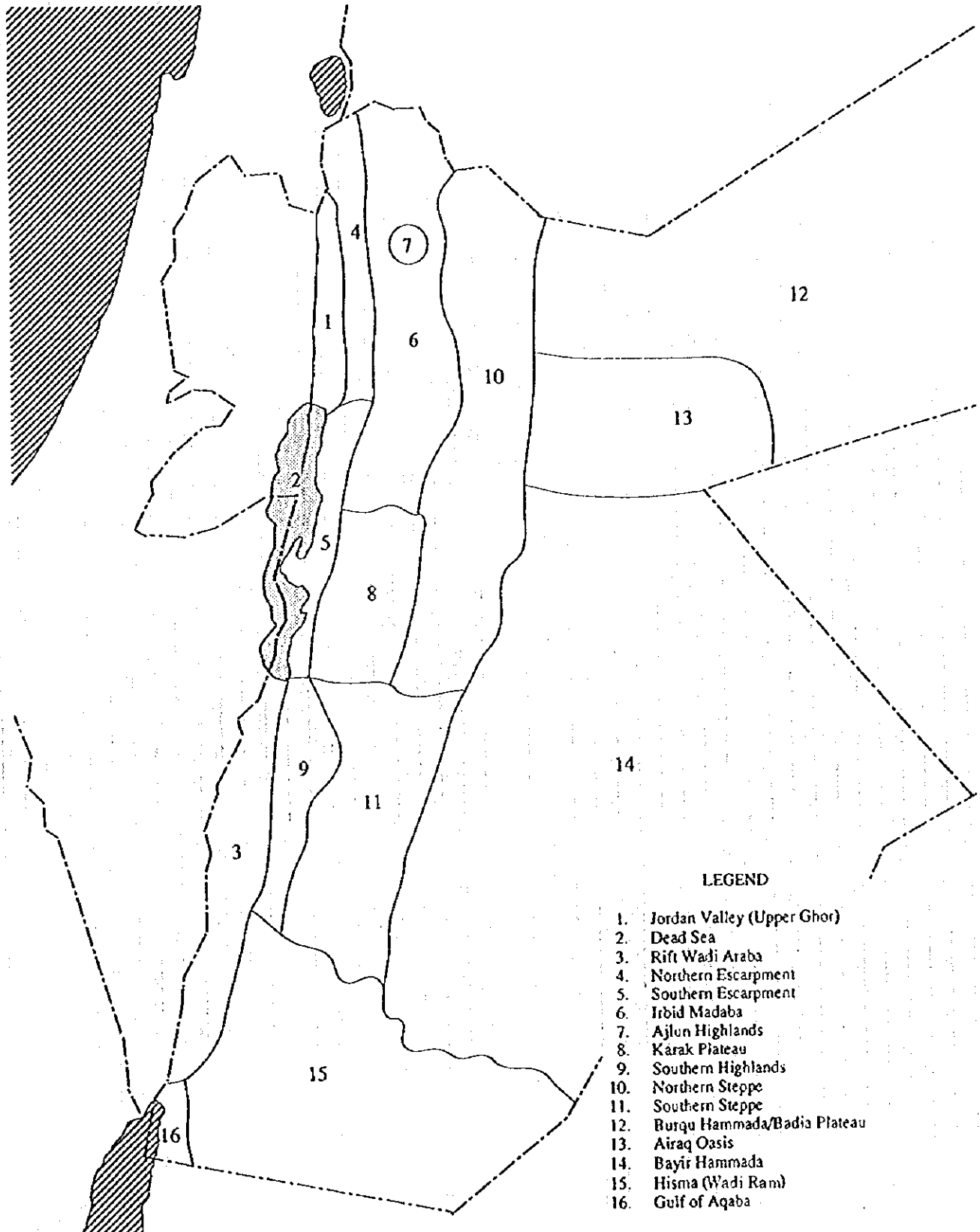


Figure 2.1.2 Schematic Location of Main Natural Areas in Jordan
(Source: RSCN)



2.2 Land Use

In order to facilitate the development of the national policy and strategy of tourism, the country has been divided into five tourism regions (Figure 2.2.1).

2.2.1 Northern Tourism Region

The Northern Tourism Region consists of the three governorates, Irbid, Ajlun and Jerash covering the northern Rift Valley and the highland plateau. It has a population of 962,000 which is one fourth of the national total. The region has relatively higher rainfall than other regions in Jordan and is situated closer to water resources of Yarmouk and Jordan rivers.

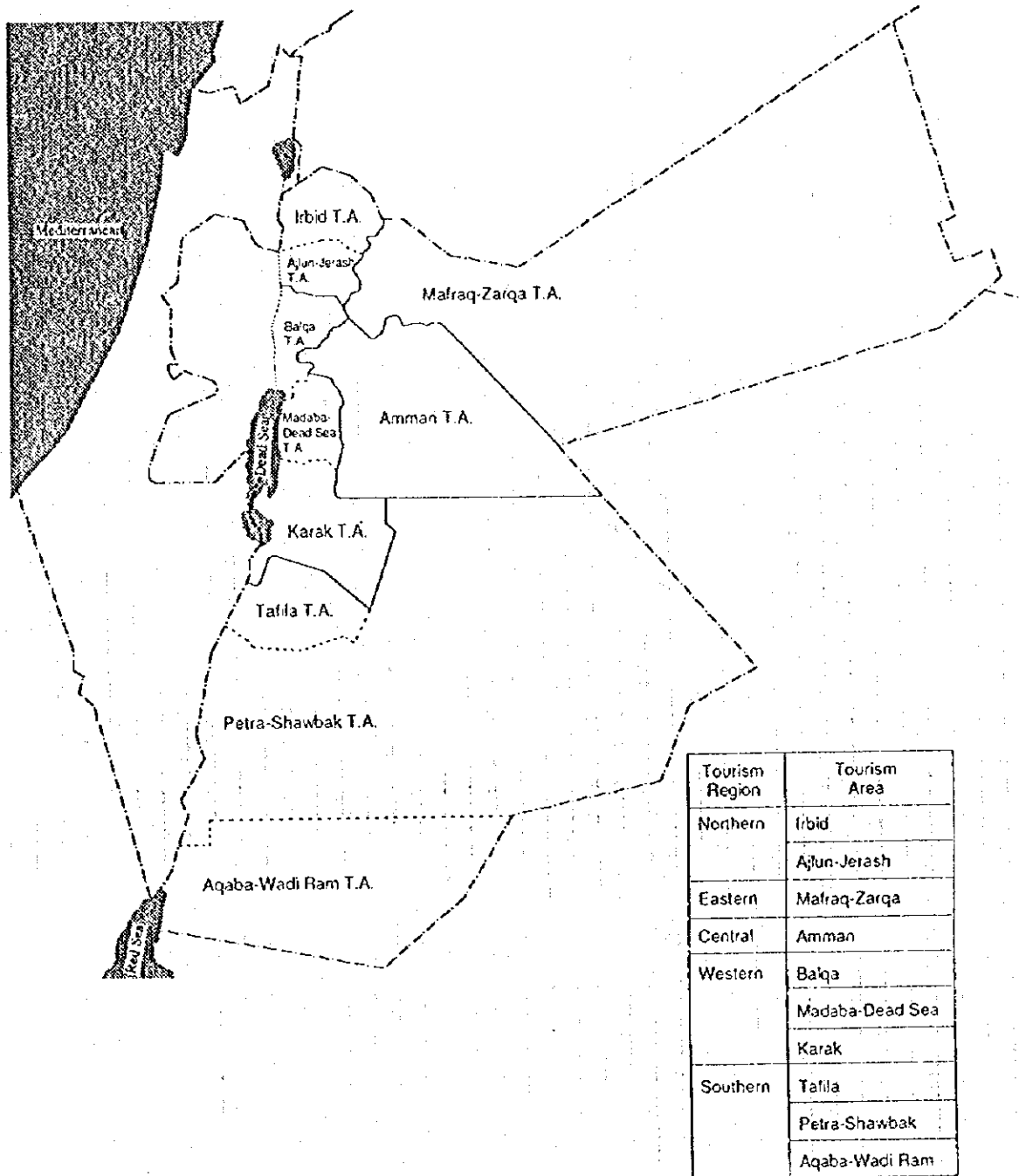
The region is the northern gateway of the country sharing border with Syria to the north and Israel to the west. The border town of Ramtha is on the main corridor connecting Europe with the Gulf countries. The Sheikh Hussein Bridge across the River Jordan is a gateway leading to the Tiberius and the Mediterranean port city of Haifa. Future freight and passenger traffic between Haifa and the Gulf countries is expected to cross this region.

The Rift Valley is intensively farmed and irrigated, producing cash crops of the vegetables and fruits for both the domestic and export markets. The highlands are not irrigated and grow mainly winter wheat. Ramtha and Irbid have small-scale transportation-related service industries. Manufacturing is beginning to be established, especially on the Al-Hassan Industrial Estate located in Ramtha.

Irbid city is the third largest municipality in the country after Amman and Zarqa and has an important role of the administrative, economic and cultural centers in the region. The distance between Irbid and Amman is approximately 90 km and is easily accessible by car. There are two state universities: Yarmouk University and the Science and Technology Institute.

Ajlun and Jerash are recently created governorates out of Irbid and function as regional sub centers. The activities of Jerash are more diversified than in Ajlun as it is located along the highway connecting Ramtha - Irbid with Amman

Figure 2.2.1 Tourism Regions and Areas



2.2.2 Eastern Tourism Region

The Eastern Tourism Region consists of the two governorates of Mafraq and Zarqa. It is the eastern gateway region having borders with Syria on the north, Iraq on the east and Saudi Arabia on the south. It covers the vast eastern areas of the country most of which is desert.

The region has a population of 793,000 (1994) which is almost one fifth of the national total. Zarqa municipality is located 22 kilometers north of Amman and is the second largest city in the country. There is an inland free zone for processing and distribution of the imported materials and products. The highway linking Amman to Zarqa is becoming the busiest corridor due to the location of industrial plants including an oil refinery and thermal power generation plants.

Highway No. 15 (Desert Highway) as well as the Hijaz railway, which connects Amman with Damascus, cross the border at Jebel which is 43 km north of Mafraq. Highway No. 10 (Baghdad Road) crosses the border 270 km from Mafraq, and Highway No. 30 crosses the border at Al Umari 48 km from Azraq.

Azraq, located about 100 km east from Amman, is the only oasis in the eastern desert. Because of its plentiful water from spring-fed pools and marshes, it was a favorite of the Umayyads and desert tribes down through the centuries. It is also on the migratory path of hundreds of bird species passing between Europe and Africa each spring and summer. The area has been designated a National Wildlife Sanctuary by the government.

In the desert between Amman and Azraq, there are several ruins of 7th and 8th century castles of the Umayyads Caliphs including Qasr el-Mushatta, Qasr Kharana and Qasr Amra. The frescos painted on the wall of Qasr Amra have been designated a world heritage. The oasis town and these old castles are the main attractions of the eastern desert.

Mafraq is located at about 45 kilometers north of Zarqa. Development has initiated with the building of the oil pipeline from Iraq to Haifa in the 1930s. It is a strategic junction town on the trans Arabian trade route as all traffic between Syrian and the Iraqi borders has to pass through Mafraq. The first university in this governorate, Al Bayt State University, opened in early 1995.

The area is surrounded by a desert of black basalt which stretches from the Jebel Druze in southern Syria. A ruin of the Nabataean city called Umm el Femal is located near Syrian border which is constructed entirely of black basalt. It was originally built by the Nabataeans and flourished through the Roman Empire,

Byzantine Empire and Umayyad Dynasty until it was destroyed by an earthquake. Similar ruin of the Nabataean is located in Bosra of Syria just across the border.

2.2.3 Central Tourism Region

The administrative area of Amman governorate covers the highland plateau and a small part of the desert belt: Amman was inhabited in the early Bronze Age. The Bible mentions Rabbath of Ammon as the capital of the Ammonites in about 1200 B.C. Under Roman rule, Amman (then Philadelphia) became one of the Decapolis cities with Jerash and Irbid.

Amman today is a modern city spread across seven steep hills with a population of 1,567,000 which is almost 40% of the national total. It functions not only as the national center for government, administration, business and culture but it is also a regional center of some of the international organizations.

Amman is a gateway city for international air traffic. There are two airports connected with a good network of highways which greatly facilitate travel to the surrounding regions. The first one in the country, the Sahab Industrial Estate, is located in the south eastern part of the region. The first state university of the country, Jordan University and several of the modern hospitals are well known in the Arab world. Also most of the hotels and restaurants meeting international standards are all located in this region.

Water resources within the region are not enough to meet the demand and have to depend on supply from the outer regions. Except for water supply, there are no other infrastructure problems that might restrict the development of tourism and utilities at this moment. However, efficient mass transit systems may be required in the future to cope with ever increasing intra urban traffic.

The most important archaeological sites in Amman are the Citadel which is strategically located on the hill overlooking the large Roman theater. Another famous antiquity site is Iraq el Amir dating back to 4000 BC, located in Wadi el-Seer. Other major attractions are the Amman Archaeological Museum, Jordan Museum of Popular Traditions and the Folklore Museum.

Modern attractions are the town scapes at Jebel Amman, Shmeisani, Jebel Hussein, El Weibdeh, Abdun and the Sport city. These areas are the most affluent parts of town where most of the hotels, embassies, restaurants, modern shops and attractive houses and apartments are located. Lately a tourist village called Kan Zaman was added to the attractions of the region. Also several amusement parks are located in the down town as well as in the suburban areas.

2.2.4 Western Tourism Region

The Western Tourism Region consists of the governorates of Balqa, Madaba and Karak and is located to the west of Amman. It has a population of 548,000 (1994) which is about a eighth of the national total. Three bridges cross the Jordan River which forms the border with the Palestinian West Bank. The main bridge, King Hussein Bridge, is only 56 km from and 1200 m lower than Amman.

Salt was originally the capital of Jordan and is now the capital of Balqa governorate. It is located approximately 30 km northwest of Amman. The road leading from Amman to the Jordan Valley passes through the city which was built along the hillsides of the basin with traditional touches of the Ottoman periods.

From a height of some 800 meters above sea level, the road winds out of the Biblical wilderness into the green valley situated at the lowest spot on the surface of the earth. The development of the valley within the jurisdiction of Jordan is administered by the Jordan Valley Authority. The area to the west is the responsibility of the Palestinian-ruled West Bank and Israel.

Madaba became an independent governorate recently separated from Amman governorate. It is located about 30 km south of Amman on the Kings Highway and covers both the Valley, Dead Sea and the highland plateau. It dates from the middle Bronze Age and reached its peak during the Byzantine era. Most of its famous mosaics date from this period. It was a border town of the Moabites at the time of the biblical Exodus and was subsequently ruled by the Seleucids, Nabataeans, Romans, Byzantines and Persians until it was abandoned following the earthquake in 747 A.D.

The area is rich in historic and scenic resources. They include Mount Nebo, where Moses was lifted up; Mukawir where Salome danced for her father King Herod led to the beheading of the prophet John the Baptist; spectacular water falls of Zarqa-Ma'in hot springs and Dhiban which was once the capital of the Moabites.

Agriculture is still the main stay of the economy of the region; some diversification is possible by exploiting its resources. The proposed tourism development of the Dead Sea East Coast is expected to give substantial impetus to the local economy. A private university, called Amman University, was recently established in Salt. The Zai National Park is situated at the northern fringe of the region.

The town of Karak is located 86 km south of Madaba and has access to the Dead Sea by Road No. 50 which connects the three parallel highways of No. 15, No. 35

and No. 65 via Karak. Karak was a walled Crusader town built for defense on a hill top strategically located on the line between the Dead Sea and the Kings Highway.

Agriculture is the main activity. The main crops are vegetables in the valley and wheat in the highlands. Apples are produced in the mountainous highlands in Shawbak of the Ma'an governorate. The region has a strong extractive industrial base with phosphates at Hasa, Abiyad and Shidiya, limestone for cement in Rashadiya, potash in Safi and oil shale in Lajjun.

Going down south about 10 km from Karak, there are important historical sites for Moslems. These are the mosques in Mutah and Mazar where the Moslem leaders were killed at the battle with Byzantine in 632 AD. Mutah University was established in the late 1980s, as part of the policy of promoting higher education in the region.

2.2.5 Southern Tourism Region

The Southern Tourism Region consists of the two governorates of Tafila and Ma'an and the newly established governorate of Aqaba. The area covers the three zonal belts and occupies more than the half of the national territory. A desert belt covers most of the region, which is sparsely populated with a population of 220,100 or about one twentieth of the national total.

The region is the southern gateways air, land and sea. It borders Saudi Arabia to the south and east, Israel to the west and the Gulf of Aqaba to the south. There are border check points with Saudi Arabia at Mudawara and with Israel at Aqaba.

The region has some of the best tourism resources in the Kingdom: (e.g., Petra located in the center of the region) and is connected to other complimentary resources (e.g., the Crusader's castles in Karak and Shawbak, the beach resort in Aqaba and grand natural scenery of Wadi Ram and Wadi Mujib).

The capital city of Tafila is located 61 km south of Karak and Wadi Has separates Tafila from Karak governorate . Tafila has been built around Crusader ruins. The major industries are mining (phosphate at Al Hasa and Abiyad and cement at Rashadiya) and agriculture. Olives are the main agricultural produce. The old Arab settlement of Dana villages and Dana Nature Reserve are located about 25 km south of Tafila, and Wadi Fedan separates Tafila from Ma'an.

The Ma'an governorate is located south of Tafila. The town of Ma'an is the administrative capital of the governorate and is situated on the junction of the Desert

Highway (No. 15) and Highway No. 5 connecting Saudi Arabian border Mudawara with the Syrian and Iraqi borders via Mafraq and Azraq respectively. The governorate has the largest area in the Kingdom but its population share is only 20% of the region. Major economic activities are public services, trade and tourism and agriculture.

Petra is the premier attraction of the Kingdom. It is a spectacular ancient city of the Nabataeans built in a canyon consisting of houses and temples caved out of the varicolored stratified rock of the canyon walls. The capacity of hotel accommodations there has been insufficient but several hotels have recently been built by the private sector in the neighboring areas of Wadi Musa and Tayyiba in response to the changing economic environment.

The area south of the Dead Sea up to Aqaba is called Wadi Araba which has long been kept intact. Several unique ideas are presented for development of this area and the World Bank is now conducting a study for development of the whole Rift Valley region.

Aqaba is located about 100 km south of Ma'an along the Desert Highway. It is the country's only seaport located on the Red Sea at the southernmost tip of Jordan. The area is administered by the Aqaba Region Authority. The size of population is similar to that of Ma'an. The major economic activities are transportation, resource-based manufacturing and tourism.

There are two seaports, one for bulk and another for containers. Aqaba also has an international airport for charter flights and regular domestic flights. The main attraction of Aqaba is seaside tourism although this is constrained by the presence of the port and industry. The area of about 2,300 ha situated between the container port and the industrial port has been designated for tourism development. The development concept is to differentiate the proposed facilities from those built up in Eilat, Israel, to have a complementary relation with them by targeting tourists of certain classes. Several luxury hotels along the beach, a golf course with 36 holes which will be the first one in the region and some tourist villages are planned for both the international and domestic tourists.

Wadi Ram, a spectacular desert valley, lies northeast of Aqaba. The attractions are the magnificent desert scenery with towering cliffs of weathered stone, the endless span of sky and panorama of strange beauty. Camping is the only accommodation allowed. These three outstanding resources of Aqaba, Wadi Ram and Petra in the region are complementing each other and form geographically a golden triangle of tourism which multiplies the attraction of the region as well as that of the Kingdom.

The water resources, both surface (Wadi Mujib and Hasa) and ground water, in this region are not fully utilized. The Dissi water resources can be used within the region. Furthermore the region has potential to produce water for long term demand by desalination of sea water at the Gulf of Aqaba.

2.3 Economy

2.3.1 Overview

After the foundation of Jordan in 1946 as a sovereign state, its particular geo-political position did not allow it to enjoy the stability necessary for sustained economic growth.

A dramatic change came after the "oil shock" of 1973. A substantial increase in financial assistance to Jordan by oil-rich Arab states and remittances sent home by Jordanians abroad provided a surplus of funds available for consumption and investment. Jordan's infrastructure was upgraded and export industries to regional market were created. Jordan experienced a prolonged economic boom between 1973 and 1984. The average GDP growth rate for the period 1973-1979 was 11.1% and that for the period 1980-1985 was 9.9%.

The boom ended by mid-1980s as a result of declining oil prices and subsequent regional recession. The Government began to suffer cash-flow problems in the face of dwindling Arab assistance and started to borrow heavily. By the end of 1988, the problem turned into a crisis. With assistance from IMF the Government set out on a five-year restructure readjustment program with vigor. By 1994 targets of the program seemed to have been mostly met and Jordan's economy was on a growth path again. The average GDP growth rate for the period 1985-1989 was -1.2% and that for the period 1990-1994 was 7.2%.

The trend of GDP growth in recent years is shown in Table 2.3.1. The mini-boom in 1992 with a GDP growth rate of 16.1% was a result of the influx of some 300,000 Jordanians returning from Kuwait because of the Gulf War. These returnees brought back funds for investment resulting in a construction boom. This situation was obviously a one-time phenomenon; the long term effect was the loss of a large amount of external remittance to Jordan. In 1993 and 1994 the growth rate settled down to a more normal 5.8% and 5.7% respectively.

Table 2.3.1 GDP Growth in Recent Years in Jordan

	1990	1991	1992	1993	1994
Total (JD m)					
At current prices	2,668.3	2,855.1	3,493.0	3,882.5	4,266.2
At constant (1990) prices	2,668.3	2,717.0	3,153.7	3,335.4	3,525.4
Real change (%)	1.0	1.8	16.1	5.8	5.7
Per head (JD)					
At current prices	626.4	643.0	748.0	785.9	831.6
At constant (1990) prices	626.4	611.9	675.3	675.2	687.2
Real change (%)	-2.1	-2.3	10.4	0.0	1.8

Source: IMF, International Financial Statistics

The current Plan for Economic and Social Development (1993-1997) envisages a steady GDP growth of 6% p.a.

The origin of the gross domestic product according to sector is shown in Table 2.3.2 in percentage distribution and in Table 2.3.3 in current prices. The share of the manufacturing sector has increased only slightly over the years, reflecting the limited success of the government's effort toward an economy that is less dependent on external funding. The trend seems to be accelerating. The sector of wholesale, retail trade, restaurants & hotels (which includes the bulk of the tourism sector) has shown a modest growth in recent years. The largest increase came from the government services sector, the growth of which has been only slightly less than overall GDP growth. This growth of government services has been largely made possible by external sources, such as foreign grants and loans. As the policies of privatization and deregulation take hold in the economy, the importance of the government sector is likely to decrease in the coming years.

The economy of the nation has been successfully stabilized and redirected. However, population growth and its distribution is an important issue. In 1994, the population of Jordan excluding the West Bank was estimated at 4,090,100, almost twice as large as the population in 1979. The population growth rate in 1993 of 3.5% is among the highest in the world. In addition, as a result of the Gulf crisis in 1990-1991, estimated 300,000 Jordanian citizens returned to Jordan from Kuwait. Population growth has taken place disproportionately in and around the capital city of Amman. The greater Amman area, including the surrounding towns, now contains almost half the total national population.

Table 2.3.2 Origin of Gross Domestic Product at Factor Cost

(% of total; current prices)

	1983	1988	1989 (1)	1993 (1)	1994 (1)
Agriculture, forestry & fishing	6.3	6.0	6.6	8.0	8.0
Mining & quarrying	2.6	4.3	7.3	3.3	3.1
Manufacturing	12.9	10.4	12.1	14.7	14.4
Electricity & water	1.4	2.7	2.5	2.4	2.1
Construction	12.2	6.2	4.8	5.9	7.4
Wholesale & retail trade, restaurants & hotels	16.8	13.5	8.6	9.3	9.7
Transport & communications	13.0	15.5	17.0	15.3	15.7
Financing, real estate & business services	16.0	18.3	19.6	19.0	17.4
Community, social & personal services	2.1	2.4	2.2	2.4	2.8
Government services	17.3	21.8	20.4	20.9	19.2
Other services	1.4	1.4	1.5	1.2	1.5
Imputed bank service charge	-2.1	-2.6	-2.6	-2.4	-1.3
Total	100.0	100.0	100.0	100.0	100.0

(1) Preliminary estimates

Source: Central Bank of Jordan, Monthly Statistical Bulletins

Table 2.3.3 Sectoral Origin of Gross Domestic Product

(JD m; current prices)

	1990	1991	1992	1993 (2)	1994 (2)
Agriculture, forestry & fishing	187.8	213.5	246.9	274.3	288.1
Mining & quarrying	148.8	124.9	130.5	110.2	112.4
Manufacturing	345.2	343.7	406.3	451.0	520.0
Electricity & water supply	53.9	62.0	66.6	70.7	77.5
Construction	105.6	125.7	215.3	251.9	269.6
Wholesale & retail trade, restaurants & hotels	216.8	254.7	278.7	312.1	352.7
Transport & communications	362.0	382.7	450.0	495.0	569.3
Financing & business services	407.0	472.2	520.4	593.3	631.8
Community, social & personal services	51.1	66.2	86.9	94.9	100.6
Government services	449.1	474.4	554.7	643.5	694.9
Other services	37.0	39.3	46.4	50.7	53.6
Imputed bank service charge	-39.9	-53.7	-41.8	-46.4	-48.4
GDP at factor cost	2,324.5	2,505.6	2,960.9	3,301.2	3,622.1
Net indirect taxes	343.8	349.5	532.1	581.3	644.1
GDP at market prices	2,668.3	2,855.1	3,493.0	3,882.5	4,266.2
Net factor income from abroad	-239.5	-221.1	-186.2	-149.1	-149.1
Total GNP at market prices	2,428.8	2,634.0	3,306.8	3,733.4	4,117.1

(2) Estimates

Source: Central Bank of Jordan, Monthly Statistical Bulletins

2.3.2 Population and Employment

(1) Population

According to the 1994 population census the national population of Jordan is 4,096,100. Table 2.3.4 shows the distribution of the population by governorate. When the 12 governorates are grouped into the 3 geographical regions used in the current 5-year National Development Plan, the central region, with Amman as its center contains the majority of the population (62.8%) the northern region (27.7%) and the southern region least (9.5%). According to the 1994 population census, the natural population growth rate is reported as 3.4%.

In the past 12 years from 1979 to 1991, the underlying population growth rate decreased gradually from 3.3% to 2.8%. Superimposed on this has been the return of large numbers of Jordanians working in the Gulf countries which resulted in a 5.3% combined growth rate for 1991. However, the ongoing peace process and the resulting socio economic and political stability, may result in substantial changes in both the total population and the population profile.

The Jordanian population comprises an aging and increasingly urbanized population. In the period 1979 - 1991, the percentage share of 15-64 years old rose from 46% to 54% and those under 15 years old decreased from 52% to 43%. Urban dwellers increased from 60% to 78% of the population as a result of internal migration from rural areas to the cities, and the forced migration from overseas back to the major cities.

Table 2.3.4 Population of Jordan by Governorate

Region	Governorate	Population	
Northern	Irbid	746,000	
	Jerash	123,000	
	Ajlun	94,000	
	Mafrqa	171,000	
sub total		1,134,000	27.7%
Central	Amman	1,568,000	
	Zarqa	624,000	
	Balqa	274,000	
	Madaba	106,000	
sub total		2,572,000	62.8%
Southern	Karak	170,000	
	Tafila	61,000	
	Ma'an	79,000	
	Aqaba	80,000	
sub total		390,000	9.5%
Total		4,096,000	100.0%

Source: Census December, 1994

(2) Employment

The size of the Jordan labor force rose from 444,000 workers in 1979 to 920,000 workers in 1991 (Plan for Economic and Social Development 1993 - 1997). The number of those entering the labor market increased from 25,000 per year in the 1980s to 46,000 in the 1990s representing an annual growth rate of approximately 6.3%. The rate of increase is greater than that of total population because of the changes in age structure. The rate of economic participation was 41.3% in 1991; only 22% of Jordan's population formed part of the labor force. Women's participation was low at 14%.

The labor force is educated and skilled with almost universal primary education. 34% of men and 28% of women complete secondary school and 17% of men and 13% of women complete post-secondary education.

Jordan is one of the few countries in the world that is both a major exporter and importer of labor. About one-third of the labor force is employed outside Jordan mainly as skilled workers. On other hand about 11% of the domestic labor force are foreign guest workers with work permits mostly from Egypt and Syria. They are unskilled or semi-skilled and mainly employed in agriculture (40%), in social services (26%) and construction (9%). There is a net shortage of skilled labor.

Table 2.3.5 Distribution of the Jordanian Labor Force by Educational Status, 1991

Educational Status	Men (%)	Women (%)
Unclassified	0.1	0.2
Illiterate	6.8	22.0
Literate	11.4	10.1
Elementary	17.8	15.3
Preparatory	28.1	24.7
Vocational training	1.7	0.4
Secondary	17.6	14.9
College diploma	7.6	9.1
University	7.8	3.1
Higher education	1.1	0.2
Total	100%	100%

Source: Department of Statistics, 1991

Table 2.3.6 Distribution of the Jordanian Labor Force by Primary Occupation, 1991

Primary Occupation	Percent
Manager	2.2
Specialist	42.2
Technician	12.2
Clerical	14.6
Skilled service workers	8.5
Skilled agricultural workers	4.0
Skilled retail workers	6.5
Machine operators	0.5
Unskilled	8.1
Unclassified	1.2
Total	100%

Source: Department of Statistics, 1991

The number of employed persons increased from 406,000 in 1979 to 763,000 in 1991, reflecting an average annual growth rate of 5.3%. However the unemployment rate increased by a few points to about 17% in 1991 because of the negative impacts of the Gulf War on the Jordan economy, and the increase in the labor force. The Gulf War resulted in a sharp decline in outward migration to the Gulf States and an increase in Jordanian workers returning. There was a mismatch between the skills and the requirements of the local labor market. The unskilled foreign guest workers could not be replaced by the returning, unemployed skilled Jordanian. In order to decrease unemployment, additional jobs need to be created for skilled workers and skilled workers. As shown in Table 2.3.7, almost half of Jordanian workers are employed in the government sector. The salary levels within

the public sector effectively establish salary levels in the private sector and have a significant effect on the economy.

Table 2.3.7 Employment Structure by Industrial Activities

Activity	1990	%	1991	%	1992	%
Agriculture	38,266	7.3	40,848	7.4	44,400	7.4
Mining/Manufacturing	53,468	10.2	56,856	10.3	61,800	10.3
Utilities	6,815	1.3	7,176	1.3	6,600	1.1
Construction	51,895	9.9	54,096	9.8	60,000	10.0
Commerce	52,944	10.1	56,856	10.3	63,000	10.5
Transport/Telecom	44,557	8.5	48,576	8.8	52,200	8.7
Banking/Insurance	16,774	3.2	17,664	3.2	19,800	3.3
Public/Services	259,978	49.5	269,928	48.9	292,200	48.7
Total	524,697	100%	552,000	100%	600,000	100%

Source: Department of Statistics

2.3.3 Investment Environment

Improving the investment environment in Jordan has been one of the major goals of economic restructuring pursued by the Government since the financial crisis of the late 1980s. Much has been done but still many areas remain to be improved. The Plan for Economic and Social Development 1993-1997 cites a 12-point policy to provide a suitable environment conducive to increasing domestic production and exports and to rationalizing imports.

More specifically, for the tourism sector the following are advocated:

In order to attract foreign investments, various regulatory improvements have been made in recent years. Foreign firms in general are allowed to establish manufacturing enterprises on a 100% ownership basis. Greater incentives are offered to those who invest in areas away from the greater Amman area, especially in the south. Foreign firms are now allowed to freely transfer capital and profit.

The Government is preparing to host a high-profile economic conference in Amman (October 29-31, 1995). It is hoped that the gathering of a large number of businessmen and policy-makers in the region and beyond will produce concrete investment schemes and projects and that these will be viewed as the real fruits of the Peace Process and bring tangible, direct benefits to the Jordanian economy.

PART I (VOLUME 2)
NATIONAL TOURISM DEVELOPMENT STRATEGY AND POLICY
(SECTORAL DEVELOPMENT)

Chapter 3.

Transport

Chapter 3. Transport

3.1 Existing Situation and Issues

3.1.1 Overview

(1) Main Organizations Related to Transport

The main organizations involved in the transport sector in Jordan are detailed in Table 3.1.1.

According to a new ordinance, MOTTA is the only ministry to supervise tourist transport activities. It has responsibility for the registration of companies and the approval of routes, operation schedules and tariffs.

(2) Overall Problems and Issues of Transport

At present neither the passenger nor the cargo land transport system is well as the responsibility for their supervision is dispersed among a number of government ministries.

A transport sector policy and institutional study was completed, as a part of the Third Transport Project of the World Bank. One of the objectives of the study was to establish cost recovery mechanism for roads. According to the study a Higher Transport Council was established to supersede the number of authorities. The Ministry of Transport is conducting "Studies on Trade and Transport Facilitation and Public Transport" which include a study of tourist buses.

Considering the opportunities presented by the current peace initiative and the potential for an increase in international tourism in Jordan, a national tourist transport strategy is urgently required.

Table 3.1.1 Institutional Distribution of the Main Transport Functions

Function	
Overall policies, plans, and coordination including institutional, organizational and financial aspects	<ul style="list-style-type: none"> - Ministry of Planning - Ministry of Transport - Ministry of Tourism and Antiquities (regarding tourist transport only) - Ministry of Interior
Road construction and maintenance	<ul style="list-style-type: none"> - Ministry of Public Works and Housing - Greater Amman Municipality, Aqaba Region Authority, Jordan Valley Authority and municipalities (within their jurisdictions except national level links)
Land transport	<ul style="list-style-type: none"> - Ministry of Transport (fixing tariff, etc.) - Jordan Express Tourist Transport Co. (JETT) - Public Transport Corporation (public bus company covering Amman and the suburbs) - Private companies (taxis, service taxis, city buses and inter-city buses, rent-a-car) - Jordan/Iraq Land Transport Company (cargo transport) - Jordan/Syria Land Transport Company (cargo transport) - Ministry of Interior and Traffic Committees (licensing operators, fixing routes, etc.)
Traffic management	<ul style="list-style-type: none"> - Traffic Department (implementation of traffic management) - Traffic Committees (permission for public transport routes) - Civil Defense Department (traffic accidents) - Registration Department (registration of vehicles, drivers, etc.)
Bus and taxi terminals in Amman (Raghadan, Abdali and South Amman Terminal)	<ul style="list-style-type: none"> - Greater Amman Municipality
Railways	<ul style="list-style-type: none"> - Hijaz Railway Corporation - Aqaba Railway Corporation
Aqaba Port and maritime transport	<ul style="list-style-type: none"> - Aqaba Port Corporation - Arab Bridge Maritime Co. (ferry service)
Civil aviation	<ul style="list-style-type: none"> - Civil Aviation Authority (airports) - Royal Jordanian Airlines

Source: JICA Study Team

3.1.2 Road Network

(1) Classification of Roads in Jordan

The various categories of roads are described in Table 3.1.2.

Table 3.1.2 Classification of Roads in Jordan

Type of Road	Description
Primary Roads	consists of 2 or more lanes connecting: <ul style="list-style-type: none"> - the capital Amman with Muhafada centers - Muhafada centers - Jordan with neighboring countries - 2 primary roads through Muhafada centers
Secondary Roads	consists of 2 lanes connecting: <ul style="list-style-type: none"> - primary roads through cities other than Muhafada centers - to serve a group of villages
Village Roads	consists of 2 lane road branches from primary or secondary roads and serves a village or a small community
Agricultural Roads	dirt or paved roads serving farms
City Roads	serving intra-city traffic

Source: Ministry of Public Works and Housing

(2) Primary Road Network

The skeleton of the primary road network consists of 4 north-south roads and 3 east-west roads shown in Figure 3.1.1.

(3) Secondary and Local Roads for Access to Tourist Sites

In addition to the primary road network, there are secondary and local roads which are, or will be, important for access to tourist sites (Figure 3.1.2).

(4) Traffic Volume

Traffic counting surveys conducted in 1993 by the Highway Studies Department of the Ministry of Public Works and Housing covered 52 stations checking 82 cross-sections. The survey results are for week days and do not include weekend traffic (Figure 3.1.3). The findings of the survey are as follows:

- the volume of traffic was highest in Greater Amman and on the route to Irbid with 10,000 or more daily vehicles at major sections. In the other areas, most roads have less than 5,000 vehicles per day;
- most of the roads surveyed have sufficient capacity for the existing traffic unless there are exceptional circumstances such as deteriorating road surface, lack of road facilities and poor traffic management; and

-
- passenger-dominated roads (around Amman, the northern region, Kings' Highway between Amman and Tafila, etc.) and cargo-dominated roads (east of Mafraq, Desert Highway south of Q.A.I Airport, etc.) were identified (Figure 3.1.4).

(5) Road Projects and Plans

Roads under Construction

The road construction projects of national importance and/or for tourism development, are detailed in Table 3.1.3.

Planned Roads

Future road projects at the national level are detailed in Table 3.1.4. These were presented to the Casablanca Summit in October 1994 but require further detailed evaluation and prioritisation. Tourism development and environmental conservation are key issues in evaluation.

(6) Principal Issues

The following issues are thought to be principal in the road sector.

- the introduction of cost recovery mechanisms;
- the full utilization of Road No. 65;
- the development of road links connecting the north-south corridors, especially the newly completed Road No. 65 along the Jordan Valley and Road No. 35 (Kings' Highway) to provide tourists with more variety of itineraries;
- the separation of tourist and industrial traffic and also the separation of pedestrian and vehicle flows;
- the continuation of roads through Aqaba, Eilat and Taba areas;
- the upgrading of tourist roads along sections with increasing tourist traffic;
- street landscaping and beautification;
- the general improvement of road standards such as surface conditions, road shoulders and safety facilities;
- the installation of more tourist signs along the road side;
- the installation of well-equipped viewpoints, especially where the views are spectacular;
- the development of service stops equipped with tourist facilities at key locations along major roads;
- the beautification and improvement of local access to tourist sites. These improvements should be compatible with the carrying capacity of the sites and the local social and natural environment;
- the development of alternative means of access to tourist sites, e.g., railways,

- rope ways, cable cars, electric cars and elevators;
- the development of parking facilities at tourist sites;
- the improvement of transport terminals;
- the development of border facilities and services;
- the development of a circulation systems within each tourist site; and
- the restoration of historic streets.

Table 3.1.3 Road Improvement and Construction Works
(as in January 1995 including committed construction works)

	Road	Description	Completion Date
C1	Road No. 10 (8 km section between Irbid and North Shuna)	4-lane section	1995
C2	Road No. 10 (8.4 km section from Mafraq toward Irbid)	4-lane section	1995
C3	Ardani Road (a 30 km road beside the Jordan River)	bypass existing villages financed by the Jordan Valley Authority	1995
C4	Wadi Shuaib Bridge (600m on Road No. 437)	contributes to improved access between King Hussein Bridge and Salt/Suwaylih/Anman areas	1995
C5	Road No. 70 (Gharandal-Al Rases)	connects the north-south corridors.	
C6	Road No. 60 (Tafila-Fifa on Road No. 65)	as above	
C7	Road No. 544 (Siagha-Kafreen on Road No. 436)	upgrading the existing low standard	
C8	Road No. 562 (Hammt Main- Zara on Road No. 65)	the existing track is usable only by 4-wheel drive cars	
C9	Road No. 564 (Mukawir-Zara on Road No. 65)	as above	
C10	Road between Main Spa and Mukawir	not yet connected	
C11	Road No. 35 (Wadi Musa-Taybet)	designed to reconstruct the 7 km road section to a higher grade road with a pedestrian lane, a horse lane, parking areas, view points, etc., without increasing the number of vehicle lanes from the existing 2 lanes.	
C12	Road No. 15 (Ras El Naqab-Wadi Yutum)	Part of the Third Transport Project of the World Bank to upgrade the existing 2-lane section to 4 lanes with better alignment.	1999
C13	Road Pavement Rehabilitation Program of the World Bank's Third Transport Project (Road No. 35 and No. 25 (33 km between Suwaylih and Q.A.I. Airport)):	to start in early 1995	
C14	Large scale border facilities under construction at Jaber, the northern end of Road No. 15	After completion, the present border activities will be moved from Ramtha to Jaber followed by a shift of traffic from the northern sections of Road No. 25 to Road No. 15.	1995

Source: Ministry of Public Works and Housing

Table 3.1.4 Existing Major Road Plans

Project No.	Project Name	Length km	Estimated Cost		Estimated Construction Time Months	Priority by Government of Jordan
			Million J.D.	Million US\$		
P 1.	King Hussein Bridge & Access Road	10	12	16.9	30	Very High
P 2.	Kafrein to King Abdulla Bridge	10	11	15.7	30	Very High
P 3.	Prince Mohammad Bridge & Access Road	5	6.5	9.3	24	Very High
P 4.	Majane Bridge & Access Road	3.5	3.5	5	24	High
P 5.	Damiah Junction - Kofurhooda Highway	20	20	28.6	30	Very High
P 6.	Irbid - North Shuna Highway	14	8	11.4	21	Very High
P 7.	North Shuna - South Shuna Highway	120	75	107	42	Very High
P 8.	Petra - Gregra Highway	40	22	31.4	24	Under discussion
P 9.	Karak - Qatrana Highway	35	26	37.1	42	Construction starts 1995
P 10.	Sheikh - Hussein Bridge & Access Road	4	3.5	5	24	Very High
P 11.	Salt - South Shuna Highway	25	15	21.4	30	High
P 12.	Iraq Borders/Mafraq/Irbid/Sheikh Hussein Junction	370	106	151.4	45	Middle
P 13.	Aqaba Coastal Highway	10	6.5	9.3	24	Very High
P 14.	Aqaba Ring Road	30	8	11.4	18	High
P 15.	Highway Leading to Aqaba	14	7	10	24	Middle
P 16.	Aqaba - Airport Highway	7	2	2.9	6	High
P 17.	Ghor Safi - Back Road	18	10.8	15.4	24	High
P 18.	Ma'an - Mudawara Highway	120	40	57.1	30	Middle
P 19.	Desa Batn Al Ghol Highway	45	10	14.3	24	Middle
P 20.	Madaba - Amman Highway	15	9	12.9	24	Construction starts 1995
P 21.	Upgrading Suwayma - Zara & Haditha - Safi Highway	53	12	15.5	18	Construction starts 1995
P 22.	Azraq - Safawi Highway	50	10	14.3	24	Middle
P 23.	Karak - Safi Highway	40	20	28	36	Middle
P 24.	Amman Ring Road	100	50	70	30	High
P 25.	Irbid Ring Road	15	6	8.4	24	Middle
P 26.	Salt Ring Road	6.5	2	2.8	18	Construction starts 1995

Source: Ministry of Public Works and Housing

Figure 3.1.1 Main Roads of Jordan

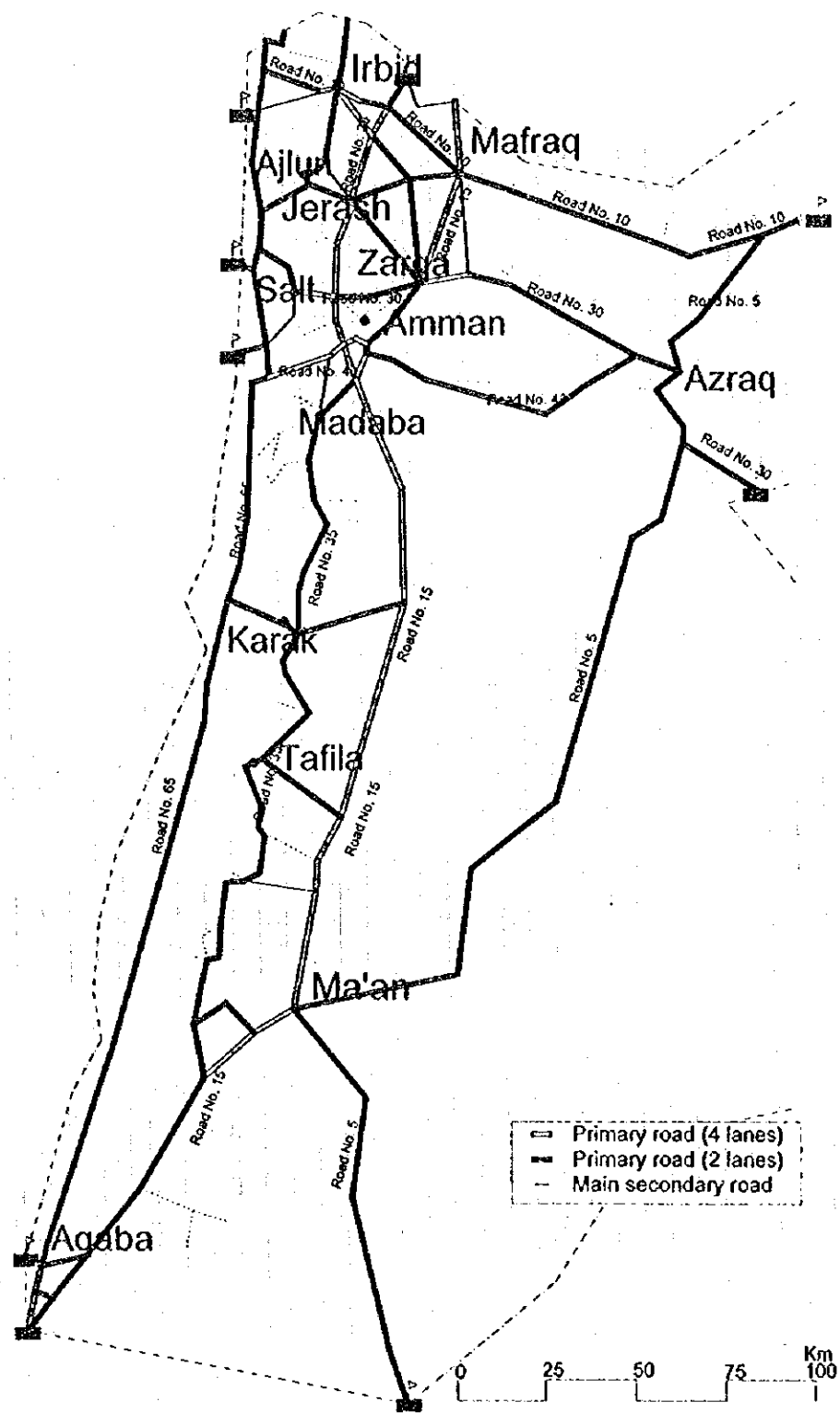


Figure 3.1.2 Access to Tourist Sites

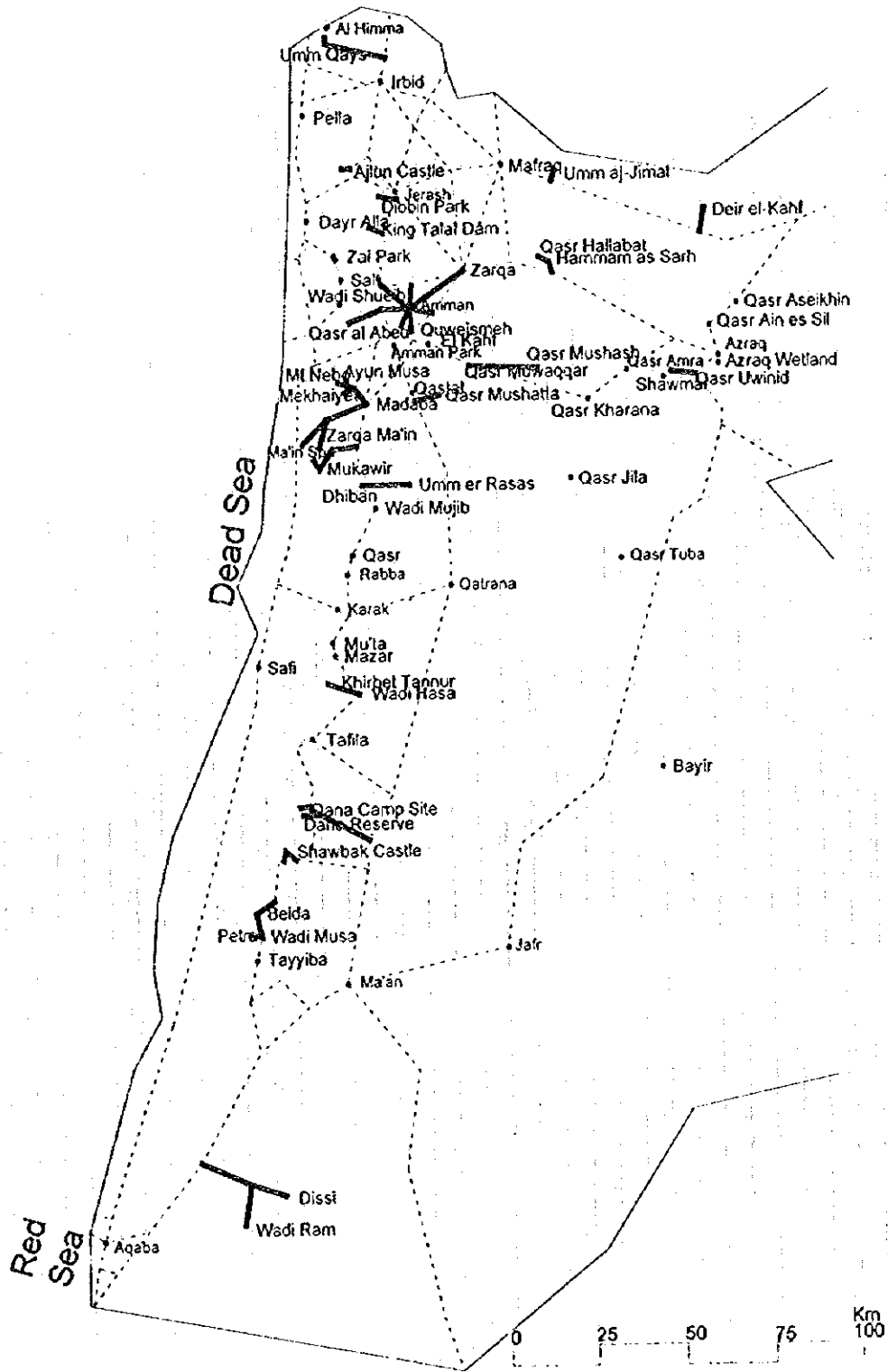


Figure 3.1.3 Dally Number of Vehicles

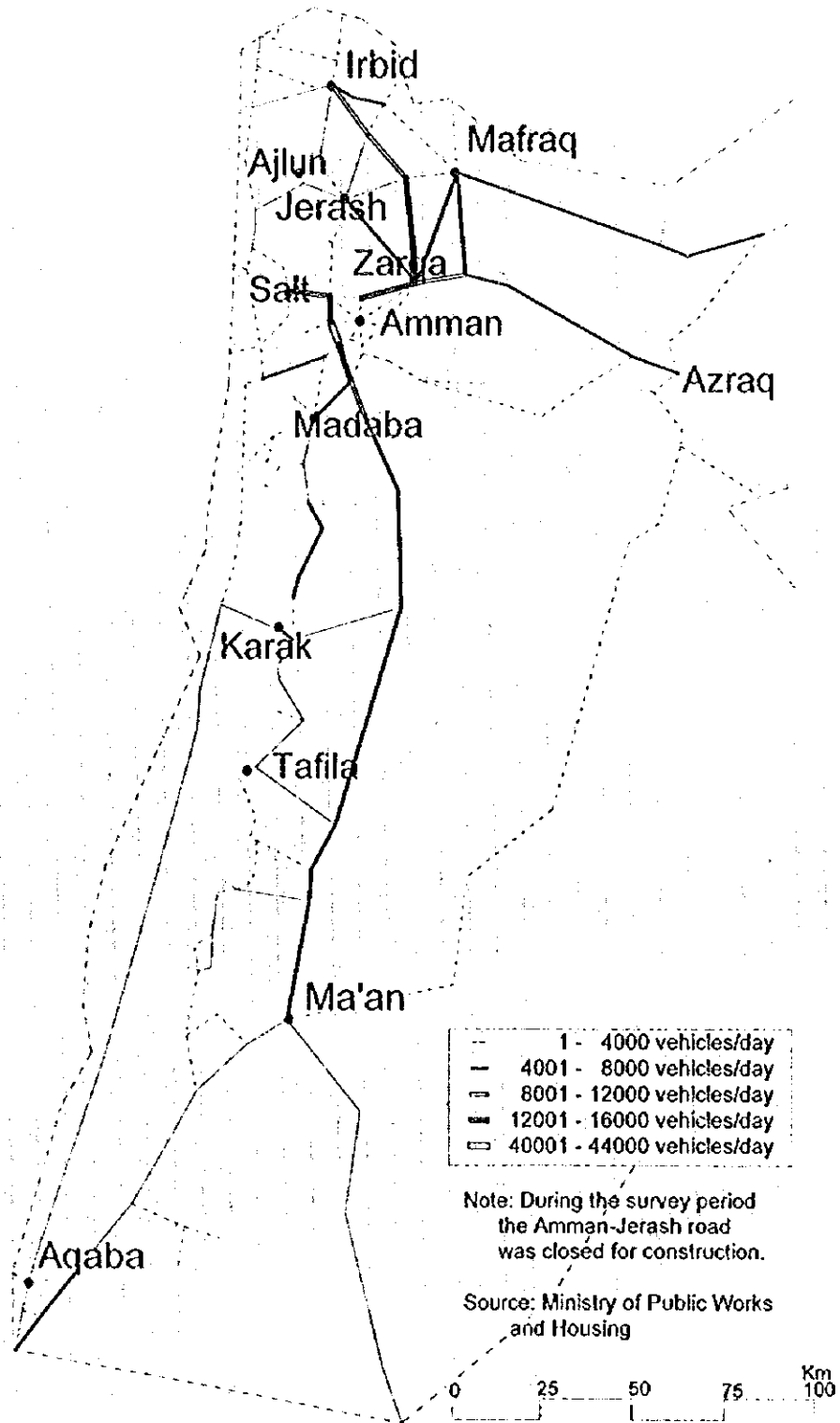


Figure 3.1.4 Passenger Vehicles Share

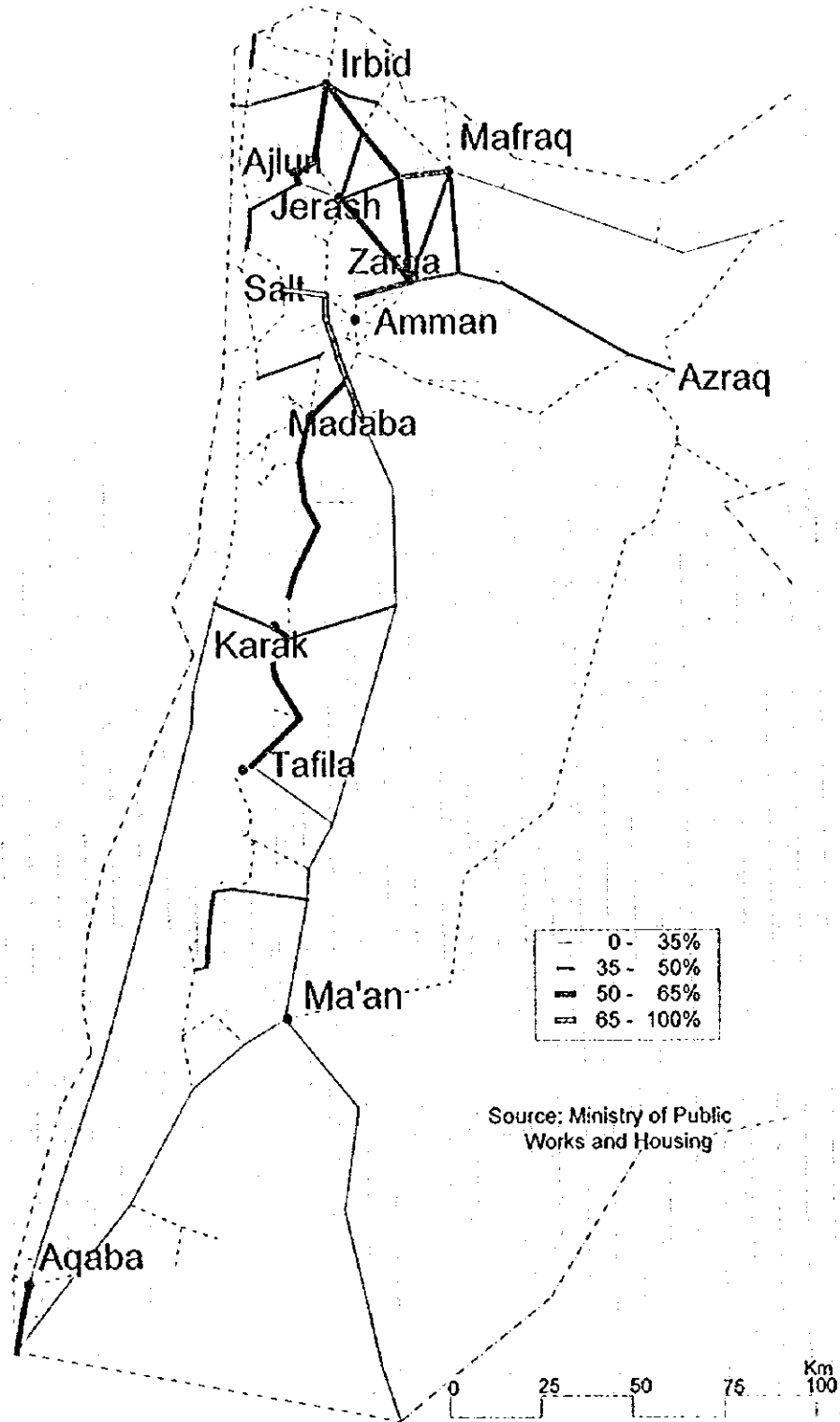
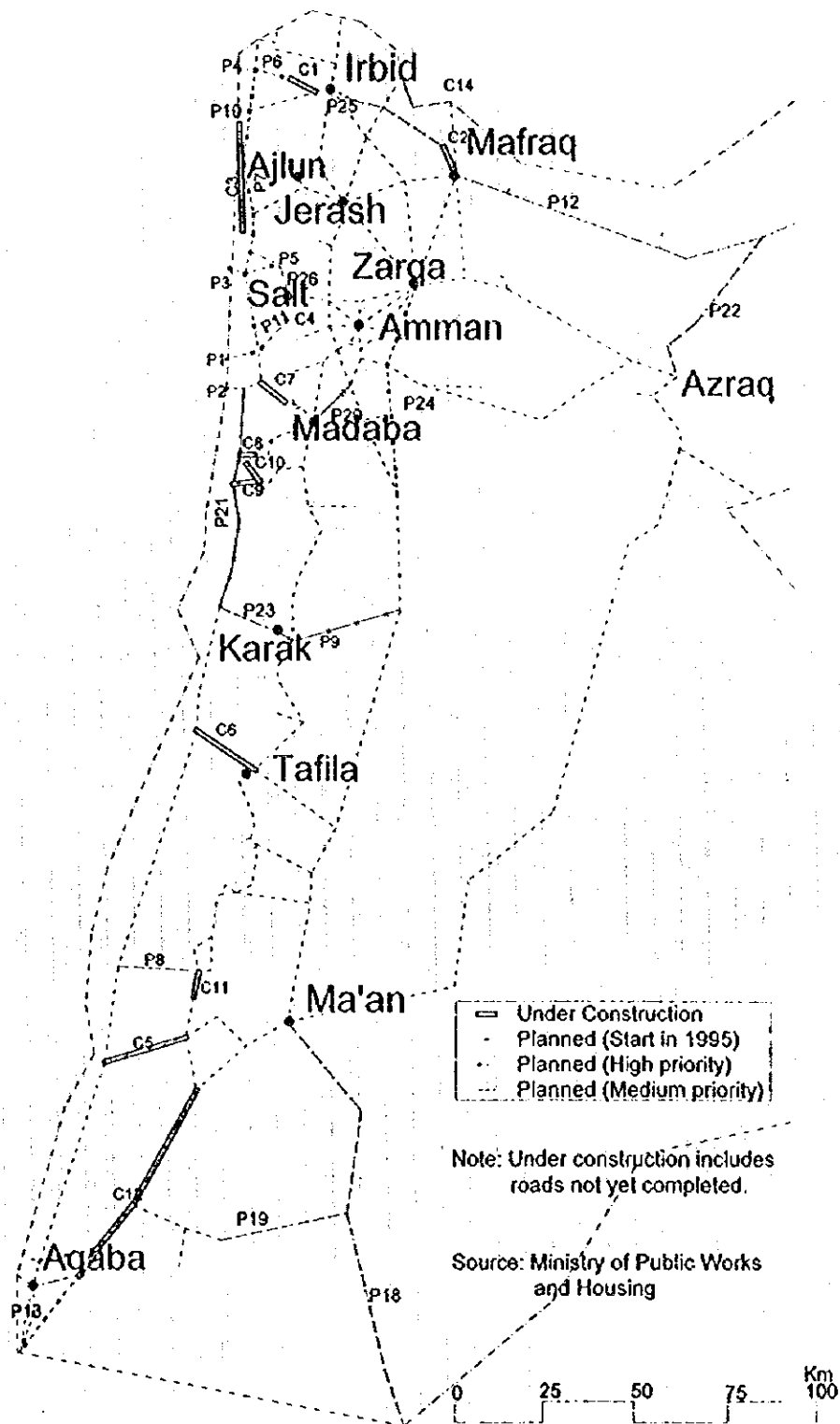


Figure 3.1.5 Road Projects & Plans



3.1.3 Road Transport for Tourists

(1) Current Road Transport for Tourists

Jordan Express Tourist Transport Co. (JETT) had a monopoly on tourist bus services until June 1994. However, according to a new regulation the establishment of rival companies has become possible. Application for new companies to the MOTA is evaluated by a committee headed by the Secretary General of MOTA and is approved on condition that the company's capital is at least JD 10 million and that it owns at least 50 buses. Five tourist transport companies in addition to JETT have been licensed and they are expected to operate a total number of 500 buses of various size under the Tourism Transport Bylaw No. 7 for 1995, which became effective April 1, 1995. In addition to tourist buses, there are other tourist transport services such as taxis and car rental services.

(2) Jordan Express Tourist Transport Co. (JETT)

Organization and Facilities

Some 92% of the equity of JETT is owned by the private and semi-public sectors and 8% by the public sector. It employs approximately 300 workers, of which a half are drivers. The company owns 130 large buses with 46 to 52 seats and 20 mini-buses for 15 passengers and some space for luggage. In addition, in early 1995 the company purchased 40 new buses, most of which are medium size buses with 30 seats. The main garage is located in the suburbs 20 km from central Amman. There are 3 terminals in Amman (Headquarters, Abdali and Marka) and one in Aqaba.

Services

The company operates chartered and regular bus services. The chartered services for group tours of foreigners are the major activity, which served some 120,000 passengers in 1994. The most common destinations in order of frequency are Petra, Jerash, Amman City Tour, Kings' Highway including Karak, Aqaba, Dead Sea, Pella and Umm Qays, Desert Castles and Wadi Ram. Approximately 30% of JETT patrons visit the West Bank.

Destinations of regular services and the daily number of services are Q.A.I. Airport (every 30 minutes), Aqaba (6), Petra (1), Main (1), King Hussein Bridge (1), Baghdad (2), Damascus (2), Riyadh (1), Damman (1), Jedah (1) and Cairo (1). The regular services to Petra, Main and King Hussein Bridge have relatively high shares of non-Jordanians.

The company expects a 25% increase in passengers in 1995 and a greater than 15%

annual increase over the following 5 years.

Problems identified by JETT

The problems identified by JETT personnel are as follows:

- unlicensed bus services;
- potential excess supply of tourist buses after the deregulation especially in off-peak season;
- the unknown effect of cross frontier operation by other bus companies of other nations; and
- the potential shortage of hotel rooms especially in Amman and Aqaba.

Principal Issues

The principal issues are as follows:

- the tight conditions set for private companies to enter the tourist transport market;
- the deregulation of the tourist transport market will not necessarily lead to the maintenance and improvement of safety and reliability;
- Various additional customer services, e.g., smoother border crossing and the extension of cross border services; and
- the general public buses including service taxis are difficult for foreign tourists to use.

3.1.4 Railways

(1) Overview of Railways in Jordan

The original railway line between the Syrian border and the Saudi border is owned by Hijaz Railway Corporation. The section between the Syrian border and Al-Abyad is managed by the Corporation and the section between Al Abyad and Batn El Ghul is leased out to and managed by Aqaba Railway Corporation to transport phosphate. The section between Batn El Ghul and Aqaba was constructed and has been managed by Aqaba Railway Corporation. The section between Ma'an and the Saudi border near Mudawara has been abandoned (Figure 3.1.6). The existing railways use single-line, narrow-gauge tracks (1,050 mm).

(2) Hijaz Railway Corporation

Facilities

The rolling stock owned by Hijaz Railway Corporation includes the following:

- 2 workable steam engines;
- 5 diesel engines (2 leased to Aqaba Railway Corporation);
- 8 passenger cars; and
- 45 cargo cars.

However, most of the equipment is obsolete. The corporation also owns land and property, and employs 130 workers.

Activities

According to the timetable, cargo is transported from Amman to the Syrian border on Sundays and from the border to Amman on Mondays. Passenger trains are operated from the border to Amman on Sundays and from Amman to the border on Mondays.

In 1993, the corporation transported 39,034 passengers and 6,440 tons of cargo by a total of 601 services with 1,007 cars. The total number of departures and arrivals to and from Syria by railways was approximately 4,600 passengers in 1993 accounting for only 0.06% of the national total of international arrivals and departures.

Most services are pulled by diesel locomotives, although some tourist services use steam engines, which are more expensive to operate. Some 5 to 15 tourist trains are chartered every year for groups including embassy staff and their guests, high school students, etc. The most common destination is Jiza near Q.A.I. Airport at an average speed of 25 to 30 km/h.

(3) Aqaba Railway Corporation

Facilities

The Aqaba Railway Corporation has 25 engines (21 working) and 500 wagons (280 working). The corporation employs 1,200 workers. The railway line runs from the Abyad mines through Hasa to Aqaba, a distance of approximately 300 km with 18 stations. Of this distance, 230 km has been rehabilitated; the 50 km between Ma'an and Batn El Ghul has yet to be renewed.

Activities

The railways transport only phosphate from the mines at Al Hasa and Al Abyad, which are expected to close in 1999, to Aqaba. The net travel time between Ma'an and Aqaba is 3 to 4 hours.

(4) Existing Plans for Development

Extension of Aqaba Railways

Construction of the Al-Shidiya Railway Link and the Aqaba Wadi II Railway Link are planned.

Restoration of Hijaz Railway for Tourism

A committee involving the Hijaz Railway Corporation and the private sector has been formed to restore the railway as a major tourist attraction and various studies have been conducted. The following action will be required to realize the plan:

- the upgrading of the tracks, rolling stock, stations;
- the improvement of operational skills;
- undertaking of a market demand survey; and
- the creation of a database.

Development of Standard Railways

The government of Jordan has ideas to develop the following .

- the Amman-Syrian Border Railway;
- the Amman-Aqaba Railway;
- the Mafraq-Irbid-Al Majame Bridge Railway;
- the Mafraq-Iraqi Border Railway; and
- the Dead Sea - Red Sea Railway.

Development Ideas of Urban and Suburban Railways

The study of a new railway line for Amman - Zarqa - Mafraq with a branch line to Irbid is currently on-going.

(5) Principal Issues

The principal issues are as follows:

- the reorganization of the corporations and operation on a commercial basis as proposed by the Economic and Social Development Plan 1993-1997.
- the impact on the communities through which the line south of Aqaba Station passes if the route is extended as planned.
- the planned restoration of the narrow gauge railways including the Hijaz Railways and Aqaba Railways to provide access to spectacular scenery. This is particularly important for the line between Abyad Mine Station and Batn El Ghul Station which will become redundant after 1999 when Al Abyad mines and Al Hasa mines are expected to close. Participation of the private sector is

expected.

- The development of the national railways at a significant cost to the nation requires adequate demand forecasts and detailed consideration of its impact on the environment.

3.1.5 Water Transport

(1) Arab Bridge Maritime Co.

Overview

At present, regular passenger transport by water is limited to the ferry service operated by Arab Bridge Maritime Co. (ABM) between Aqaba and Nuweibeh.

Main Facilities

A.B.M. operates 3 ferries as follows:

- "Santa Catherina" (capacity of 3,000 passengers, 270 small cars and 27 trucks);
- "Concorde" (capacity of 3,000 passengers and 200 vehicles); and
- "Jimly" (capacity of 1,500 passengers and 70 vehicles but not operated regularly)

Services

The operation schedule is as follows:

Departure from Aqaba	11:30 and 20:00 daily
Departure from Nuweibeh	12:00 and 19:00 daily

However, during the high season which corresponds to Hadj and the summer vacations, when the peak traffic is about 60% higher than the annual average, the operation is continuous with no fixed schedule. One trip takes 3 hours. However, the overall passenger time required including waiting time after ticketing is nearly 10 hours.

Transport Volume

In 1994, A.B.M. transported 1.35 million passengers, 50,200 cars and buses, 29,100 trucks and 300,400 tons of cargo. The average occupancy rate was 56%. Among the passengers, not less than 96% were migrant workers. Approximately 90% of the passengers were Egyptians, 5% were Jordanians and 5% were of different nationalities including Arab Gulf countries. To date, a total of 3 million Egyptian workers have traveled to Iraq by the ferry.

Institutional Aspects

The company employs approximately 100 permanent and 250 casual workers. The total number of crew is approximately 70, consisting of 26 Jordanian or Egyptian seamen and the remaining service staff.

Future Prospects Expressed by A.B.M. Personnel

The company expects to transport at least 1.5 million passengers, around 60,000 cars and buses and 30,000 trucks annually. As a new service, A.B.M started chartering high-speed boat operations in 1995. Moreover, there is a plan to operate (a) container vessel(s) and (a) cargo ship(s) .

If a road connecting Egypt, Israel and Jordan is realized by the peace treatment, the demand for the ferry service will decrease and the company may enter the land transport market.

(2) Cruise Ships

The Aqaba Port receives foreign cruise ships mainly from Europe. In 1994, the number of cruise passengers to Jordan reached 5,420, the highest level since 1988.

(3) Principal Issues

The principal issues are as follows:

- the improvement of Aqaba Sea Ports has been planned by a JICA study team. Co-ordination between the port and industrial development and the tourism and residential development is essential;
- the institution of a separate system for late boarding and early disembarkation and preferential lounges to encourage the use of the ferries by tourists;
- Planning of the future of the ferry service needs a careful study of the improvement of inland transport resulting from the opening of the border crossing;
- the promotion and preparation of facilities and services to encourage more cruise ships to visit Aqaba;
- the development of smaller high-speed boats between Aqaba and Taba in Egypt as an alternative to the present ferry service. Detailed environmental studies would be required to ensure that the coral in Taba is not adversely affected;
- the introduction of various types of pleasure boats to the Red Sea such as motor boats, glass boats for marine observation and tourist submarines should be considered; and
- the introduction of more water transport in the Dead Sea.

3.1.6 Civil Aviation

(1) Airports

According to the Economic and Social Development Plan 1993 - 1997, 20 airlines, including Royal Jordanian, carry passengers and goods to and from Jordan via Queen Alia International Airport (Q.A.I.A) and Aqaba Airport. In special or emergency cases, the old Amman Airport (Marka Airport) is used. Q.A.I.A. and Aqaba Airport are managed by the Civil Aviation Authority.

Q.A.I.A is equipped with two runways 3,660 m long and 61 m wide. The design capacity of the airport is 40,000 aircraft movements and three million passengers per year. In 1993, Q.A.I.A. had one million international arrivals and departures of passengers accounting for 12.1% of the national total frontier crossings.

Aqaba Airport has a runway 3,000 m long and 45 m wide and a capacity of 500,000 passengers per year. The airport serves 10 arrivals and 10 departures to/from Q.A.I.A. and one to/from Cairo each week. In addition, the airport receives international chartered flights. In 1993, the airport had 32,700 international arrivals and departures of passengers or 0.4% of the national total. The international departures of passengers is significantly greater than arrivals.

(2) Royal Jordanian Airlines

Royal Jordanian Airlines has 17 airplanes, 14 for passengers and 3 for cargo. The company employs approximately 5,000 workers. As of January 1995, the Royal Jordanian deals with a total of 262 arrivals and departures of regular passenger flights between Q.A.I.A. and 44 cities. The destinations of the 131 flights are as shown in Table 3.1.5.

Table 3.1.5 Flight Destinations of Royal Jordanian Airlines

Region	No. of Flights (per week)	(%)	No. of Cities
Western Europe	34	(26.0)	10
Arabian Peninsula	31	(23.7)	11
Eastern Mediterranean	18	(13.7)	6
North Africa	11	(8.4)	3
North America	11	(8.4)	4
Southeast Asia	9	(6.9)	4
South Asia	7	(5.3)	4
Russia	1	(0.8)	1
Jordan	9	(6.9)	1 (Aqaba)

Source: Royal Jordanian Airlines

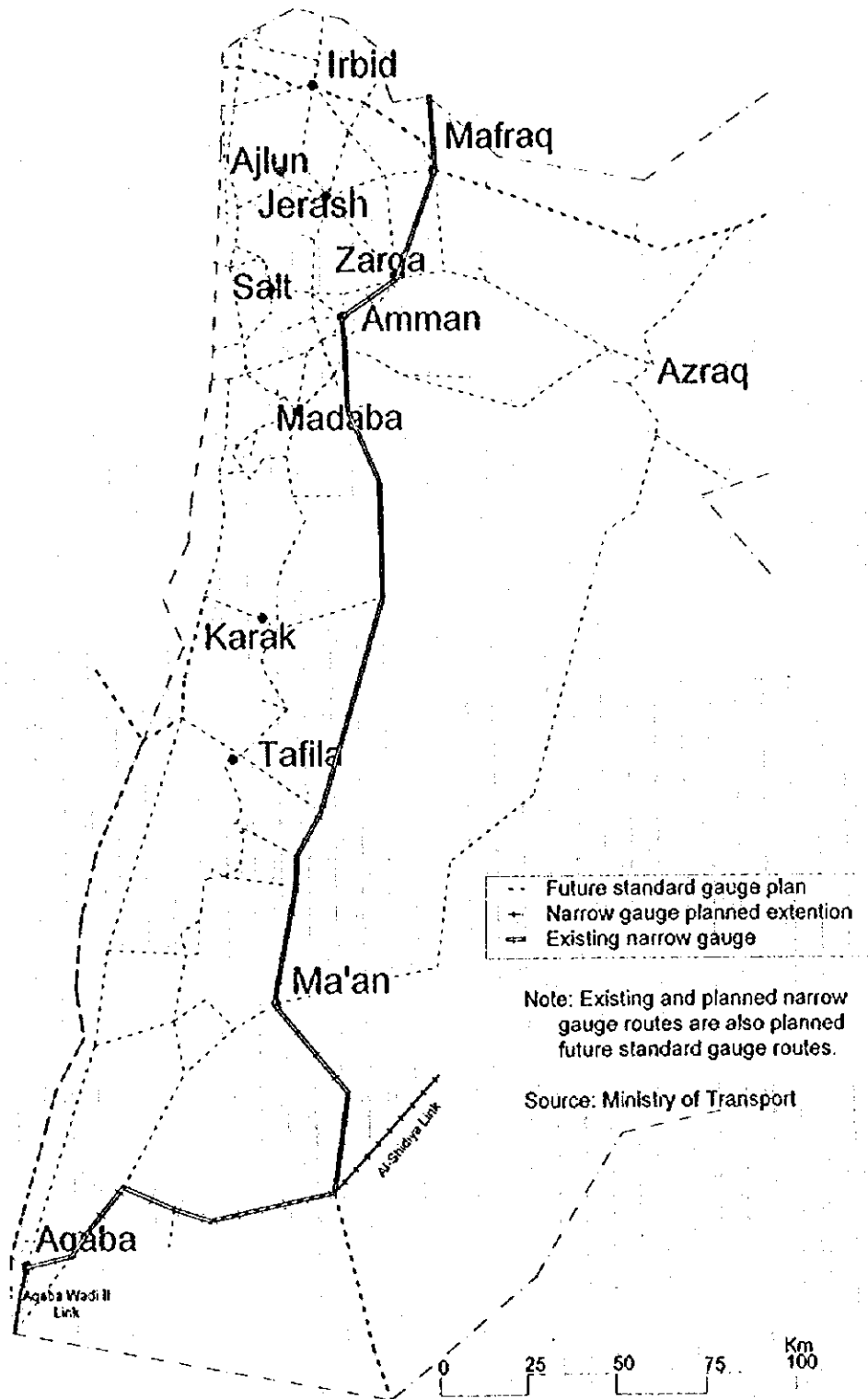
The Royal Jordanian Airlines carried 1.19 million passengers in 1993. The company will start operations to Japan in the near future.

(3) Principal Issues

The principal issue are as follows:

- the upgrading of the 3 airports planned by the Civil Aviation Authority. The development of Aqaba Airport as a regional airport is dependent on possible competition and co-ordination with Eilat Airport and even with Ras en Naqab Airport in Sinai. Currently, a study is being conducted for the Authority. Full use of Marka Airport for domestic and regional traffic is an issue to affect the development plan;
- the schedules of some domestic flights are unsuitable for tourists being either too early in the morning or too late at night. Considering the distance to Q.A.I.A. from central Amman, better schedules and/or use of Marka Airport are needed by tourists;
- the possible development of sightseeing flights; and
- the privatization of Royal Jordanian Airlines.

Figure 3.1.6 Railway Development Plans



3.2 Development Strategy

3.2.1 Estimation of Future Tourist Traffic

The level of tourist traffic volume in 2010 is estimated based on the following assumptions.

- a. The study team's estimation of the accommodation arrivals and tourist-nights by area in 2010 Case B. It is noted that the accommodation arrivals do not include the majority of the visitors from countries in the region whose activities are different from those of typical international tourists.
- b. Numbers of tourist trips to and from Q.A.I. Airport, Aqaba Airport and the Syrian border by assuming a constant ratio of each number to the total accommodation arrivals. Regarding the Syrian border, those to and from Arab and Asian countries are excluded to focus on typical international tourists.
- c. Future transport network adopting most candidate routes in order to later evaluate them and select the network plan based on the result of the simulation (Figure 3.2.1). As the transport modes, only vehicles are considered, unless otherwise noted, because of the marginal shares of other transport means in the domestic tourist trips.
- d. Typical tour route patterns outside Amman City and the neighboring areas and the annual numbers of tourists belonging to each pattern, based on the study team's estimation of the tourist-nights by area. Daily vehicle traffic volume in a peak season is calculated as follows (Table 3.2.1, Figure 3.2.2). For reference, the arterial flow of the majority of the visitors from countries in the region is indicated in Figure 3.2.2 (T16). However, it is not incorporated in the simulation.

$$\begin{aligned} & \text{Annual tourists}/365 * \text{Peak ratio}/\text{Average tourists per vehicle} \\ & = \text{Annual tourists}/365 * 2/5 \end{aligned}$$

Where : Peak ratio is average of peak months in recent years
: 20 passengers/tourist bus and 4 passengers/other

The total tourist vehicle traffic volume is calculated based on the above assumptions. It is noted that the simulation is to estimate the future trend so the figures are only indicative (Figure 3.2.3).

The following are major findings and demand-capacity analysis of the result.

- a. Relatively large tourist traffic volume is expected at three types of sections.

The first is sections with large volume of both tourist and non-tourist traffic and also with large traffic capacity by 4 lanes near Amman City (e.g., Amman - Naur IC, Amman - Q.A.I Airport). The large tourist traffic is because they connect Amman and the 3 major south-bound arteries including the Q.A.I.A. From the tourism side, no requirement is presented regarding the road capacity. The road capacity required in future at these sections mostly depends on non-tourist traffic demand.

The second is sections with large tourist traffic volume but not so large non-tourist traffic compared to the first type and with 2 lanes (e.g., Road No. 65 on the east coast of the Dead Sea, Road No. 35 (Kings' Highway) in Madaba area) The large tourist traffic is caused by tourists for the area and through traffic of the south bound tourists.

The third is local access to popular tourist sites at dead end or with practically only one local access (e.g., access to Petra, Ajlun, Hamma, Shawmar, Azraq Castle, Qasr Hallabat and Hammam es Sara, Wadi Ram)

- b. Other sections to be noted are east-west links to connect north-south corridors. They contribute to diversification of tour routes and also to regional development especially in the southern regions where such links are still weak. Each of the links is likely to have traffic demand worth studying feasibility of a new road or upgrading of the existing road. They are sections from Road No. 65 to Mt. Nebo, Ma'in, Mukawir, Karak, Tafila, Petra, and Dilagha and also the section from Road No. 15 at Wadi Yutum to Batn al Ghul through Wadi Ram Junction and Dissi.
- c. Increase of traffic to and from Israel through the border points is expected. This necessitates development of border facilities and access roads especially at the Jordan Valley areas. Several plans are already prepared by the government.
- d. It is noted that there may be congested sections before the assumed network is completed but they may not be presented in the simulation.

Table 3.2.1 Typical Tour Route Patterns and Numbers of Tourists (2010)

Tour Pattern	Length of Stay				Possibility of Visit				Typical Tour Route Patterns				Annual Tourists (1,000)			
	Amman	North	East	West	K-T	Petra	Aqaba	North	East	West	K-T	Petra		Aqaba		
	1	0	0	0	0	0	0	1	1/2	1	1	1		1		
A.	3.5	0	0	0	0	0	0	1	1/2	1	1	1	0	(T1) (T2) (T3) (T4) (T5)	0	176
B.	3.5	0	1	0	0	0	0	1	1	1	1	1	0	(T1) (T2) (T3) (T4) (T5)	0	88
C.	3.5	0	0	1	0	0	0	1	1/2	1	1	1	0	(T1) (T2) (T3) (T4) (T5)	0	132
D.	3.5	0	0	0	1	0	0	1	1/2	1	1	1	0	(T1) (T2) (T3) (T4) (T5)	0	37
E.	3.5	0	0	0	0	1	0	1	1/2	1	1	1	1	(T1) (T2) (T3) (T4) (T5) (T6) (T7)	0	257
F.	3.5	0	0	0	0	0	1	1	1/2	1	1	1	1	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9)	0	257
G.	2.5	0	0	0	2	0	0	1	1/2	1	1	1	0	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9) (T10) (T11)	0	132
H.	2.5	0	0	0	0	2	0	1	1/2	1	1	1	0	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9) (T10) (T11)	0	37
I.	2.5	0	0	0	0	0	2	1	1/2	1	1	1	1	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9) (T10) (T11)	0	257
J.	2.5	0	0	0	0	0	0	1	1/2	1	1	1	1	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9) (T10) (T11)	0	257
K.	1.5	0	0	0	3	0	0	1	1/2	1	1	1	0	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9) (T10) (T11)	0	132
L.	1.5	0	0	0	0	3	0	2/3	1/3	1	1	1	0	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9) (T10) (T11)	0	37
M.	1.5	0	0	0	0	0	3	2/3	1/3	1	1	1	1	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9) (T10) (T11)	0	257
N.	1.5	0	0	0	0	0	3	2/3	1/3	1	1	1	1	(T1) (T2) (T3) (T4) (T5) (T6) (T7) (T8) (T9) (T10) (T11)	0	257

Amman = Central Tourism Region
 North = Northern Tourism Region
 East = Eastern Tourism Region
 West = Western Tourism Region except Karak Tourism Area
 K - T = Karak & Tafila Tourism Areas
 Petra = Petra - Shawbak Tourism Area
 Aqaba = Aqaba - Wadi Ram Tourism Area
 Note : Tourists in Peak Day = Annual Tourists / 365 * 2
 No. of Vehicles = Tourists in Peak Day / 5
 Source : JICA Study Team

Tour Route	Annual Tourists (1,000)	Tourists in Peak Day	No. of Vehicles
(T1)	2128	11663	2333
(T2)	1108	6072	1214
(T3)	2312	12668	2534
(T4)	947	5187	1037
(T5)	433	2371	474
(T6)	257	1408	282
(T7)	257	1408	282
(T8)	257	1408	282
(T9)	257	1408	282
(T10)	264	1447	289
(T11)	264	1447	289
(T12)	73	402	80
(T13)	514	2816	563
(T14)	514	2816	563
(T15QAIA)	2000	10959	2192
(T15SYria)	212	1162	232
(T15AqabaAP)	115	630	126

Figure 3.2.1 Future Transport Network for Simulation (2010)

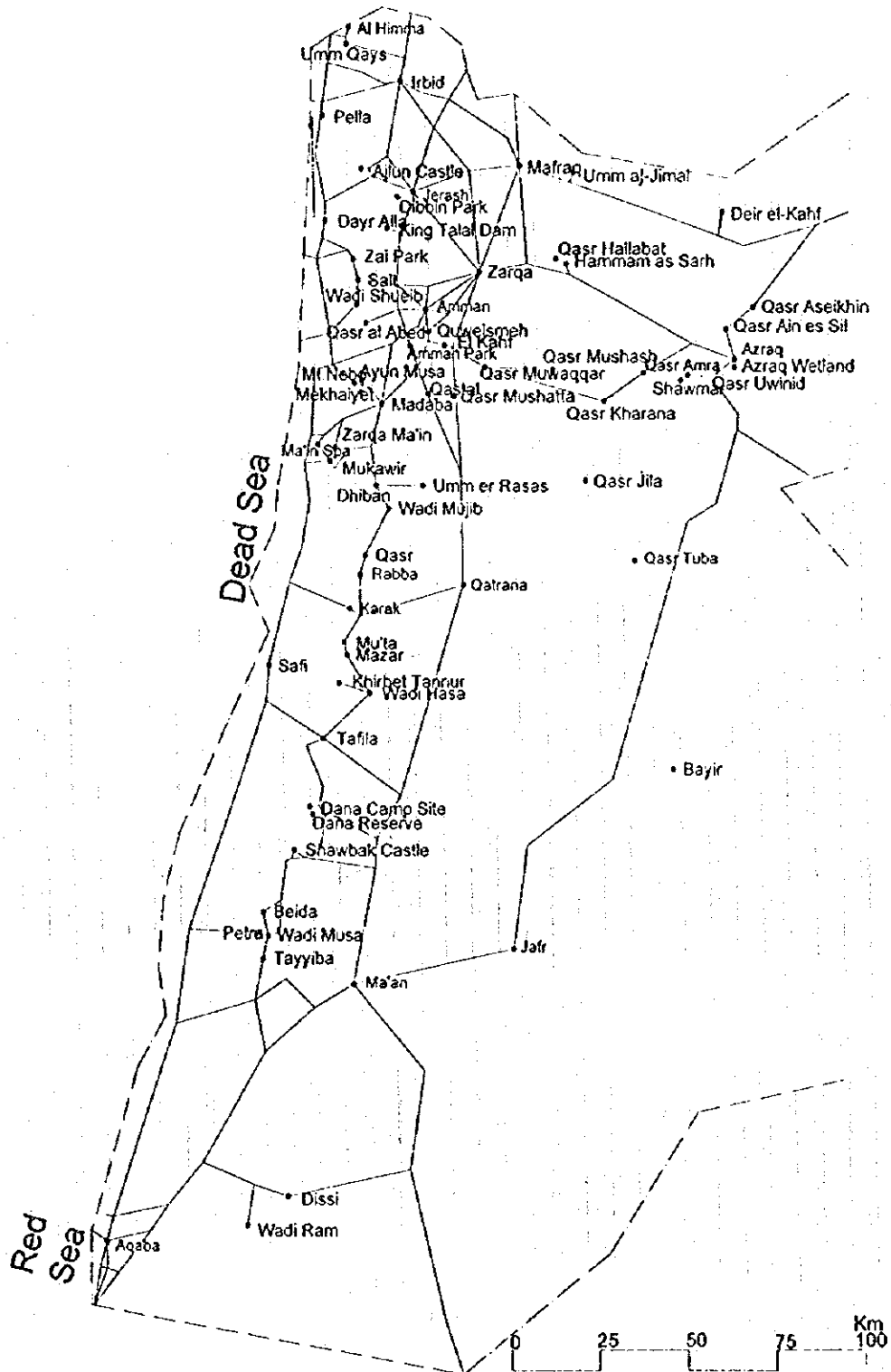


Figure 3.2.2 Typical Tour Route Patterns in Future (2010) (1/2)

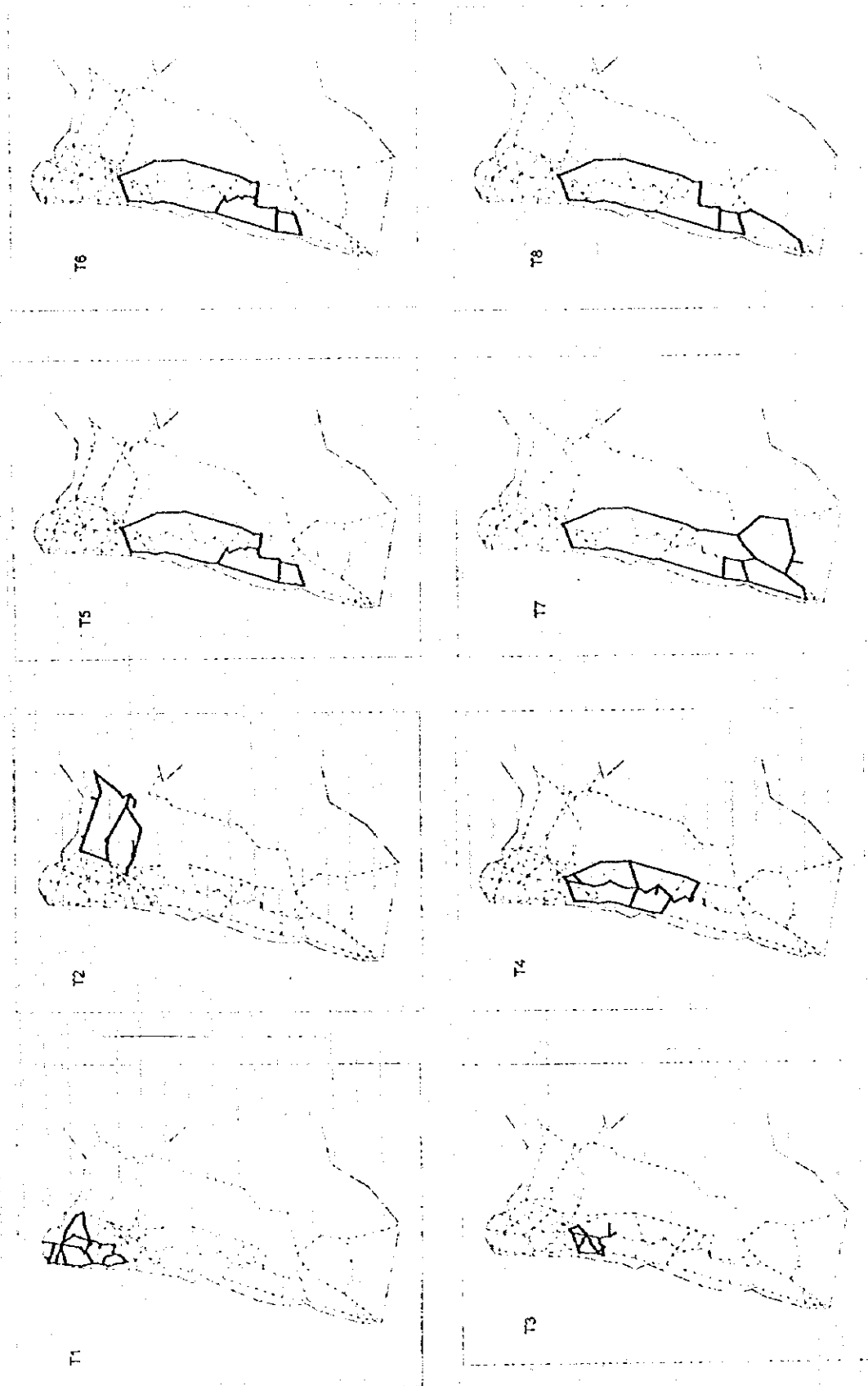


Figure 3.2.2 Typical Tour Route Patterns in Future (2010) (2/2)

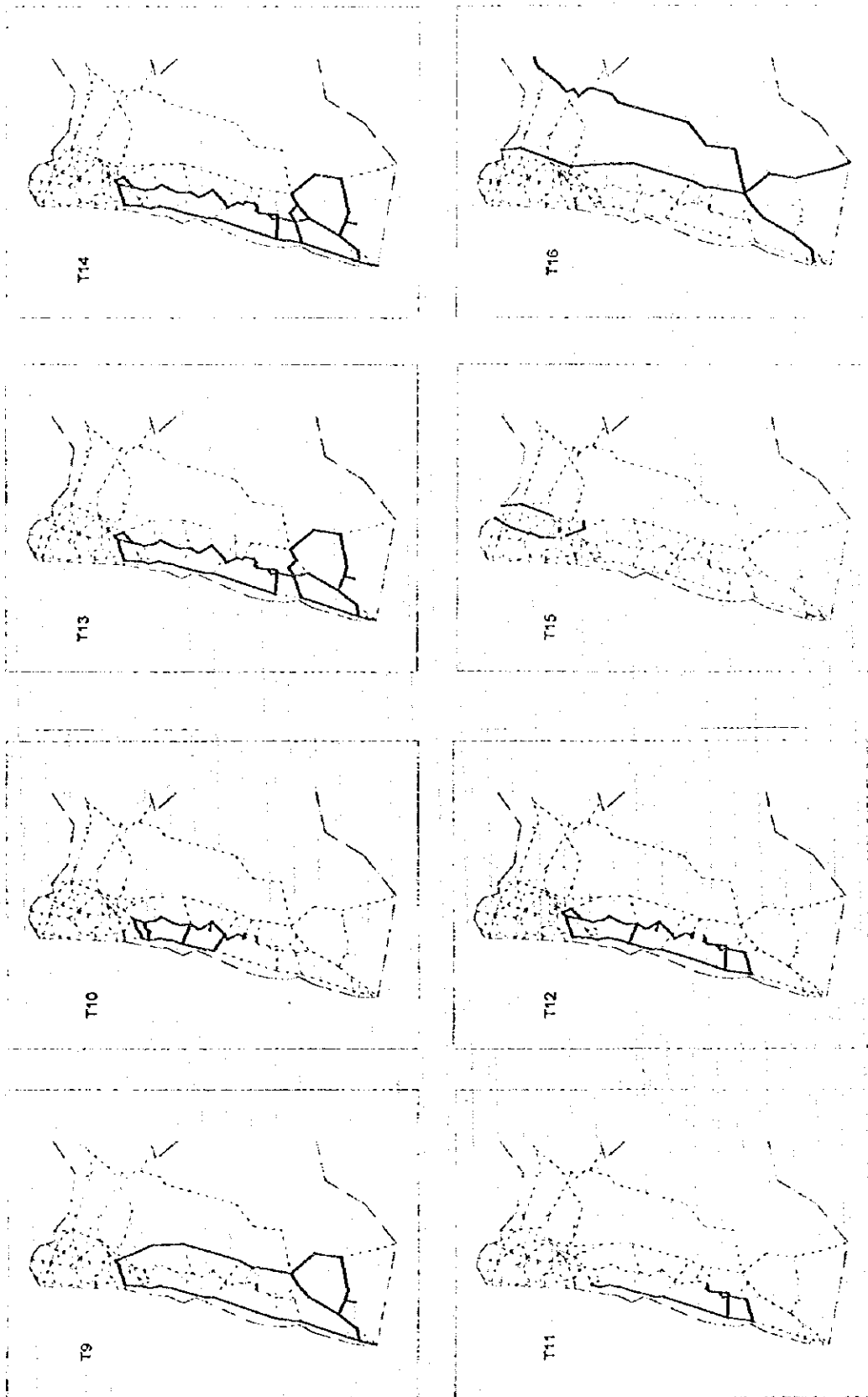
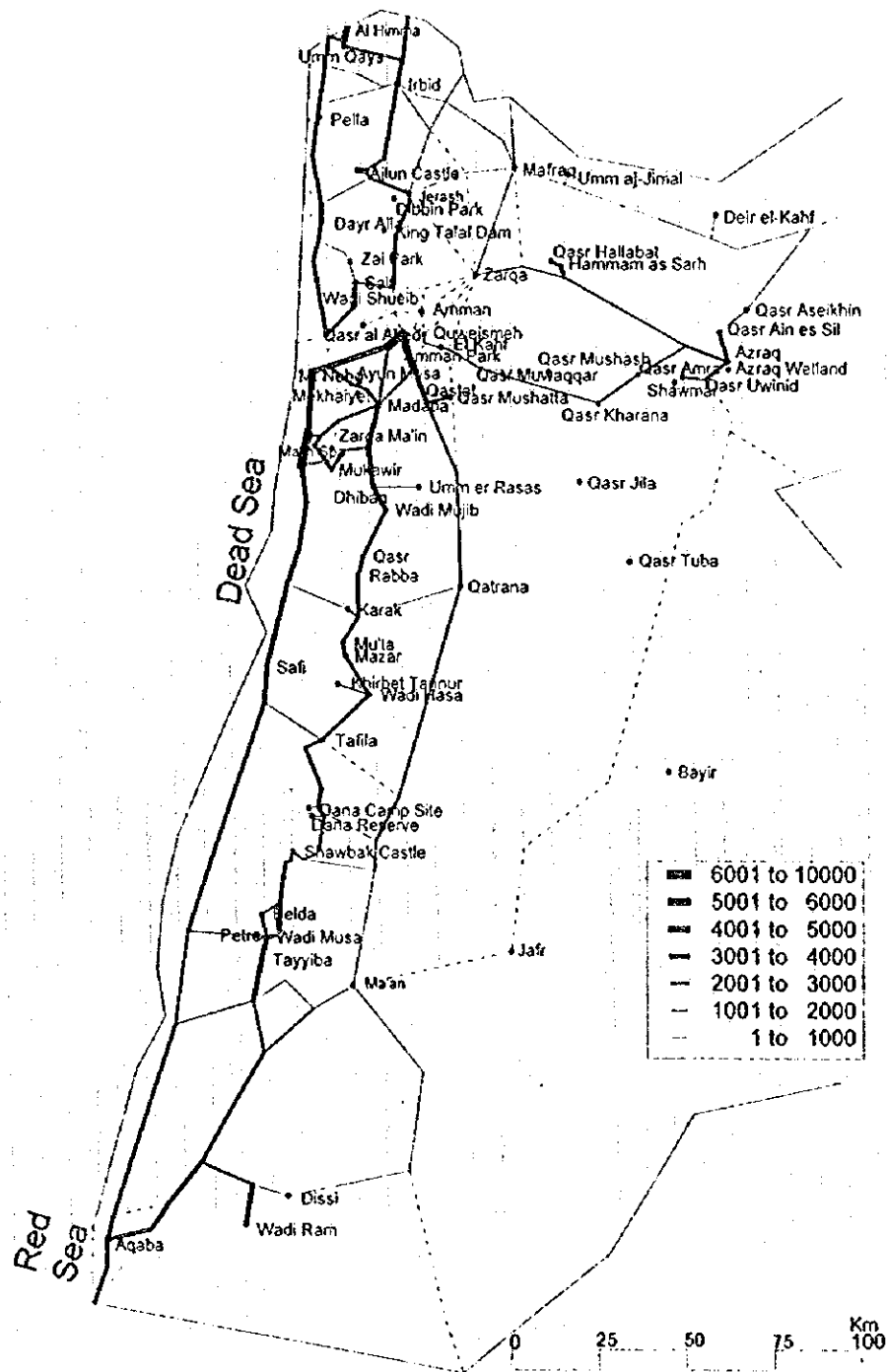


Figure 3.2.3 Tourist Vehicle Traffic Level in 2010 (Case B)



3.2.2 Development Objectives

Objectives of tourist transport development are to develop transport systems for tourists as the means to reach tourist sites and as tourist attractions to promote more tourists, longer stay, diversified sites and routes and at the same time to maintain and improve the environment of tourist sites and access routes.

3.2.3 Development Strategy

(1) Institutional Development

The following strategy is important for institutional development of the tourist transport sub-sector.

- Introduction of cost recovery mechanism in tourist transport facilities by direct and indirect income
- Deregulation of the tourist transport industry
- Defining the roles of MOTTA in tourist transport for promotion of tourist transport industry and monitor of assurance of the safety
- Human resource development in the field of tourist transport by enforcing courses of tourist transport in training institutes related to tourism or transport

(2) Development of Access to Jordan

Accessibility to Jordan should be improved by developing air, road, sea and railway routes. Increasing of the number of flights to Jordan is of special importance. Another requirement is development of border facilities and smooth customs procedures.

(3) Improvement of Efficiency, Attractiveness and Contribution to Regional Development

Accessibility to tourist sites should be upgraded by strengthening the tourism network to meet diversified tourist circulation and to reduce unwanted travel time.

Major tourist flow should be separated from major industrial flow wherever appropriate especially where traffic volumes are large.

Considering the above, the future tourist transport network should be densely formed by :

- increased use of Roads No. 65 and No. 35 (shift of the main north-south

-
- corridors toward west) and
 - increased east-west movement (connection between the north-south corridors) (Figure 3.2.4).

For regional development, transport development in local areas should be emphasized. In local areas where traffic volumes are small, access roads to tourist sites should also contribute to trips for other purposes.

As a principle, promotion of overnight tourists should be pursued by increased attraction of the sites and the accommodation and not by under-developing the accessibility.

(4) Conserving and Enhancing Tourism Resources and Natural and Social Environments along Tourist Transport Routes

In order to protect the environment of the sites and the routes, controlling the transport capacity and regulating the access routes should be considered. Consideration of the feasibility of transport projects should include costs of possible adverse impacts on the environment.

To maintain the environment, excessive tourist traffic should not pass through environmentally fragile/sensitive areas (socially, historically or naturally) such as local communities/villages or precious fauna/flora. Such conservation areas should be identified and bypassed or treated as a kind of traffic cell (Figure 3.2.5). Long distance traffic routes should be aligned outside of or along the peripheries of the area, while inside the area, separate transport systems of environmentally acceptable means including walking should be placed. Those two systems should be linked at inter-modal points.

3.2.4 Road Development

(1) Financial Strategy for Road Development

As a cost recovery mechanism for road construction and maintenance, introduction of toll roads and the "Build - Operate - Transfer" scheme should be considered.

(2) National Tourist Transport Network

The future national tourist transport network should be formed by the north-south arteries (Roads No. 65, 35, 15) and east-west links to connect them.

Development of the network should accord to the following guidelines.

- The sections with expected large tourist traffic volumes on Road No. 65 along the east coast of the Dead Sea and Road No. 35 (Kings' Highway) at Madaba area should be upgraded or bypassed to meet the traffic demand and to maintain the existing environment of the villages.
- Popular tourist sites with practically only one local access route (e.g., access to Petra, Ajlun, Hamma, Shawmar, Azraq Castle, Qasr Hallabat and Hammam es Sara, Wadi Ram, Iraq Al Amir) needs improvement of the access as well as parking facilities to meet the future demand, or if environmental consideration does not justify the idea, separate transport modes to approach the sites are needed.
- Regarding the east-west links, priority routes should be selected from the candidates in consideration of possible negative environmental impacts and uncertainty of the future demand.
 - (i) Section between Road No. 65 and Mt. Nebo can be included in the priority routes because it is almost completed.
 - (ii) One priority link should be identified to connect Road No. 65 and Ma'in-Mukawir area. To raise accessibility at the area, another link to connect Ma'in and Mukawir is hoped to be completed. Also to supplement the road access, other environmentally advantageous transport means such as rope ways (also called cable tramways) should be studied.
 - (iii) A road to connect Road No.65 and Shawbak-Petra-Dilagha area is required from a tourism development view point. The on-going construction of the road has high priority.
 - (iv) The Wadi Yutum-Batn al Ghul Road is important for tourism development of the area. This route can be served by both a road and a railway so that some tourists can be transported by the railway. However, coordination with railway transportation of phosphate from Shidiya Mine should be planned.
- Border facilities and access roads in the Jordan River areas should be developed according to the existing plans. In Aqaba, international road links should be pursued so that tourists can easily pass and return across the border with Israel.

(3) Separation of Major Tourist and Industrial Traffic

Except for transport of the local natural resources like potassium and cement, Roads No. 65 and 35 should have priority for passenger traffic and light cargo. Heavy cargo traffic should use Roads No. 15 and 5 as much as possible.

In the Aqaba Coastal Region, where tourism-related land use and industrial land use face each other, separation of the two types of traffic is important.

(4) Improvement of Road Conditions and Facilities

In addition to increasing capacity as mentioned above, road surface conditions should be improved. Sufficient safety facilities and road signs should be installed. Observation facilities and service stops should be established at key locations such as view points on the escarpment, the sea level locations and major junctions. Some of them should be developed as areas equipped with a variety of functions for tourists such as rest (toilet, rest place), information (tourist sites, local culture, local products), and shopping (local food, souvenirs).

Road beautification and greenification are important especially along access routes of gateways and tourist sites. In some old quarters such as in downtown Amman, Madaba and Salt, street beautification should be part of restoring the historic townscape. In Aqaba City, redevelopment of the townscape can be integrated with the waterfront development.

(5) Traffic Management at Tourist Sites

Each tourist site should have appropriate parking space at planned locations. For example, at present Ajlun's parking space is small for large buses and in near future Petra will have more parking demand. To conserve the environment, certain sites such as natural reserves and historic sites should be protected from entrance of cars. In these cases, alternative transport means for local traffic should be introduced between the parking and the site, such as tourist buses, electric cars in addition to walking, thus forming a kind of traffic cell.

In Petra and Wadi Ram, internal circulation should be improved to deal with increased demand and to protect the precious tourist resources.

Roads in environmentally delicate areas such as the above and other ecotourism sites should have an environmentally friendly alignment and structure with animal paths underneath.

(6) Development of Terminals at Gateways

To meet the increase of tourists of various types, multi-functional transport terminals should be developed in Amman and Aqaba. They can be in a form of integrated area development or redevelopment accommodating not just inter-modal transport functions but related services and commercial functions such as hotels, restaurants, shops, tourist information center, etc.

3.2.5 Road Transport Development

To improve road transport for tourists, developing a competitive market is important by adopting free market mechanisms. Another thing is for the MOTA to monitor the tourist transport companies to secure safety, reliability and service.

Especially customer services can still be improved. Tourist transport is not just carrying passengers. Training of staff including guides on board, who speak the tourist languages, who are experts of Jordanian culture and at the same time who understand international culture is important.

Considering that the majority of tourists travel not just to Jordan but also to neighboring countries, easy cross-border services are necessary. International cooperation and cross frontier operation are convenient for tourists. It exposes the market to international competition necessitating the Jordanian companies' competitiveness to survive.

Corresponding to the development of tourist sites and the transportation network, diversified tour routes should be worked out. One trend is increased use of the Jordan Valley and the Kings' Highway as tourist corridors. In the Desert Highway areas, integration of tourist transport with railways should also be considered.

To meet the increase in a variety of tourists, especially international tourists, the general public bus system should be more user-friendly to foreigners by equipping English-language signs on vehicles and at terminals and stops.

3.2.6 Railway Development

(1) Renovation of Hijaz and Aqaba Railways for Tourism

For tourism promotion, the existing Hijaz and Aqaba railways can be restored and developed. Considering typical patterns of the tourists movement and availability of existing assets, priority areas are thought to be :

-
- Amman southward route (to Jiza, Daba'a, Khan Zebib and Qatana)
 - Aqaba Ma'an route (Aqaba - Wadi Ram - Disa - Batn al Ghul - Ma'an)

To activate such tourism, items to be implemented should be clarified. (Track, rolling stock, yards, stations, operation skill of narrow gauge steam locomotives, air pollution by steam locomotives in urbanized areas, etc.)

Among others, development of attractions of destinations is important. The examples are restoration of old stations for museums and restaurants and also restoration of old castles or old quarters along the railway line. Also improvement of the environment of the routes is important for both tourists and the communities.

(2) Co-ordination with Extension of Existing Railways and Construction of New Railways

Regarding the two railway extension plans at Shidiya and Aqaba Coast, the latter requires special coordination with tourism development at the area.

The standard railway construction plans such as Al Majame - Irbid - Mafraq route and Dead Sea-Aqaba route also need coordination with tourism development, although they are thought to be mainly for cargo transport.

3.2.7 Water Transport Development

Although the Red Sea and the Dead Sea are the only areas of consideration of water transport, small boat rides could be enjoyed on the Jordan River as well.

(1) Water Transport at the Red Sea

To promote tourism-related marine transport (e.g., cruisers, high speed vessels, pleasure boats), the port functions for passengers should be improved and marinas should be developed considering coordination between tourism use and industrial use of the sea areas and coastal lines. Development of these facilities should be connected to tourism area development either by developing new areas or redeveloping or restoring the old town center and water front. Introduction of water transport requires careful consideration of the natural marine environment.

(2) The Dead Sea

Introduction of various types of water transport should be planned for the Dead Sea in accordance with the area's tourism development plan. Dead Sea cruise between Jordan and Israel is a possible tourist attraction. Easing custom procedures for

short-time visitors will help promote such tourists.

3.2.8 Civil Aviation Development

The designed capacity and the present traffic of Q.A.I.A. and Aqaba Airport are as follows.

	Annual capacity	Present annual traffic
Q.A.I.A.	40,000 aircraft movements 3 million pax (6 to 8 million pax in future)	1.73 million pax (1994)
Aqaba Airport	500,000 pax	Approx. 100,000 pax

Source: Civil Aviation Authority

At present, the Amman Civil Airport (Marka Airport) is only for limited uses such as for VIPs and emergency.

According to the figures shown above, there is no shortage of capacity. However, in the future a large increase of tourists is anticipated. According to the middle case scenario of the study team, the number of visitor arrivals to Jordan is expected to increase from 3.1 million in 1993 to 9.4 million in 2010 and the number of accommodation arrivals from 0.5 million to 2.4 million during the same period.

If the number of passengers at Q.A.I.A. becomes more than three times the present level, the current designed capacity cannot meet the demand and will need to be expanded to the future capacity of 6 to 8 million passengers.

The capacity of Aqaba Airport will be sufficient even when the demand increases three fold. However, considering the growing importance of the airport as a regional airport, future demand may grow to over 5 times or the present capacity.

According to the 4 year development plan of the Civil Aviation Authority, master plans of the two airports are being prepared. It is important for the plans to take into consideration future tourism developments in Jordan. In addition, study of Aqaba Airport needs to coordinate the functions of the airports of the region. The neighboring Eilat Airport is a small-scale airport for small types of aircraft and is difficult to expand unless relocated. Moreover, Ras en Naqab Airport in Egypt is only an air strip. Therefore, development of Aqaba Airport as a regional airport is a strong alternative.

Marka Airport should be more utilized for domestic and regional flights. In the 4 year plan, expansion and remodeling of the passenger terminal are planned. It is

also important to improve inside and outside of the airport including the access to the airport as well as the service development such as adopting convenient flight schedules which also provide passengers with chances to enjoy scenic aerial views.

Figure 3.2.4 Concept of Future Tourist Transport Network

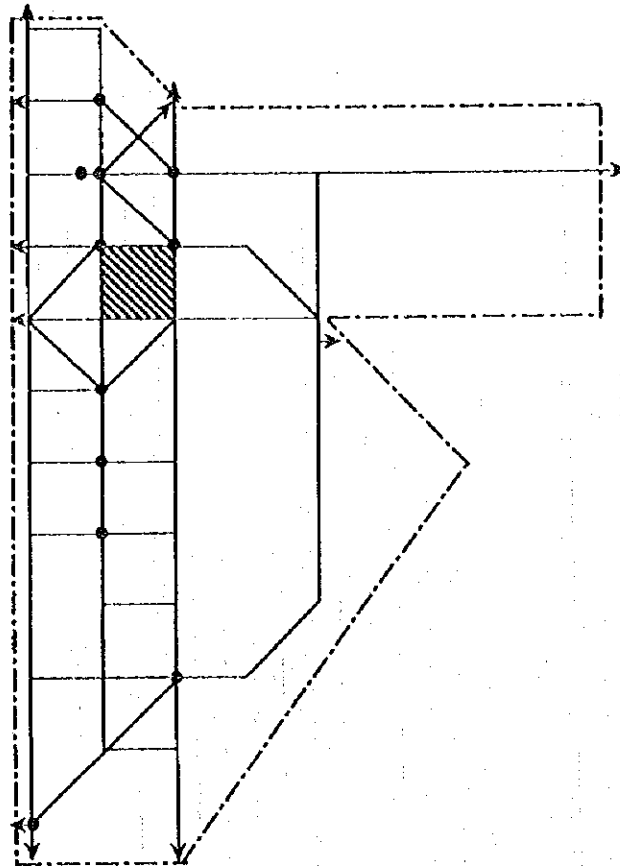


Figure 3.2.5 Traffic Cell Concepts

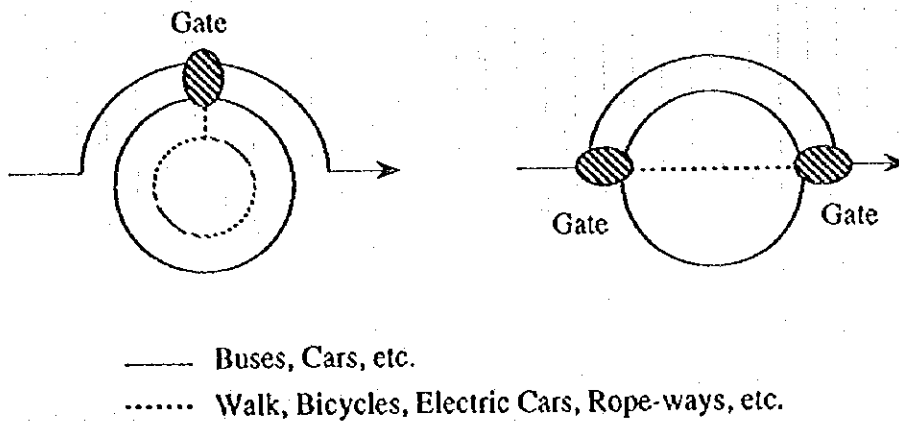


Figure 3.2.6 Future Road Network for Tourists

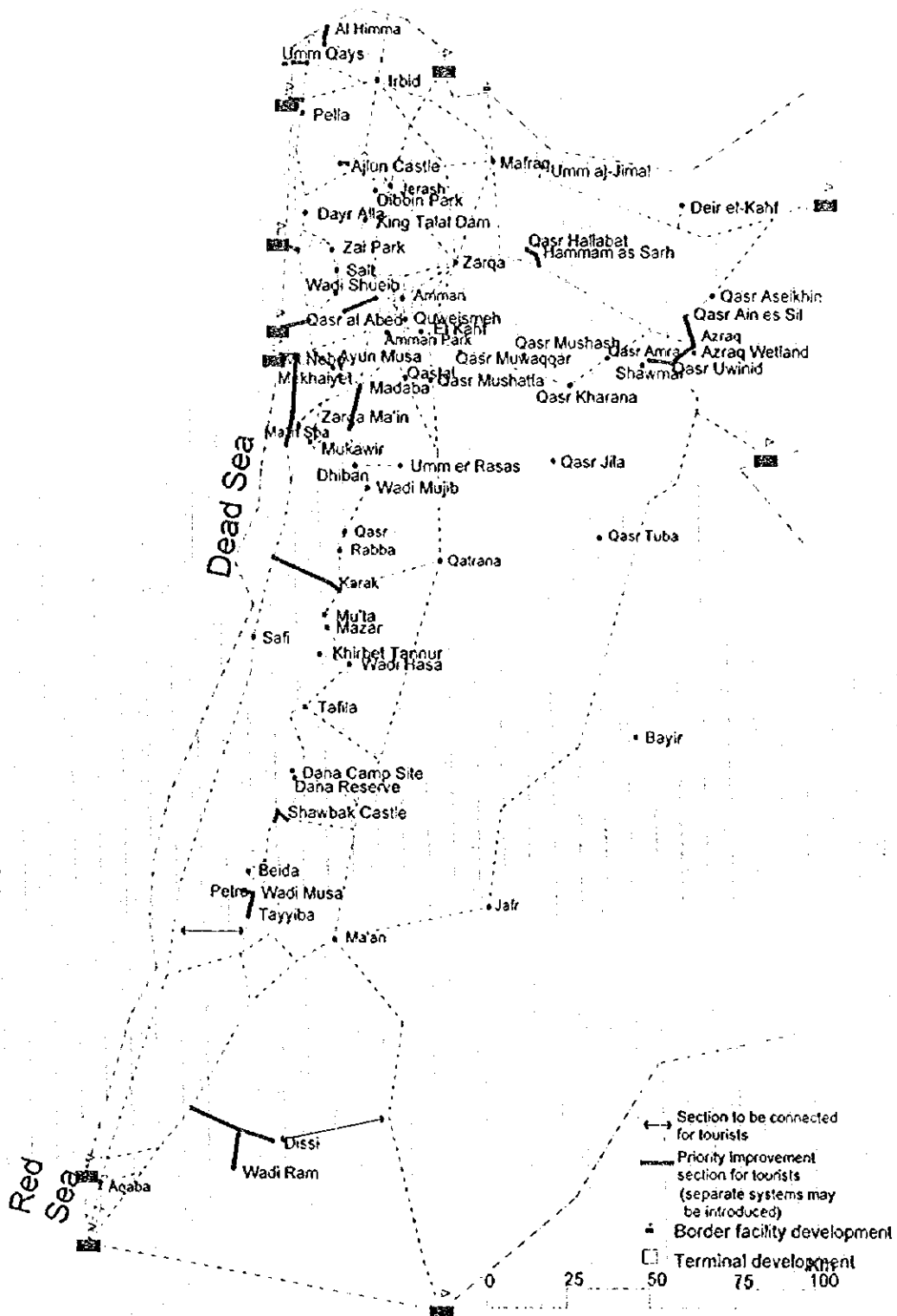
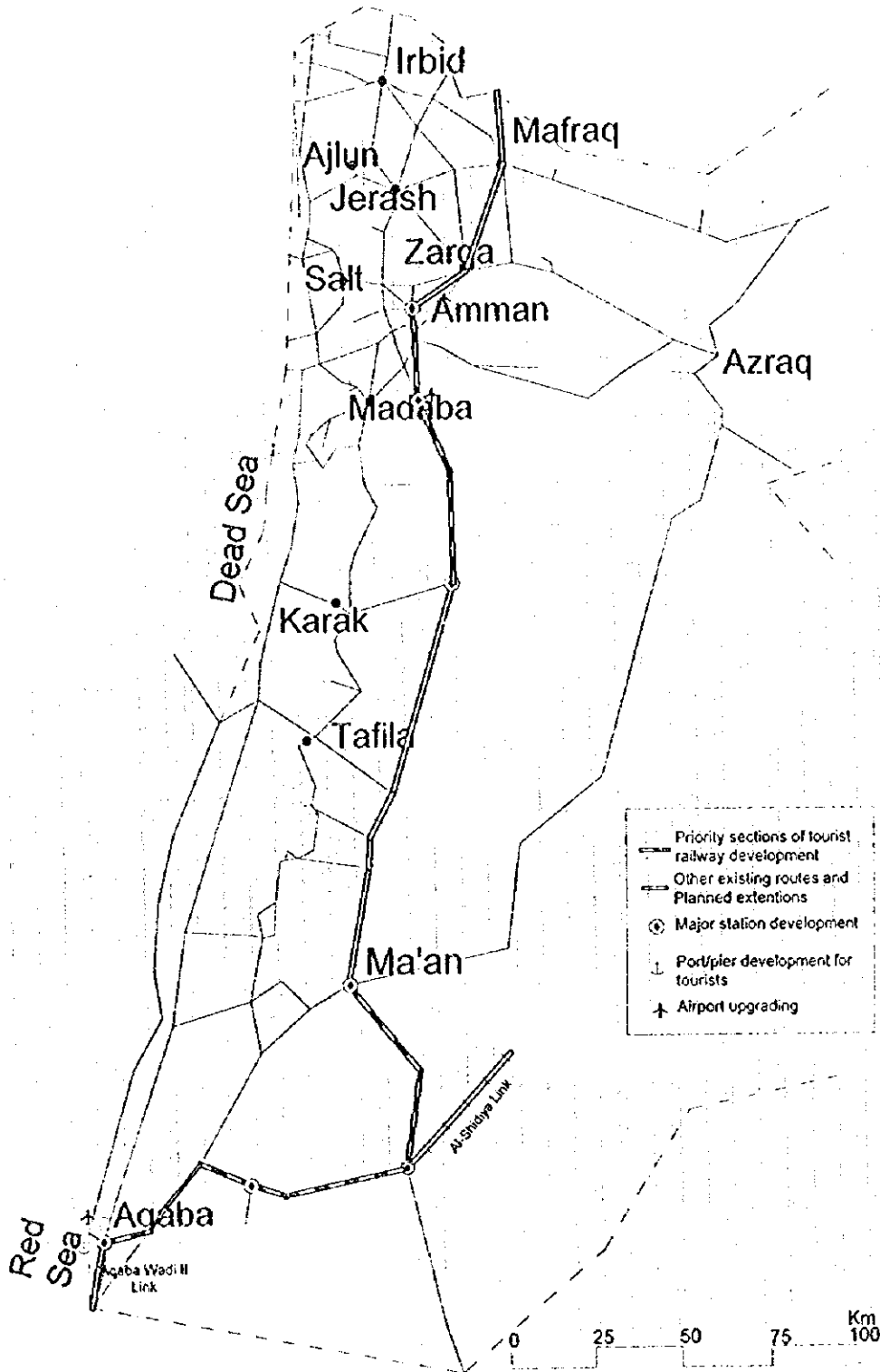


Figure 3.2.7 Development of Railways, Water Transport and Civil Aviation for Tourists



PART I (VOLUME 2)
NATIONAL TOURISM DEVELOPMENT STRATEGY AND POLICY
(SECTORAL DEVELOPMENT)

Chapter 4.

Water Supply, Sewerage and Drainage

Chapter 4. Water Supply, Sewerage and Drainage

4.1 Existing Situation and Issues

4.1.1 General Situation

In Jordan, there are three sources of water supply: surface water, groundwater, and treated water from waste water treatment plants.

As for the sewerage, although fourteen conventional treatment plants exist in Jordan, some of their capacity and effluent water quality are insufficient. In the future, recycled water from sewerage plants should be reused for the irrigation, industry and toilet flushing, making more water available.

As for the drainage, although heavy rain is a rare occurrence, some streets are flooded once or twice a year in major cities such as Amman, Salt and Karak. However, since these municipalities are prepared to improve drainage systems, drainage is no serious problem for tourism development in cities. However, at several tourist sites, notably Petra, drainage is a serious problem that requires corrective actions. The following account has been derived primarily for the Report "Water Resources of Jordan, Present Status and Future Potentials, 1993."

(1) Surface Water

Jordan does not possess rivers as such, except for the Jordan River which prior to the development of significant abstractions used to discharge around 1,400 million cubic meters per year (MCM/year) into the Dead Sea.

Other surface water resources in Jordan include the Yarmouk and Zarqa rivers, the major Wadis of Karak, Mujib, Hasa, Yabis and El-Arab, and the small, flood flow wadis in different parts of the country.

The Jordan River

The surface catchment area of the Jordan river is 18,194 square km, of which 2,833 square km is upstream from Lake Tiberias. The eastern catchment area, downstream of Tiberias, measures 13,027 square km, and the western 2,344 square km. The total discharge of the Jordan River into the Dead Sea, prior to the implementation of different water projects in Jordan, Syria and Israel, was 1,370 MCM/year, which was mostly as irrigation return flow, intercatchment run off or saline spring discharges. The discharge from the Yarmouk River into the Jordan River is 160 -170 MCM/year from Syria extract, 100-110 MCM/year from Jordan

and 100 MCM/year from Israel.

Yarmouk River

The total catchment area of the river measures 5,679 square km of which 1,160 square km lie within Jordan upstream of Adasiya and the rest within Syria and in the Jordan River area downstream of Adasiya. The average annual rainfall over the catchment area is about 400 mm/year. The river flow during the period 1950 to 1976 averaged 400 MCM/year. Recent measurement of flows and estimates of extraction indicate an average total discharge of around 360 MCM/year. The water quality of Yarmouk River reflects the agricultural land use within the catchment area. Pollution can be measured in the discharged water especially during low flows.

Zarqa River

The Zarqa River is the second largest in Jordan; it has the largest catchment area (4,025 square km) and a mean annual discharge (1950 to 1976), 65 MCM/year. The catchment receives an average annual rainfall of 240 mm. After 1976, the natural system of the river was changed by a range of developments including the construction of the King Talal Dam on the Zarqa River (1977), the importing of water into the catchment area for domestic and industrial uses and the discharging of their effluents into the Zarqa River System. At present, the domestic and industrial waste water contributions to the inflows of the river are estimated at 50% of its discharge. The water quality of the river changes dramatically between summer and winter. In winter, flood water constitutes most of the river discharge, and although it contains domestic refuse and waste water, the quality remains acceptable for most uses. In summer the pollution is undiluted and water quality is unacceptable even for irrigation.

Wadis

Within the Jordan River catchment area there are the wadis of El-Arab, Zigrab, Shueib and Kafraïn. Average rainfall in these areas ranges from 350 to 550 mm; the annual inflow to the Jordan River ranges from approximately 2.0 MCM/year to 5.5 MCM/year.

(2) Groundwater

Groundwater can be of recent or ancient origin. A vital issue is the sustainability and continual yield of individual sources. The groundwater divides have been identified as either aquifer limits or important and relevant geomorphologic or geologic structures.

Extracted amounts of groundwater during 1993 varied from 100 MCM for the Dead

Sea basin to the Sarhan basin generating just under 1 MCM; the Dissi, Yarmouk and Azraq basins fell in the 50-67 MCM range, while the remainder fell below this level. About seventy percent of the water serves agricultural purposes.

(3) Treated Water

Waste water is gradually increasing because of the increase in population and water consumption. However, the treated water quantity from waste water is small due to the absence of facilities. The amount of treated water is 49 MCM, which corresponds to about 24% of the 208 MCM of water consumed in Jordan in 1992.

4.1.2 Institutional Setting

(1) General

The situation of water scarcity in Jordan is critical as shown in the following sections. The need for water will rapidly increase in the near future because of the following factors:

- the high rate of increase in population;
- the rise in water consumption per capita; and
- the growing demand for water to meet the needs of economic growth.

Additional water may be made available from existing sources through improved water resource management. This requires a complete restructuring of the institutional and legal framework.

(2) Institutions

Three organizations responsible for water utilization and waste water management are as follows:

- (a) The Ministry of Water and Irrigation (Figure 4.1.1)
- (b) The Governorate Water Administration (Figure 4.1.2)
- (c) The Jordan Valley Authority (Figure 4.1.3)

4.1.3 Legal Environment

The laws relating to water resources are as follows.

(1) Law No. 18 of 1988: Water Authority Law

This law consists of 33 Articles, of which Articles 2 and 25 are the most important. An extract of Article 25 follows.

Article 25:

- A. All water resources available within the boundaries of the Kingdom, whether they are surface or groundwaters, regional waters, rivers or internal seas are considered State owned property and shall not be used or transported except in compliance with this Law.
- B. Any water resources that are not under the management, responsibility or supervision of the Authority shall not be used in excess of personal or domestic needs or other acceptable private usage; nor in excess of legal water rights in accordance with the laws and regulations in effect including drinking and irrigation rights applicable to the area of land.
- C. All natural and Judicial bodies are prohibited to sell water from any source, or grant or transport it, without obtaining in advance the written approval of the Authority and within the conditions and restrictions decided or included in the contracts or agreements concluded between them and the Authority.
- D. All persons on whom the provisions of paragraphs (B) and (C) of this Article are applicable, shall adjust their conditions to suit these provisions within a period of three months of the date this Law comes into effect. Otherwise, such persons will be subject to the legal and other penalties stated in these Articles.

(2) Law No. 19 of 1988, The Jordan Valley Development Law

This Law consists of 68 Articles and stipulates that the Jordan Valley Authority comes under the Ministry of Water and Irrigation. Article 3 of this law relates to the planning, design, construction, operation and maintenance of water resources development. An extract of this law follows.

Article 3

Under this Law, an Authority known as the "Jordan Valley Authority" shall be established and shall undertake the following:

- A. The development of the water resources of the Valley and utilizing them for purposes of irrigated farming, domestic and municipal uses, industry, generating hydroelectric power and other beneficial uses; also their protection and conservation and the carrying out of all the works related to the development, utilization, protection and conservation of these resources, including :
- i) The carrying out of studies required for the evaluation of the water resources including hydrological, hydrogeological and geological studies, drilling of exploratory wells and the establishment of observational stations.
 - ii) The planning, design, construction, operation and maintenance of irrigation projects and related structures and works of all types and purposes including dams and related works, hydropower stations and related works, wells, pumping stations, reservoirs and water delivery and distribution networks; also surface and sub-surface drainage works, flood protection works, and roads and building needed for operation and maintenance.
 - iii) Soil surveys and classification and the definition and reclamation of lands suitable for irrigated farming and dividing them into farm units.
 - iv) Settlement of disputes arising from the use of water resources.
 - v) Organize and direct the construction of private and public wells.

4.1.4 Water Resources

Water resources includes all surface and groundwater resources and non-traditional water resources, namely treated water. The total volume is broken down as follows.

Table 4.1.1 Water Resources in 1989

Source	Annual Volume
Renewable groundwater	280 MCM/yr
Non-renewable groundwater	118 MCM/yr (for 100 yrs)
Surface Water	755 MCM/yr
Treated Water	32 MCM/yr
Total	1185 MCM/yr

Source: National Environmental Strategy for Jordan (1991)

Groundwater: This refers to quantities of available, renewable groundwater resources (safe extraction) and has been estimated at 280 MCM annually for water strata that have been examined to date from all basins. Quantities of available, non-renewable groundwater (i.e. which has no re-charge) were estimated at 118 MCM over a period of 100 years. These sources are found in the Dissi-Mudawwara area and the Shadiya area in the Jafer Basin. Total available groundwater is estimated to be 398 MCM annually.

Surface water: This refers to river water, stream discharge, flowing valleys and flood water in winter. Surface water quantities are estimated at around 755 MCM/year, less than half of which is in the Yarmouk River Basin (360 MCM/year). The rest is distributed among other basins throughout the country. Surface water is relatively plentiful in the north and west of Jordan and scarce in the south and east.

Treated water: This refers to treated water from waste treatment plants. Quantities were estimated at 32 MCM in 1989, and are expected to increase to 60 MCM/year in 1995.

4.1.5 Water Consumption

Consumption represents quantities of water used from all purposes, and is shown as follows.