

Fig. D-7 Image Sketch
of Karak Handicraft Centre

THE HASHEMITE KINGDOM OF JORDAN
THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER
PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION
JAPAN INTERNATIONAL COOPERATION AGENCY

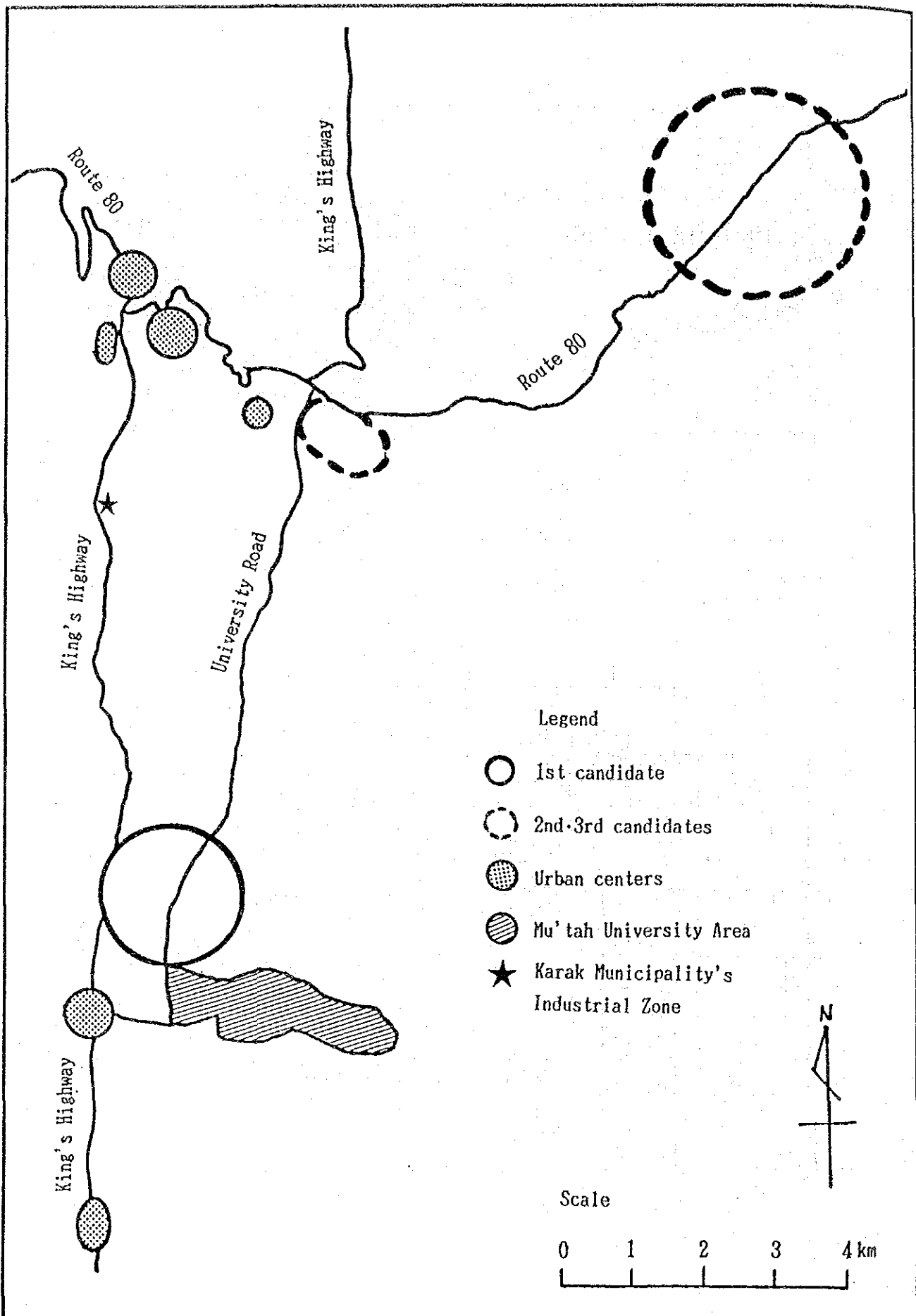


Fig. D-8 Candidate Sites for Mu'tah Industrial Estate

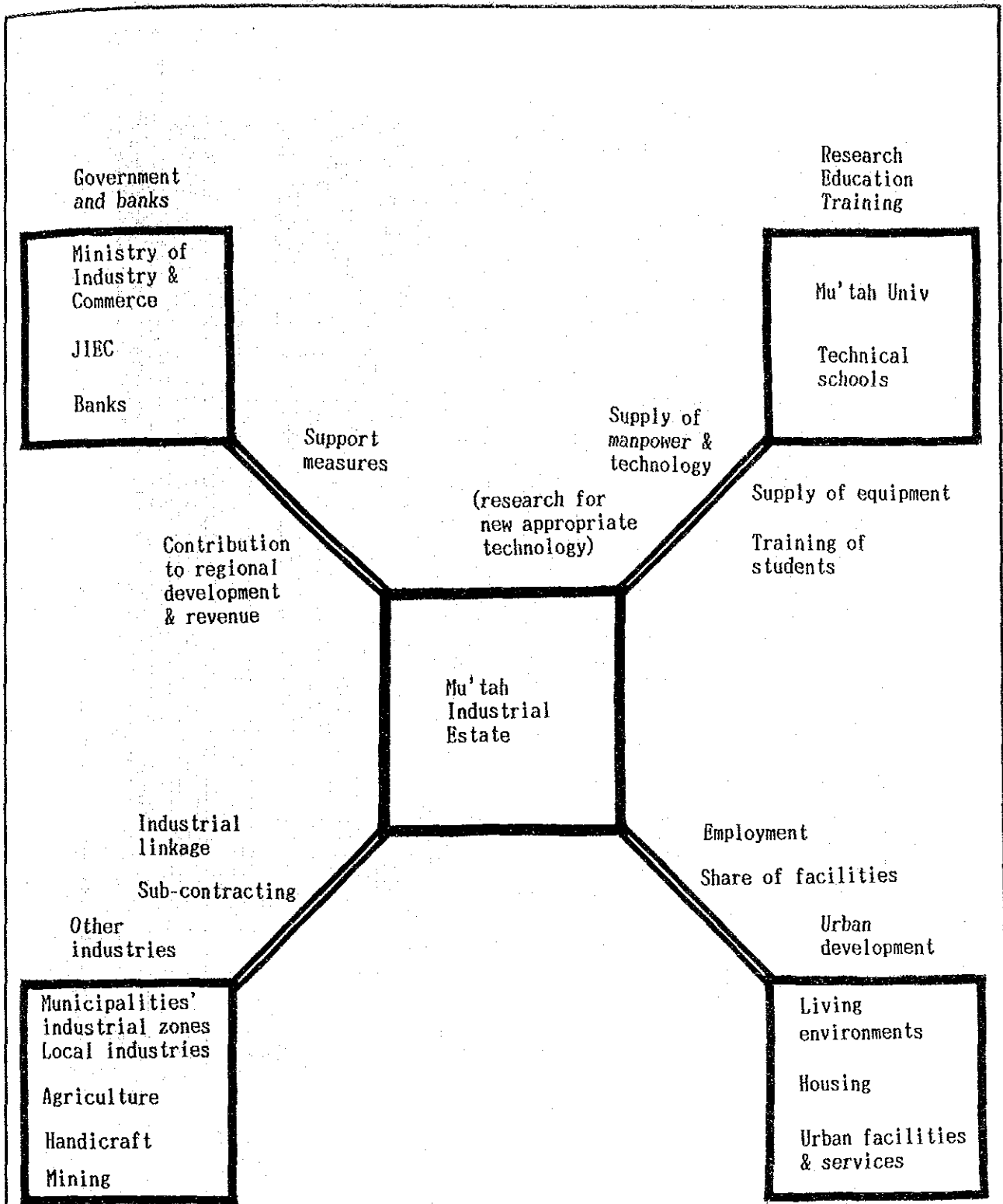
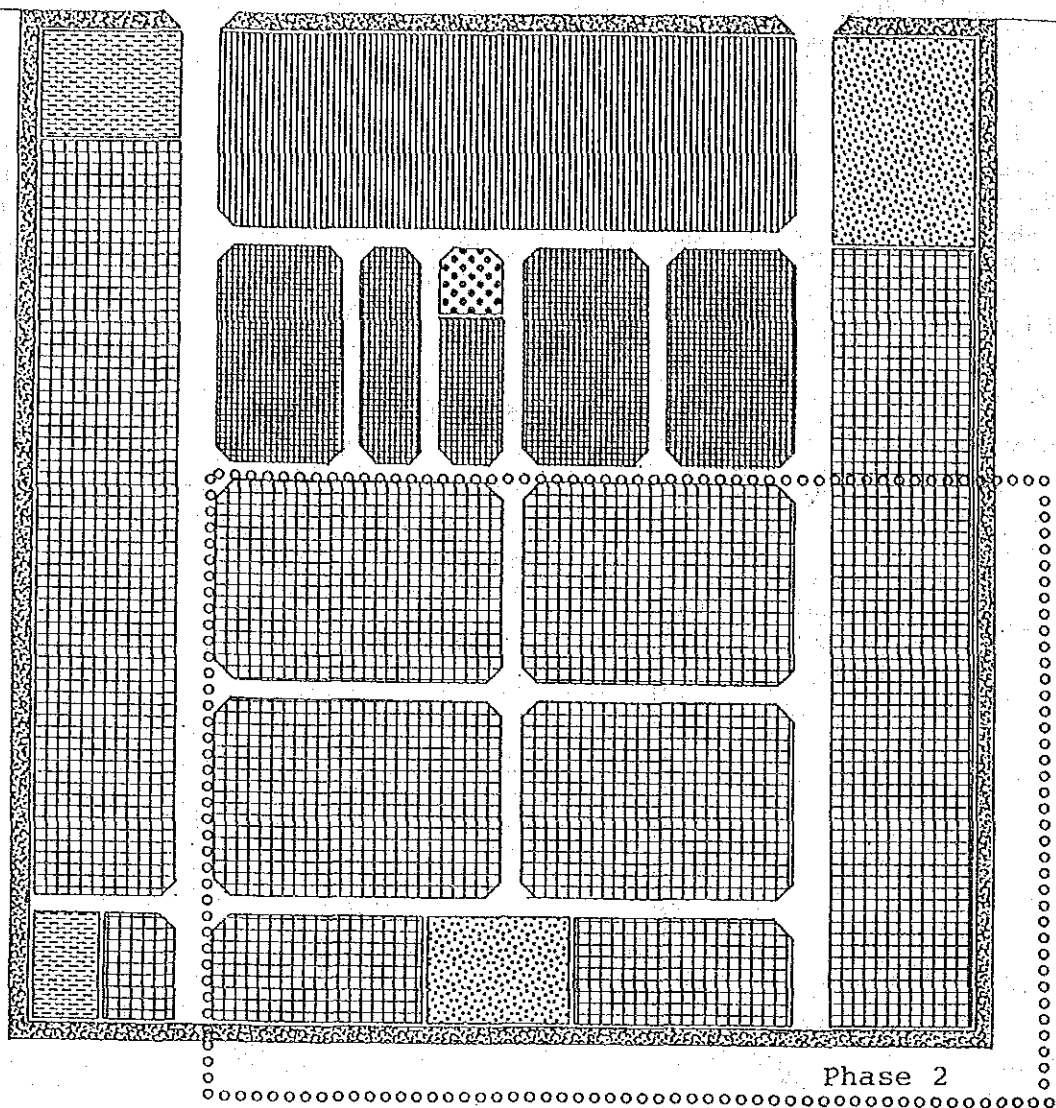


Fig. D-9 Network for Industrial Development

THE HASHEMITE KINGDOM OF JORDAN
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SCALE



LEGEND



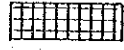

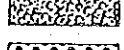
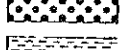
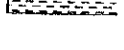
-  Administrative and supporting facility land
-  Standard factory land
-  Custom built factory land
-  Park
-  Green boundary zone
-  Warehouse
-  Utilities

Fig. D-10 Layout Plan of Mu'tah Industrial Estate

THE HASHEMITE KINGDOM OF JORDAN
 THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER
 PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION

JAPAN INTERNATIONAL COOPERATION AGENCY

Year	Work	86	87	88	89	90	91	92	93	94	95	96	97	98	99	2000	Cost (JD 1000)			
																	Domestic	Foreign	Total	
	(Regional Plan)																			
	Feasibility study																			
	Land acquisition																	363		363
	Plan and design																	~ 1,815		~ 1,815
	Phase 1 construction																	316*	316*	632*
	Phase 1 operation																	2,541	2,541	5,082
	Phase 2 construction																			
	Phase 2 operation																	619	619	1,238
																		3,839		7,315~
																		5,291	3,476	8,767

* Including cost of feasibility study

Note : The investment cost includes 10% contingencies but does not include the private investment.

Fig. D-11 Preliminary Implementation Schedule for Mu'tah Industrial Estate

THE HASHEMITE KINGDOM OF JORDAN
THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION

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ANNEX - E TOURISM

THE STUDY ON
INTEGRATED DEVELOPMENT MASTER PLAN
FOR THE KARAK - TAFILA DEVELOPMENT REGION

VOLUME 4: SUPPORTING REPORTS

ANNEX-E: TOURISM

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1. INTRODUCTION

This Annex-E presents results of a tourism study performed during July 1986 and August 1987 as a technical cooperation by JICA (Japan International Cooperation Agency).

The objective of study is to prepare a master plan for the future development of the tourism in the Study Area and to propose the most appropriate programme to attain the target. The present situation of tourism activities, tourism resources and development potential and constraints in the Study Area are analyzed and evaluated.

The study is based upon the concept that the tourism development is an integrated regional development which will give big impacts on the socioeconomic structure of the region. The study was conducted in relation with the analysis of socioeconomic statistics, natural and physical conditions as well as the national and regional Five-Year Plans, 1986-1990 issued by MOP.

The discussions held with MCTA, MMRAE, MOP, MOL, Governorates of Karak and Tafila, SSC, and some of the major travel agents in Amman were duly taken into consideration.

2. PRESENT CONDITIONS OF TOURISM

Tourism industry in Jordan plays an important role in the national economy. Since the loss of direct control of the West Bank of the Jordan River in 1967, tourism in Jordan is obliged to be rearranged depending on the resources of the East Bank.

These efforts for the rearrangement of the tourism resulted in generating the remarkable amount of foreign exchange and the opportunity for employment in tourism-related establishments such as hotels, food and beverage suppliers, restaurants, transportation, commerce and service industry, handicrafts and other supporting industries.

The tourism has been promoted by the Ministry of Culture, Tourism and Antiquities (MCTA) to develop the regional economy and social conditions as well.

According to the questionnaire survey conducted by the Study Team to major travel agents in Amman, which were selected in accordance with the recommendation of MCTA, the tourism resources in the Study Area are not yet enough developed to become major tourist attraction in the Kingdom.

The present tourism activity in Karak is centred on the visit to the castle which is located in a transit point on the way to the main destinations such as Petra and Aqaba. The visitors drop in Karak to take lunch there.

Based upon the fact that Petra and West Bank are the main destinations for the international tourists arrived in Jordan, the tourism development in the Study Area should be considered in relation with the nationwide tourism network.

2.1 Tourism in National Economy

(1) Tourism income: As shown in Table E-5, tourism in Jordan plays an important role in the national economy in terms of its contribution to GDP and foreign exchange receipts. Since the economic situation of the surrounding oil producing countries declined and the remittance by Jordanians working in those countries decreased, the tourism incomes become a remarkable source for the foreign exchange earnings.

(2) Employment: The development of tourism industry has generated the opportunity of employment not only in the tourism industry itself but also in the relating industries. The employment in tourism is 1.3 per cent of Jordanian work force in 1985 (Table E-9).

(3) Social development: Tourism development is a collective regional development programme which brings the social and economic benefit to the regions. The Social Security Corporation, which is under control of the Ministry of Labour and Social Development, is undertaking investment and management programmes of the existing tourism facilities. These programmes offer amenity in social life. (refer to 2.2 (3) (B)).

2.2 National Tourism Network and Region's Position

(1) Tourism resources: Jordan has various tourism resources owing to its geographical location at a crossroads of ancient civilization of Asia, Europe and Africa, as well as to their cultural influences.

The tourism resources of Jordan are categorized to the following three sorts of interests:

- (A) Archaeological resources
- (B) Historical and religious resources
- (C) Natural resources

Table E-1 shows the major tourism resources in Jordan and interests of tourists.

(2) Tourism market

(A) Arrivals: Although the tourism network is limited to the East Bank, a number of visitors to Jordan is increasing (Table E-3). Table E-2 shows details of visitors who arrived in Jordan for various purposes of not only for sight-seeing but also of employment, business, transit to Kuwait, Saudi Arabia, etc. However, all of these are defined as tourists in this report in view of their contribution to tourism-relating industries such as transportation, hotels, shops, food and beverage, etc.

Decreases in number of visitors in 1983 and 1984 are considered due to reduced numbers of foreign workers from Syria, Egypt, Lebanon, etc. being affected by the economic situation in Jordan during the period. Table E-2 shows nationalities of the visitors.

(B) Mode of arrival: There are four arrival modes to Jordan as shown in Table E-4. Most of the tourists arrived in Jordan by air. But there are many groups and individual tourists who arrived by ferry boats from Egypt and departed to Syria or Palestine through West Bank to continue their trips.

(C) Tourism pattern: In order to understand the traveling pattern of current group tours in Jordan, a sample survey was conducted with questionnaires distributed to 20 major travel agents.

According to the survey, the typical tourism patterns in Jordan may be summarized as follows (Table E-6):

(a) Petra is the most attractive destination for the tourists to Jordan. Amman to be 2nd and Jerash and West Bank to be 3rd.

(b) Arab tourists are mostly on individual basis.

(c) Europeans' interests are on historical points and they visit widely in whole Jordan.

(d) Americans' interests are concentrated to certain religious points such as Madaba, Petra and the West Bank.

The average stay of tourists is as follows:

(a) British	6.04	days
(b) Swiss	5.90	days
(c) Belgium	5.68	days
(d) Austrian	5.57	days
(e) German	5.25	days

- (f) American 1.90 days
- (g) Russian 6.17 days

(D) Facilities

Tourism development gives multiple effects on the service industries, especially for the tourism-relating sectors. As shown in Table E-7, Amman has a share of 74.2 per cent in number of beds which is followed by Aqaba. Namely about 90 per cent of beds of the hotels in the Kingdom concentrate in Amman and Aqaba.

(3) Institutional support for tourism in Jordan: In order to promote tourism development, the following institutional supports are provided by the Government.

(A) Exemption of tax: According to the law enforced by MOIT, investors will have exemption of corporation tax as shown in Table E-10.

(B) Investment by Social Security Corporation: The Social Security Corporation (SSC) is playing a vital role in investment to tourism facilities and management. SSC is under control of the Ministry of Labour and Social Development, and is currently operating rest houses and hotels as follows in the whole Jordan.

- (a) Jerash (rest house)
- (b) Al Ummari (rest house)
- (c) Sweme/Dead Sea (rest house + 7 bungalows)
- (d) Za'i (rest house + garden)
- (e) Madaba (rest house)
- (f) Azraq (rest house + hotel)
- (g) Karak (rest house)
- (h) Petra (rest house + hotel)
- (i) Ma'an (rest house)
- (j) Aqaba (hotel)

SSC is going to start a further investment plan for renovation, expansion and establishment of rest houses and hotels.

(C) National park: There is no national park officially designated by the Government. MCTA is proposing that Wadi Rum and Dead Sea be nominated as the first and second national park in Jordan.

(D) Vocational training: The Ministry of Education (MOE) founded the Hotel Training College in 1981 in Amman. Since the opening of its

courses, there have been 500 students taking its 5 year training course for hotel staff. There are 497 male students and 3 female students at present.

(4) Regional position in the National Tourism Network: Tourism resources in the regions of Karak and Tafila are not well developed yet. Most of tourists pass through to the south (Figs. E-1 and E-2).

In 1986, about 2,600 tourists stayed overnight in the rest house in Karak and about 5,000 tourists visited the Castle of Karak. The number of the tourists who visited Tafila is unknown but supposed to be not many.

2.3 Tourism Spots in the Study Area

The following tourism spots duly invite domestic and foreign visitors (Fig. E-2):

(1) Dhiban: The ruin of Moabites attracts tourists who are interested in archaeology and history.

(2) Wadi Mujib: Grand view of the wadi is one of the most attractive natural scenic views in Jordan. Most of the tourists who visit Karak via the King's Highway enjoy the view.

(3) Rabba: Because of the good access via the King's Highway, the ruins attract tourists although excavation and presentation of the ruins are not yet well prepared.

(4) Karak is the most important tourism resource in the Study Area. The typical medieval town surrounded by the city wall and the ruin of the castle which was established by French crusades in the 12th century are principal interests of the tourists. At the same time, Karak is a base for visiting the Dead Sea and surrounding areas.

(5) Mu'tah is one of the most important religious place for Moslems. The area is known as the battle field of Mu'tah.

(6) Mazar: There are tombs of three Moslem leaders, Jaafar Al Tayyar, Zaid Ben Al Haretha and Abdullah Ben Rawaha, who were killed in the Mu'tah battle.

(7) Afra is one of hot springs situated in the Study Area and is used for picnic and bathing mainly by the local people.

(8) Bseira: It is not well established but there exists one of tombs of the famous Moslem leaders.

2.4 Tourism Facilities in the Study Area

There are 2 hotels and 67 restaurants and cafeterias in the Study Area (MOP village survey). However most of them are presently offering services to local inhabitants, and require improvements in sanitary condition as well as in a level of services. In this sense the rest house in Karak is the only facility available for foreign tourists in the Study Area.

2.5 Tourism Activities in the Study Area

According to the results of questionnaire survey, Karak is considered as a place for stopover for lunch and a break on their trips to the south.

(1) Visitors: The total number of visitors to Karak is not accurately known. Only the number of tourists who stayed overnight in the rest house has been recorded (Table E-12).

Statistical data of the tourists who came to Karak for lunch are not available but the survey of the group tourists organized by the travel agents in Amman shows more than 5,000 tourists had lunch in Karak and visited Karak Castle in 1984 and 1985 (Table E-6).

(2) Economic effects and employment in the Study Area: Tourism in the Study Area does not directly contribute to the local economy except a small amount collected as Entrance Fee for the Castle.

Accounting of the rest house is controlled by the head office of SSC in Amman and the sales activity and booking of the rest house are being made in Amman. Most of the tourists do not spend their money for shopping in the local market.

Contribution to the local economy is achieved only by the supply of food materials to the rest house such as meat, vegetables, bread and beverages. Thus the number of employment generated by the tourism-related industry and commerce is limited.

3. TOURISM RESOURCES AND DEVELOPMENT CONSTRAINTS

The Study Area is known as one of the richest areas in historical remains of pre-historical to medieval ages through Biblical, Roman Byzantine, Islamic and Turkish periods. These remains are historical and religious resources available for tourism development in the area. In addition to these, natural views and hot springs will be taken into consideration. Museums are yet insufficient in their presentation to attract tourists. These tourism resources and tourists' interests are shown under Item Nos. 10 to 18 in Table E-1 and Fig. E-3. Evaluation of the resources at present conditions of presentation is shown in Table E-11.

3.1 Historical Resources

(1) Dhiban: Excavation is being carried out. It is known as a capital of Moabites, and the carved stone records the battle between Moabites and Kings of Israel. When an access road and a museum are established, it may attract those tourists interested in the christian religion and history.

(2) Rabba: Excavation of Roman ruins is being carried out. When the presentation of the ruins is nicely arranged and a museum is established, it will become an attractive tourist point. MCTA has a schedule to remove out the present inhabitants from the archaeological area within 5 years and to complete excavation within 10 years.

(3) Karak: Restoration of the castle is essential to attract more tourists. Most of the present ruin has been buried underground. Structures aboveground such as vaults and towers remain without restoration. It is required to restore the castle.

The castle can be used not only for a museum but as a theatre, a historical restaurant and a hotel. The castle hotel will be attractive for tourists. Old-fashioned dinner with ancient music, if provided in adequate style, will be one of the most attractive events in Jordan. In

addition to the castle, restoration and conservation of historic quarters in Old Karak will largely augment its value as a tourism resource.

(4) Castle of Hasa: There is a castle in the Badia to the southwest of Hasa. This castle was constructed in Umayyad period. When an access road is constructed from the Desert Highway and the castle is restored, it will be the most attractive historic point in this area.

(5) Mu'tah and Mazar: Both are the most important religious and spiritual zones for Moslems. When mosques, hotels, rest houses with a religious museum are established, it will attract more tourists from Islamic countries which are of 80 per cent of all visitors to Jordan. Souvenir shops, religious shops, restaurants, etc. should be invested by the private sector.

(6) Other ruins: Excavation is being carried out. But until now, a potential for tourism development is still low (Qasr, Lajjun, La'ban, Qatrana, etc.).

3.2 Natural Resources

(1) Wadi Mujib: The grand view of the valley is a remarkable tourism resource where every tourists wish to stop and take snapshots.

(2) Wadi Hasa: It has the same potential as Wadi Mujib. This wadi is smaller than Wadi Mujib but geomorphological characteristics are enough attractive.

(3) Springs in Afra and Burbeita, Wadi Ben Hammad: Hot springs are used by the local people for picnic purposes. There are also some people from Amman for a cure by doctor's instruction. Lack of the accommodation facilities and topographic conditions are constraints for the development.

Hot water gushing out in the valley is about 45°C in temperature and used for a treatment of skin diseases and for orthopedic treatments.

The spring is situated in a narrow and deep valley between steep cliffs and there is not an enough space for facilities.

(4) Dhana Valley: An attractive view of the valley can be commanded from the surrounding hills. The old village of Dhana is also attractive.

(5) Forests and parks: These resources will have a high potential to meet recreational needs of the local people.

(6) Dead Sea (outside the Study Area): Potential as a resort area is high. A unique landscape, the lowest water surface level in the world (400 m below sea level) and strong buoyancy in the water due to high salinity (33 per cent) make this resource known worldwide. The Study Area offers a good access to the Dead Sea.

3.3 Other Tourism Potential

Other than the above-mentioned tourism resources, the following are considered to be potential resources for the long-term development:

- (1) Old Arab villages in the Tafila area such as Aima, Sinifha, Nammata, Old Dhana, etc.
- (2) Small castles around Karak and Tafila which were built during the Roman, Islamic and Turkish periods (Qasr, Lajjun, La'ban)
- (3) Qasr Bseira which was built in the 12th century by the crusades
- (4) Ruins of Bronze Age mining and smelting in the period of King Solomon (immediate outside the Study Area)

3.4 Infrastructure

Development of tourism requires improvement and expansion of social infrastructures such as road, water supply, sewage, electric power supply, telecommunications, waste material collection and treatment system, education, health service, security and other relating social services. In the major municipalities in Jordan, the primary social services have been established.

3.5 Development Constraints

In spite of an increase of the total number of visitors to Jordan, the number of tourists visited Karak has been decreased from 1984 to 1985 (Table E-6).

The constraints of tourism development in Karak are regarded as follows:

- (1) The tourism resources are not yet well presented to attract tourists. Ruins are required to be arranged and partly restored to a level that satisfies the interest of tourists.
- (2) The resources are scattered in an wide area. The underdeveloped accessibility and traffic modes make it difficult to visit them within a limited time.
- (3) Facilities for rest and accommodations are not sufficiently established.
- (4) Beautification of tourism areas such as Karak, Tafila is not well made.
- (5) Safety measures to prevent tourists from accidents are not enough.
- (6) Consensus of the local people has not been established to accept tourists who may have different cultural bases.

The above constraints are relating to the following national constraints:

- (1) Lack of the budget for promotion and advertising of tourism
- (2) Lack of the effective statistics concerning tourism which form the base of the development strategy
- (3) Lack of an adequate tourist transportation infrastructure

4. DEVELOPMENT PLAN

4.1 Development Objectives

(1) National objectives of tourism development: Development of tourism promotes relating industries such as hotels, service industries, commerce, handicrafts, transportation, etc. (Table E-8).

The national tourism development plan is directed by the Third Five-Year Plan issued by MOP. In the Plan, the following objectives are set up as the goals of this sector:

- (A) To increase the income from tourism to JD 232 million in 1990
- (B) To activate domestic and international tourism
- (C) To develop tourism-relating industries to increase the tourism incomes
- (D) To upgrade know-how for planning, management and training for tourism-relating activities
- (E) To reduce the cost of services without sacrificing quality
- (F) To protect, preserve and restore archaeological sites and ancient structures
- (G) To intensify exploration for new archaeological sites
- (H) To upgrade museums in the various regions
- (I) To disseminate information on Jordan's historical, cultural and religious resources
- (J) To protect archaeological and natural sites from encroachment by construction projects

In order to reach these goals, the following budget has been allotted.

	(JD 1,000)
(A) Administrative and organizational projects	6,350
(B) Construction and development projects	52,545
(C) Department of antiquities projects	4,938
<u>Total</u>	<u>64,383</u>

(2) Regional tourism plan: Karak and Tafila Governorates have issued their regional Five-Year Plan, 1986-1990 and listed tourism relating projects. The goal of the development is to activate the regional tourism by development and improvement of the tourism resources scattered in the regions.

The goal aims to promote the tourism itself and the relating industries in order to increase the employment and local incomes. These development are considered to contribute to the population policy to counter the out-migration.

The tourism resources to be developed and improved in the plans are:

- (A) Historical resources
 - (a) Castles of Karak, Tafila and Hasa
 - (b) Ruins in Rabba, Qasr, Lajjun, La'ban
- (B) Religious resources
 - (a) Tombs in Mazar and Bseira
- (C) Natural resources
 - (a) Hot springs in Wadi Mujib, Wadi Bel-Hammad, Afra, Burbeita
 - (b) Landscape
 - (c) Forests in Al-Sala, Wadi Dhana, Lahda, Tafila heights, Bseira
 - (d) (Dead Sea, Haditha Chor) - immediate vicinity of the Study Area

The following costs were estimated for implementation of the projects (Tables E-16 and E-17):

- (A) Karak Region: JD 518,000
(JD 400,000 by private sector + JD 118,000 by public sector)
- (B) Tafila Region: JD 518,000
(JD 300,000 by private sector + JD 218,000 by public sector)

(3) Development objectives: According to the regional Five-Year Plan, the tourism development aims at establishment of Regional Tourism Centres in Karak and Tafila in order to promote tourism-relating industries.

The development of regional tourism in Karak and Tafila will increase the importance of the regions and will raise the status in the Kingdom. Since the regions of Karak and Tafila are well known as the biblical and medieval historical remains, these are recommendable for sites of international facilities such as Arab International Conference Centre and Arab Medieval History Institute which should be linked with Mu'tah University.

4.2 Development Targets

In accordance with the goals of the Third Five-Year Plan, the target incomes in 1995 to 2005 are set up as follows:

1980	JD 155 million
1985	183
1990	232
1995	280
2005	420

(MOP and the Study Team)

The targets for investment in the plan period (1986-2005) are projected as follows:

1986 - 1990	JD 518,000 (Karak)	JD 518,000 (Tafila)
1991 - 1995	645,000 (Karak)	645,000 (Tafila)
1996 - 2000	935,000 (Karak)	935,000 (Tafila)
2001 - 2005	1,356,000 (Karak)	1,356,000 (Tafila)

(The Study Team)

The investments above will activate the tourism development in the regions.

The number of visitors to Karak is forecasted on the bases of statistics of present visitors and investment programmes shown in Tables E-15 to E-17:

1986	Overnight	2,600	One day visit	8,000
1990	Overnight	12,000	One day visit	16,000
1995	Overnight	19,000	One day visit	24,000
2005	Overnight	40,000	One day visit	28,000

(The Study Team)

A remarkable increase of overnight visitors is expected after completion of the new tourist hotels planned in the Third Five-Year Plan with an active sales promotion by the relating staff members. Nationalities are supposed to be 1/4 of Jordanian and 3/4 of foreigners. Another tourist hotel is planned in Tafila.

4.3 Basic Concept

Tourism development in the Study Area will be approached in the following manner:

- (1) A short-term target is to restore Old Karak as a Medieval Burg town.
- (2) A long-term target is to develop tourism resources surrounding Old Karak as satellite tourist spots of Karak and Tafila.
- (3) The urban model of Medieval Burg in Old Karak should be developed as a Museum City like San Geminiano in Italy or Albert Ville in France.
- (4) When Old Karak is established as a centre of the regional tourism and Tafila as a sub-centre, they will form a southern regional tourism network with tourist resources in South Jordan such as Shaubak Castle, Petra and Wadi Rum.

In order to avoid the risk and over-load of the development and to raise the economic efficiency, the following three stages are proposed:

- Short-term plan by Year 1990
- Mid-term plan by Year 1995
- Long-term plan by Year 2005

- (1) Short-term plan: It is proposed that the following projects be undertaken in this stage:

- (A) Establishment of the Regional Tourism Centre in Karak and Tafila, tourists offices, travel agents, branches of bank, etc.
- (B) Improvement of presentation of the castles and townscape of Karak and Tafila
- (C) Establishment of tourist facilities such as hotels, restaurants, coffee shops, boutiques, shops, etc.
- (D) Construction of a Hasa Oasis Park using wastewater discharged from phosphate mines.
- (E) Promotion of private ownership of tourism-relating industries

(2) Mid-term plan: By the end of this stage, a regional tourism centre and its network will be established, and the tours of the region will be operated by local agents of Karak and Tafila. These tourism centres will be connected by a computer on-line system and will offer services for tourists in whole Jordan.

It is proposed that the following projects be undertaken in this stage:

- (A) Establishment of regional tourism network
- (B) Improvement of satellite tourism resources
- (C) Training and promotion of handicraft

(3) Long-term plan: The goal of this stage is to increase the role of Karak and Tafila to be one of the major points of national tourism network in the Kingdom.

- (A) Establishment of the Regional Tourism Network with a connection of the national network. For example, the main tourist routes would be: Um Qais - Jerash - Amman - Madaba - Rabba - Karak - Mu'tah - Mazar - Tafila - Dhana - Shaubak - Wadi Rum - Aqaba including Dead Sea, Hot springs, Hasa Oasis Park, etc.
- (B) Promotion of the international facilities
 - (a) Arab International Conference Centre
 - (b) Arab Medieval History Institute with a museum and library

4.4 Development Plan

(1) Short-term image: Presentation of Karak Castle should be improved. Brochures and explanation boards of history and story of the fortress and conquest of Salahdin should be arranged. The existing museum should be improved. Restaurants need to be facilitated, and attractions such as Sound and Light, folkloric music and dance should be provided to attract tourists. After completion of the historic quarters and new hotels, the number of tourists to Karak will be increased five times more than in 1986. In the historic quarters, shops, restaurants, coffee shops and boutiques will gather tourists in the evening and will offer pleasure to take rest in the Medieval Burg surrounded by the City Walls.

Beautification and redevelopment of Tafila City and Castle will be a first step of the tourism development in the area. A tourist hotel will be constructed as a base for convenient and economical tours to the Tafila area. Old Arab villages of Aima, Sinifha, Nammata, Old Dhana, etc. will also be prepared as tourism spots.

One of the most recommendable tourism projects in the Tafila Governorate is an Artificial Oasis Park in Hasa which is planned to be developed re-utilization of wastewater discharged from the phosphate mines. An artificial lake, picnic green garden, date agricultural forest, a golf course, etc. will be constructed for domestic and foreign visitors.

The tourists offices will be founded in Karak and Tafila jointly by MCTA and the private sector. Package tours will be booked in these offices. The inter-city transportation will be operated by travel agents.

Tourism will be promoted jointly by the public and private sectors with printed matters and visual displays. Package tours will be organized by local travel agents and by transport companies.

(2) Mid-term image: Regional Tourism Network will be established in this stage. The surrounding tourism resources will be developed and

connected together with paved and safe access roads. The National Park, Wild Life Preservation areas should be specified. Special tourism resources such as botanic and zoological gardens will be necessary to satisfy scientific interests of residents and tourists. Tourism-relating industries such as folklore handicraft etc. should be promoted by the local communities and the chamber of commerce.

(3) Long-term image: The goal of this stage is to connect the Regional Tourism Network with the National Tourism Network. The Arab Conference Centre and the Arab Medieval History Institute will be established in this stage. Many people and academicians will visit the museum and library from all over the world to study the history of the medieval period and crusades.

4.5 Prospective Projects

(1) Karak City

(A) Castle of Karak: The first effort is to restore the castle. The architectural style should be discussed from academic and commercial points of view preceding commencement of the restoration works.

The rehabilitation works will be undertaken in the following two stages: (a) Excavation, study and restoration; and (b) Preparation for exhibition for visitors. Excavation of soil and fragments of the masonry works should be carried out to clarify the original architectural works and its function. The fragments should be studied carefully and applied for the adequate restoration of the castle.

Visiting routes, explanation and story panels, paving, lighting and safety devises should be prepared. A historical museum, an old-fashioned style restaurant with historical and folkloric performance will be required. The Castle Hotel will be prepared in some part of the castle.

(B) Restoration of Old Karak: Old Karak is one of the remains of Medieval Burg in Europe and Middle East. The objective of the tourism development of Old Karak is to restore the historic quarter and to create the Museum City (Fig. E-4). The original urban

structure should be studied on the basis of the existing materials and information which may be found in libraries in Europe and Middle East.

Old Karak is almost fully occupied by buildings and has no possibility to expand. Actually New Karak is being developed to the east of Old Karak and some establishments in Old Karak will be relocated to the industrial zone which is under construction. Some functions of Old Karak which have no direct linkage with tourism will be shifted to New Karak, and Old Karak will become the Museum City.

The following works will be required:

- (a) Restoration and beautification of old buildings, and provision of the Historic Quarter, footpath, and shopping streets
- (b) Removal of existing buildings in the Castle Square, such as Governorate Office, Civil Defense Buildings, etc. The square will be used for parade, performance, market, etc.
- (c) Restoration of the City Walls and watch-towers
- (d) Establishment of tourism-relating facilities such as hotels, restaurants, coffee shops, boutiques, shops, etc. Service facilities such as money exchange and tourist agents will be included. A scheduled transportation system will be prepared for tourists which will be operated from Karak and Tafila to surrounding tourist destinations such as the Dead Sea, Amman, Hasa, Qatrana, Petra, Aqaba, etc.
- (e) Foundation of the International Medieval History Institute
- (f) Establishment of the Handicraft Centre in the Historic Quarter
- (g) Beautification of the town through cleaning, tree planting, street design, street furnitures, signs, flags, lighting, pavement, etc. Some modification of buildings may be required.
- (h) Education of the local people to accept foreigners who may have different cultural bases. This is necessary for the tourism development. Social education to maintain the clean and hygienic environment should also be made.

- (2) North of Karak City
- (A) Dhiban: Excavation of relics and improvement of the museum
 - (B) Wadi Mujib: A rest house is being planned in the regional Five-Year Plan, 1986-1990.
 - (C) Rabba: Removal of the buildings around the ruin and excavation. Explanation panels and lighting will be required. A museum will be constructed to protect the remains.

(3) South of Karak: Mu'tah and Mazar will be developed as a Jordanian Islamic Centre as follows:

- (A) The Islamic History Institute will be established in Mu'tah.
- (B) Improvement of the monuments and Mosques
- (C) Accommodation facilities of hotels, restaurants
- (D) Regional transportation system from Amman, Karak and Tafila

(4) Tafila City: Tafila is situated on the remains of Tafila Castle founded by the crusades in the 12th century. Nowadays most part of the remains are used as foundations of buildings. Therefore the restoration of the castle seems practically impossible. Then Tafila should be a base of tourism for surrounding areas.

- (A) Beautification of the townscape
- (B) Construction of a tourist hotel is listed in the regional Five-Year Plan, 1986-1990.
- (C) Upgrading of restaurants, coffee shops, etc.
- (D) Inter-city transportation systems to Karak, Ma'an, Aqaba, Amman, etc.

(5) North of Tafila City

- (A) Wadi Hasa: Along Wadi Hasa, there are some flat areas with forests, where geological characteristics with limestone layers are seen. These areas will be suitable for development of picnic gardens for the local tourists.
- (B) Afra Spring: It will be developed for medical, tourism and agricultural purposes. Tourism facilities include a Medical Rehabilitation Centre and a Rest House.

(6) East of Tafila

Hasa Oasis Park: An artificial oasis will be developed in the Badia for domestic and foreign tourists. Being located along the Desert Highway, it will be a very attractive place for recuperation from fatigue of driving and will contribute to a decrease of traffic accidents. The following facilities will be required:

- (A) Artificial lake for the water leisure.
- (B) Picnic green garden: A green area with grass for a picnic
- (C) Date agricultural forest: A date forest will be grown. Date trees will be bearable to the salty water in the phosphate slimes.
- (D) Rest houses, hotels, bedou tents
- (E) Golf course: A golf course with 18 holes will be prepared in the park with required facilities such as club house, parking, etc.
- (F) An amusement centre: this will be established to attract domestic and foreign tourists mainly from the Gulf countries.

The Castle of Hasa will be an attractive historical monument in this area.

(7) South of Tafila

- (A) Old Arab villages located around Tafila will be attractive resources especially for foreign tourists. Many of these were abandoned and have few inhabitants. Restoration and beautification will be required. Restaurants, shops and boutiques will create incomes and employment. Aima, Sinifha, Nammata, Old Dhana will have a potential.
- (B) Old Dhana and Dhana Valley: Old Dhana is an attractive old Arab village and has a charming townscape. The village has also a grand view to the Dhana Canyon. In the valley, there are olive plantation farmlands which are cultivated by inhabitants of the Dhana village. A possibility to construct a cable car or cableway for tourists as well as for olive harvesting should be studied.

(8) Outside the Study Area: The following projects were nominated by Karak and Tafila Governorates:

- (A) Improvement of the park in Chor Haditha

(B) Construction of a rest house in Mazra beside the Dead Sea

4.6 Implementation Schedule

(1) 1986-1990: This is a period to start preparatory works for the future tourism development. The main work of this period is to establish regional tourism centres in Karak and Tafila, and to improve and expand the infrastructure and utility systems. Promotion of the relating industries should be started in this period.

(2) 1991-1995: Strong tourism spots will be established in the region by the regional tourism centres in Karak and Tafila. The Karak urban development project, Hasa oasis park project and Afra and Burbeita hot spring development project would be commenced in this stage.

(3) 1996-2000: This is a period to complete the regional tourism network within the national tourism network. A review and improvement of the tourism policy and facilities may be undertaken by the public and private sectors. Development of the satellite tourism resources of Karak and Tafila such as Rabba, Qasr, Lajjun, La'ban, Aima and Dhana will be conducted in this stage.

(4) 2001-2005: The tourism axis will be formed running from Amman to Aqaba through Karak, Tafila, Petra and Wadi Rum. The regions would be selected as sites for inter-Arab and international facilities such as International Conference Centre, Arab Historic Institute, etc.

4.7 Priority Projects

Priority projects were selected through evaluation of various requirements and criteria. The evaluation is presented in Table E-18.

4.8 Organization

In order to achieve efficient and effective development, an executing committee may be established. Members of the committee should be representatives of the public and private sectors such as authorities concerned, local governorates, municipalities, chamber of commerce, experts, local inhabitants, etc.

4.9 Requirements for Implementation

- (1) Institutional requirements
 - (A) Preparation of laws and regulations for tourism development, construction, license, taxation, etc.
 - (B) Adequate allocation of a necessary budget to promote the planned projects and to invite investments from the private sector
 - (C) Cooperation among the relating authorities for transportation and regional development
 - (D) Invitation of foreign investments
 - (E) Preparation of safety laws and devices
 - (F) Open the tourism market for the private sector
 - (G) Establishment of appropriate statistics system
 - (H) Civil and social education to local inhabitants to accept foreign tourists who may have different cultural backgrounds.
 - (I) Scheduled regular bus transportation system

- (2) Requirements to the private sector
 - (A) Promotion of tourism with advertising and sales of package
 - (B) Establishment of the Karak and Tafila tourist offices with finance of the local chambers of commerce and industry
 - (C) Tourist buses by local travel agents
 - (D) Improved management of hotels
 - (E) Active and positive sales by hotels and restaurants
 - (F) Maintenance system for the building and equipment
 - (G) Improvement of quality of handicraft

5. PREPARATORY STUDY ON PRIORITY PROJECTS

5.1 Karak Museum City Project

This project aims to develop the regional tourism through rehabilitation and restoration of the castle and town of Karak, which are the most important tourism resources in the Karak region. This project will bring a big impact to start tourism development of the region and to establish a regional tourism centre which will be followed by development of surrounding tourism resources. It will contribute to the increase of local incomes and employment. The project is considered to be effective to counter the out-migration of population from the region, meeting the national decentralization policy. Development of the region makes the King's Highway form a tourism axis.

In order to clarify the interests of the people, a questionnaire survey was carried out in Amman (100 samples), Karak (50), Tafila (5), Qatrana (10), Hasa (10), and foreign residents in Amman (17).

Results of the survey are presented in Table E-19, and may be summarized as follows:

- (A) According to the survey, the people of Jordan are interested in cultural and accommodation facilities which have not been well established in the Study Area. Development of facilities for a family recreation is needed to meet the typical recreational style of the Arab people.
- (B) 90 per cent of people have visited Karak.
- (C) The ruin of the castle, hotels and restaurants and cultural activities can be of interesting objects.
- (D) 76 per cent of people are interested in the project.

5.1.1 Position in Regional Tourism Network

Karak is situated at the crossroads of the roads to the Dead Sea, Jordan Valley, Tafila, Amman, etc. The Castle of Karak is the only resource already prepared for exhibition to visitors, especially for foreigners. Old Karak is being reformed but still holds typical

characteristics of a Medieval Burg City which is surrounded by the City Walls and Watch Towers.

At the same time, Karak is the centre of administration and commerce. Many visitors visit Karak with various purposes.

5.1.2 Tourist Attractions

Tourist attraction of Karak is the atmosphere of the medieval period. The remains of the castle (a fort of crusades) present architectural styles, building technology and the concept of the utility design for water supply, communications, etc. in the 12th century. Old Karak was constructed by the same concept with other medieval cities which can be found in Europe at present, such as Carcassonne, San Geminiano, Assisi, Albert Ville, Noerdlingen, etc.

The ruin of the castle offers a chance to think about the historical memory of the battle story of knights and Moslem army in the medieval period.

The small streets, old houses, towers, corners and the grand view from the castle are attractive resources of the town.

5.1.3 Overall Plan

The following works should be undertaken by the public sector:

- (1) Rehabilitation and restoration of ruin of the castle, towers and city wall
- (2) Creation of a Historic Quarter and the Castle Square
- (3) Establishment of general tourist facilities

In order to create an attractive tourism atmosphere in Old Karak, the tourism development needs careful planning and design.

The existing facilities in the square such as offices of the governorate, civil defense, etc. will be transferred to a new city in accordance with the proposed Karak urban development plan. The square will be restored as an open space for events and attractions. The

castle square will be a stage and face of Old Karak.

Existing small industries on the industrial street, El-Khader Street, will be transferred to the industrial zone outside Old Karak. Tourist facilities will be located in this quarter.

A well-arranged museum for the medieval history is needed. It is recommended to improve and upgrade the existing museum inside the Castle.

5.1.4 Restoration of Karak Castle

(1) Restoration and rehabilitation works;

(A) Restoration

(a) Excavation

(b) Study of the fragments and structures

(c) Renovation

(B) Rehabilitation

(a) Installations and Equipments

- Explanation and guiding panels

- Lighting (interior and exterior)

- Sign boards

- Safety devices (railing, fire alarm, repair of steps and walk paths)

- Exhibition equipments

(b) Beautification of the ruin

(c) Establishment of Facilities

(2) Development plan

- (A) Excavation: Most parts of inside of the ruin are covered by thick earth with fragments of the castle. The excavation is the preparatory work for planning of rehabilitation and will clarify the floor plan and structures. Prior to commencement of the works, the structure and original status should be studied carefully. Then the most appropriate excavation programme can be prepared including the necessary reinforcement plan of the remaining structures. The works to remove the covered earth should be made by

hand works.

(B) Study of the fragments and structures: The excavated fragments of the structure should be studied carefully and be arranged for the renovation. The history, architecture and structural systems of the castle are main objectives of the study.

(C) Restoration: The preliminary goal of the restoration is to complete visitors route in the castle and to make them touch the function and life in the castle. The works should be carried out to emphasize the historical atmosphere to the maximum.

(D) Installation and equipment

Explanation and guiding panels: In order to satisfy tourist interests to the ruin and the historical background, exhibition panels are required. The panels must be artistically made and installed in the exhibition spaces. The signs should be clearly arranged to guide visitors. Visiting routes should be arranged in accordance with exhibition scenarios to meet the visitors interests.

Lighting (interior and exterior) should be provided not only lighting the dark place but also as a space design of the ruin with exhibition effects. Exterior lighting for the ruin, city walls and towers should be considered.

Sign boards are required to give necessary information to visitors. These should be designed in enough number and size. The boards should be simple and clear.

Safety devices should be properly equipped to protect visitors from any accidents and dangers.

Railing should be provided for openings of the walls, floors, and steps for the safety of the visitors. The height of the railing must be more than 1.00 m.

Fire alarm: The most appropriate fire alarm system would be installed at necessary places. Sign boards should be prepared in accordance with the international standard. Smoke sensors may also be required.

Repairs of steps and walk paths are needed.

Exhibition equipment: Show cases, hunger system, glass windows should be selected carefully in terms of design, colour, etc. They

must be enough to prevent the objects from any damage. Shape, size, system, type, etc. may be decided in accordance with the objects and locations.

(E) Beautification of the ruin is the first step of preparatory works for the public exhibition. Cleaning, washing, restoration, reconstruction, etc. may be required.

(F) Facilities: The Castle of Karak is a ruin of old castle on one hand and can be tourism facilities on the other.

Museum for the medieval history: A museum for the history of the crusades and Moslem army, battle of the Castle, etc.

Institute and atelier: An institute for the medieval history and an atelier for a study and restoration of the Castle and remains

Hotel, restaurant: A castle hotel which will attract tourists into the atmosphere of the medieval period. Furnitures and employees' uniforms should be arranged to match the historic atmosphere. Old music and dance will be performed in an old-fashioned restaurant during the dinner time.

Theatre: Historic play, traditional music, dance, etc.

Conference room, exhibition room: A space for a conference, exhibition, banquet, lecture, etc.

Administration office: A function for the control and management of the ruin, hotel, restaurants, conference, etc.

(G) Event programmes: Such event programmes in the Castle as music, dance, play, ceremony, exhibition, banquet, conference, lecture, symposium, sound and light

5.1.5 Restoration of Historic Quarter

(1) Objectives: After relocation of many small industry workshops on El-Khader street to the new industrial zone, the vacated buildings and street which hold historical structures and atmosphere will be restored as a tourism resources.

(2) Development plan: Development of the Historic Quarter should be undertaken in cooperation between the public and private sectors. The public sector should prepare a favorable investment environment for the private sector. Exterior design the buildings should be strictly

controlled through the building permit by the Municipality.

(A) Required projects by the public sector:

- (a) Utilities and infrastructure systems: water supply system, sewerage system, electricity, telecommunications and on-line information system, waste material treatment and tourists transportation system
- (b) Street design: pavement, planting, fountains, lighting, street furnitures and sign boards (Fig. E-5)
- (c) Tourists facilities: tourist office, handicraft centre, museum, library, rest house (upgrading), public toilets and public telephone
- (d) Public facilities: police, fire fighting, post office, telephone and telegraph office, hospital and public health office

(B) Investment by the private sector will be accelerated under the investment environment above with an economic growth of the tourism industries. sector.

- (a) Shops: souvenir shop, handicraft shop, international market, drugstore, book store, boutique, jewelry shop, photo shop, duty-free shop, daily food store, convenience store
- (b) Restaurant and coffee shop: family restaurant, local style restaurant, fast food restaurant, buffet, coffee shop, music restaurant
- (c) Hotel: tourist hotel, pensions, apartment hotel and other supporting industries such as laundry, food and beverage supply, printing, maintenance shop, man power office, etc. (These supporting industries will be located outside the Historic Quarter.)

(C) Events and attractions

One of the major constraints in the present tourism in Karak is lack of amenity for tourists. After closing the ruins in the evening, facilities to offer amenity to tourists are required especially for foreign tourists.

Facilities in the Historic Quarter, Castle Square, and ruins will provide places for events and attractions. Such programmes will be arranged as (a) parade and ceremony, (b) light and sound,

(c) street decoration, (d) open air market, (e) street performance (dance, music, etc.), (f) open air exhibitions. These attractions will be performed in a suitable season, day and time. The programme will be organized in accordance with statistics and schedules of the visitors to Karak.

5.1.6 Castle Square and Event Programmes

(1) Objectives: When the town was established in the medieval period, the square was designed as the centre of citizens activities such as event, communication, information, market, etc. It was an indispensable function of the city life and a face of the town. But at present, the castle square is occupied by the governorate buildings, civil defense, police station, etc. and the function of the square is limited to the traffic passage.

The goal of this project is to restore the square and to create a space for tourist attractions. It is desirable to arrange event programmes for a festival on the bases of the history and cultural backgrounds of Karak.

The entrance fee will be one of tourism incomes. Events will contribute to promotion of traditional and modern arts and to improvement of social life.

(2) Development plan

(A) Castle Square: Buildings which occupy the square will be relocated to New Karak. Functions as the city centre will be transferred to New Karak, and Old Karak will be developed as the tourist centre of the region. The Square should be designed in accordance with the requirements for utilization of the space for various events. Space design, townscape, materials, colours, texture, traffic, drainage, greenery, space furnitures, signs, etc. should be taken into consideration. The Square will be prepared as an open space for multi-purpose use and separated from the traffic passage. The background and pavement will be designed as of a medieval style. It will be used as an open-air theatre (Fig E-6).

(B) Event programmes: Events to be performed in the Square will be arranged to be of the day and evening programmes.

(a) Day programme: The day programme is arranged in accordance with tourists arrival times and their schedules. The day programme may include market, exhibition, parade and ceremony.

(b) Evening programme: The evening programme is more important. It is the High-Light of the tourist activities after dark, and would offer an unforgettable memory of Karak to the tourists. The evening programme will include music and dancing, play and opera, light and sound, fashion show, and open-air cafe terrace. A historic festival will be one of the attractive performances which stand comparison with the Jerash Festival.

5.1.7 City Walls and Towers

(1) Objectives: City walls and towers are principal characteristics of the museum City in addition to the Castle. They were constructed as elements of the Castle for protection of the town and Castle from invasion by an enemy. Although they are already useless things and rather obstacles for the modern life, it is proposed to restore these for tourism promotion.

Objective of this project is to restore the city walls and towers and to make up the attractive exterior view of the Museum City.

(2) Development plan: When the Castle and town were established, Karak was surrounded by the city walls and towers. Eight of the towers are still remaining without maintenance or protection.

At the first step, restoration of the towers should be commenced. Masonry works, walkway, interior will be restored. Then lighting, railing and safety devices will be installed. At the second step, the city walls between the towers will be restored.

5.1.8 Implementation Schedule and Organization

The tourism development forms part of the integrated regional development, and the implementation schedule will be arranged in harmony with the national Five Year Plan. The development policies and projects would be organized by the following five-year periods.

(1) 1986-1990: It is the period for preparatory works. A Tourists Centre will be established in Karak by MCTA. In order to manage the tourism development in the region, a Tourism Development Executing Committee would be organized under Development Council of the Governorate. The committee will have a function to adjust all the problems concerning execution of the development plan. Technically, this period is the time to make a detailed development plan, survey of the ruin, architectural and structural survey. The restoration programme should be completed by a team of historians, archaeologists, civil engineers, architects, structural engineers and other necessary experts.

(2) 1991-1995: In this period, development projects will be started. The goal of this period is to establish the strong attractive tourism point in Old Karak.

(A) Restoration and rehabilitation of the Castle will be started in this period. Excavation, study of fragments, renovation, installation and beautification should be commenced. The works should be undertaken in cooperation with the Ministry of Antiquities.

(B) Restoration of Historic Quarter will also be started in this stage. A building survey of the evacuated workshops on El-Khader street will be carried out for preparation of a restoration plan. Study, reform, reinforcement, demolition, restoration and rehabilitation will be carried out for each house.

(C) Castle Square: Relocation of the buildings and construction of the square will be started and completed in this period. Demolition of the existing buildings, excavation, pavement, installation of fountain, lighting, drainage, etc. will be made in this period.

(D) Restoration of City Walls and Towers: The remains of the walls and towers will be studied to prepare the restoration programme and design drawings. Where restoration is not practical because of

existence of buildings, a modification would be required. Stone masonry works will be carried out using Portland cement mortar and be firmly fixed by skilled workers.

(3) 1996-2000: Main works of the tourism development in Karak will be completed by the end of this period.

(A) Restoration and rehabilitation of the Castle will be continued as a major work in this period. The establishment of the facilities in the castle will be started.

(B) Restoration of Historic Quarter will be continued. The street design will be extended and the whole part of El-Khader street will be renovated to be the Historic Quarter.

(C) Restoration of City Walls and Towers will be continuously carried out in this period. The works will be completed by 2000.

5.1.9 Cost Estimation

The Costs of this project is estimated based upon the market prices in Amman, August 1987, surveyed by the Study Team.

(1) Restoration and rehabilitation of Karak Castle

(A) Study and design JD 100,000

(B) Restoration JD 600,000

(C) Rehabilitation JD 100,000

Total JD 800,000

(2) Restoration of Historic Quarter

(A) Study and design JD 50,000

(B) Restoration and construction JD 400,000

(C) Infrastructure JD 100,000

Total JD 550,000

(3) <u>Restoration of Castle Square</u>	
(A) Study and design	JD 20,000
(B) Demolition and site preparation	JD 30,000
(C) Construction	JD 100,000
(D) Infrastructure	JD 50,000
Total	JD 200,000

(4) <u>Restoration of City Wall and Towers</u>	
(A) Study and design	JD 50,000
(B) Restoration of Walls	JD 300,000
(C) Restoration of Towers	JD 200,000
(D) Rehabilitation	JD 50,000
Total	JD 600,000

5.2 Hasa Oasis Park Project

This project aims to support the Green Badia Development Project which is positioned as a growth point of the Badia. Tourism development of the area will offer the amenity for inhabitants and will promote economic activities. Recreational facilities of this project will invite visitors from Amman, Aqaba and surrounding areas. It will activate tourism-relating industries and employment, and will contribute to an increase of the local incomes.

A questionnaire survey on this project was conducted to Jordanians in the Study Area and Amman, and some foreigners in Amman. Results are presented in Table E-20, and may be summarized as follows:

- (1) 71 per cent of people are interested in the project.
- (2) A botanic garden, zoo, family garden and desert science museum will meet the interest of the people.

5.2.1 Position in Regional Tourism Network

The project will be positioned as:

(1) A basis of recreational activities in the Badia

Recreational activities require basic infrastructure and facilities such as road, water supply, and shelter in a short distance, especially for family recreation which is the most favorite style of recreation in Jordan. Establishment of a base in the Badia will expand the tourism network to the east of Karak - Tafila Highlands area.

(2) A centre of economic development in the Badia

Visitors to the project area will be not only local inhabitants but also visitors from Amman, Karak, Tafila, Ma'an, Aqaba and the surrounding communities. Drivers on the Desert Highway will also be guests of the highway service area. The expenditures of those visitors will be of major income resources. Promotion of services and industries will generate job opportunities for the local labour market. This project will contribute to economic development of the Badia.

(3) Recreational facilities to offer amenity to inhabitants

Recreation is one of the indispensable factors of modern life. In order to enrich the life in the Badia, urban services and amenity should be provided for the inhabitants. The recreational development will contribute to counter the out-migration and to stabilize the social life in the Badia.

(4) A proto-type project for development of the Badia

The project will bring the following effects to the Badia:

(A) Social effects

- to invite visitors
- to grow settlements and social activities
- to provide social infrastructure

(B) Economic effects

- to establish a growth point for economic activities
- to utilize natural resources in the Badia such as wind and solar energy, water etc.

(C) Technical effect

- to be a base of vegetation in the Badia

5.2.2 Tourist Attractions

Tourism resources of the project will mainly be supported by the water-relating attractions in the artificial oasis.

Tourism attractions in the project area comprise:

- Direct utilization of water resources
- Indirect utilization of water resources
- Facilities to accommodate visitors
- Event programmes
- Restoration of Hasa Castle

(1) Direct utilization of water resources covers facilities to offer pleasure with water leisure such as boating lake, fishing pond and water park.

(2) Indirect utilization of water resources indicates green areas supported by water resources. A picnic garden, green garden and date forest will be prepared. The most appropriate irrigation system should be studied.

(3) Facilities to accommodate visitors are positioned as the major objects to be provided. A botanic garden, zoo, desert science museum, hotel, restaurant and coffee shop, conference hall, banquet room, sports facilities, leisure facilities etc. can be proposed.

(4) Event programmes will be required to fulfill tourist interests. Conference, lecture, symposium, star observation, desert life experience, etc. will be provided to satisfy visitors cultural interests.

(5) Restoration of Hasa Castle is proposed to provide a historical tourism resource in the area. The castle, bridge, old stone-paved pilgrim way constructed in the Umayyad period will be attractive.

5.2.3 Overall Plan

The goal of the plan is to invite visitors to create local income resources and job opportunities.

This project includes the following items:

- (1) Landscape
 - (A) Boating lake
 - (B) Fishing pond
 - (C) Family garden with fountains, river, waterfalls, paddling pool for children
 - (D) Picnic garden, date plantation forest

- (2) Facilities
 - (E) A golf course
 - (F) Tennis courts, volleyball courts, succor ground, Polo ground
 - (G) Swimming pool with sand beach, wave machine, water slides
 - (H) Botanic garden, zoo
 - (I) Desert science museum
 - (J) Rest house (50 rooms) and restaurants
 - (K) Conference room (100 seats), banquet rooms (100 seats)
 - (L) Camel and horse racing course

- (3) Public facilities
 - (A) Fire station and police station
 - (B) Tourist office
 - (C) Clinic

- (4) Infrastructure systems
 - (A) Access road and pavements
 - (B) Electric power supply and lighting
 - (C) Water supply and fire fighting system
 - (D) Sewage system
 - (E) Telecommunications
 - (F) Waste material treatment system
 - (G) Sprinkler and irrigation system
 - (H) Vegetation

(5) Restoration of Hasa Castle

(6) Miscellaneous

(A) Service areas for Desert Highway

(B) Motel, drive inn and rest house for Desert Highway

5.2.4 Lodging Facilities

In order to accommodate visitors, various kinds of lodging facilities will be provided.

The following facilities will be prepared:

(1) A government rest house will be the base of the accommodation facilities. It will be used as a hotel, restaurant, coffee shop, souvenir shop etc. The restaurant will be used as a banquet room. A conference room will be included and used as a space for lecture, symposium, exhibitions etc.

(2) Bungalows will be prepared for the people who want to spend overnight only with their family. Individual bathrooms, toilets and a kitchenette should be provided. Twenty bungalows will be prepared in a well arranged garden. Each bungalow has a floor area of 60 m². Total floor area will be 1,200 m².

(3) A camping area will be prepared for the visitors who want to overnight in individual tents. Some Bedou tents will be made available for big family visitors and group tourists. Hygienic toilet and shower facilities will be required for campers. Some of the Bedou tents will be used for public facilities such as rest house, restaurant, coffee shop, and performance place for the visitors to enjoy the traditional life of Bedou. It will also contribute to make a friendly communication among the visitors.

5.2.5 Event Programmes

Events would be one of the major factors to fulfill the recreation activities in the Badia. The following events will be anticipated.

- (1) Cultural: Music, dance, exhibition, parade
- (2) Physical: Boat race, swimming competition, sports festival, Polo
- (3) Scientific: Star observation, desert science
- (4) Amusement: Camel racing, horse racing, film theatre, shows
- (5) Conference, Symposium and Lectures: The events programme will be performed after dark.

5.2.6 Implementation Schedule and Organization

(1) Implementation: Tourism development of the area will be undertaken in accordance with the plan of the overall Green Badia Project. Implementation of the tourism project would be made as follows:

- (A) 1986-1990: Preparation of the project will be the main works in this period. Collecting data and arrangement of the strategy will be undertaken. Access roads to the castle will be prepared in this period.
- (B) 1991-2000: Restoration of the castle and construction of basic facilities will be undertaken in this period. A boating lake, fishing pond, family garden, picnic garden, swimming pool and water park, government rest house and a golf course will be prepared in this period.
- (C) 2001-2005: Objective of the development in this period is to add the cultural and scientific pleasure to the area. Further expansion and new facilities for accommodation will be included in accordance with an increase of visitors. A botanic garden, zoo, desert science museum, annex of the rest house, 3-stars new tourist hotel will be facilitated.

(2) Organization: The primary investment for this project is expected to be of a large amount which will not be bearable only by the private enterprises. It is recommended to share the financial and work loads in cooperation between the public and private sectors as follows.

- (A) Planning by MCTA
- (B) Infrastructure by MPW
- (C) Investment by SSC and private sector
- (D) Operation and management by the private sector, SSC and MCTA with the associated managing body.

Note: Investment banks is included in the private sector.

5.2.7 Cost Estimation

In order to execute the project, the following cost is estimated. Unit costs are based upon the current market prices in Amman, August 1987, surveyed by the Study Team.

(1) Government Rest House

(A) Study and design	JD 50,000
(B) Construction costs	JD 250,000
Total	JD 300,000

(2) Bungalows

(A) Study and design	JD 30,000
(B) Construction costs	JD 100,000
Total	JD 130,000

(3) Camping area

(A) Study and design	JD 20,000
(B) Construction costs	JD 70,000
Total	JD 90,000

(4) Restoration of Hasa Castle

(A) Study and design	JD 80,000
(B) Excavation	JD 100,000
(C) Restoration	JD 200,000
(D) Access Road	JD 20,000
Total	JD 400,000

5.3 Afra-Burbeita Hot Springs Multipurpose Pilot Project

5.3.1 Position in Regional Tourism Network

Afra and Burbeita are most famous hot springs in the Study Area. The springs are gushing out in the valleys of Afra and Burbeita which are the branches of Wadi Hasa. Both streams meet together and flow into the Dead Sea.

Presently, a new road is being constructed between Afra and Burbeita. At the same time, an approach to the bottom of the Afra Valley and the access to the hot spring have been improved. Owing to these improvements and expansion of the space, the number of visitors to Afra spring has been increased. Most of the visitors are inhabitants of Tafila and its surrounding areas.

The development council of Tafila governorate intends to develop the Afra spring as one of the major tourism points.

The development of Afra and Burbeita hot springs is positioned as a social welfare project for the local inhabitants who have scarce occasion to enjoy recreational activities.

A questionnaire survey on this project was conducted to Jordanians in the Study Area and Amman, and some foreigners in Amman. Results are presented in Table E-21, and may be summarized as follows:

- (1) More than 97 per cent of the people recognize that the Afra hot spring is a place of medical purpose.
- (2) Medical treatment and accommodation facilities are what the people are interested in this project.

5.3.2 Tourist Attractions

Tourist attractions of Afra and Burbeita are hot springs and a landscape in the valley. The valley of Burbeita has a broad bottom and shows a good view and attractive geological characteristics.

A rest house is proposed to be constructed on the flat place on the left bank at a side of the road between Afra and Burbeita. It will be prepared for the visitors who want to overnight in the valley. The campers and visitors should also be accepted for swimming in the spring water pool in the rest house.

There is one unexcavated ruin on the hill of the bank. At present, there is no access road. But once the access road is prepared and excavation is carried out, it will become one of the tourism resources

in this area.

The horticulture and fish culture stations will also be attractive for the visitors. These facilities will be operated with utilization of the hot spring water and will be opened for the visitors.

5.3.3 Overall Plan

After completion of the Afra-Burbeita road, the hot springs will have two different access ways, one from Wadi Hasa and one from Tafila. These will be convenient for visitors from Karak and Tafila respectively.

Facilities for horticulture and fish culture will be prepared along the Afra-Burbeita road.

Development of bathing places at Afra spring may not be included in this project because the improvement work is already being made by the governorate.

The problem to be improved at the existing bathing place is a hygienic condition. Lack of sanitation of toilets and waste material collection system contaminates the hygienic condition of the place. The sanitary environment of the bathing place should be urgently improved by the governorate.

5.3.4 Government Rest House

At present, there are no facilities to accommodate tourists except small terraces surrounded by concrete wall partitions in Afra. Visitors to Afra stay in the terrace and spend holidays. There is no restaurant and people cook on the terrace and overnight in the same place. All garbages are thrown into the river and contaminate its water. Visitors to Burbeita have no services for staying and overnight in the valley. The visitors stay on the bank and all activities of the visitors are obliged to be done there.

In order to offer a quality stay, basic accommodation facilities are required such as a hotel and restaurants. They will upgrade the

quality of stay and will contribute to protect the environment from human contamination. Sports facilities such as for swimming, tennis, mini-golf, etc. will increase the number of visitors and their expenditures in the Afra-Burbeita area.

The rest house is recommended be located on the left bank of the Hasa valley at about 280 m AMSL, having a grand view of the right bank. It is an intermediate point between Afra and Burbeita. Visitors to the springs can use the rest house as a base for bathing and picnic.

The rest house will require 50 rooms with 3-4 beds because most of the visitors will be of family or group. The rest house will have facilities such as restaurants, coffee shop, coffee terrace, look-out terrace, swimming pool, tennis court and mini golf. These facilities can be considered as income generating facilities.

The operation of the rest house will need food supply industries. Agriculture, horticulture and fish culture will provide a local special menu to the visitors. Transportation of food, drinks and all other materials will promote the transportation industry. The rest house will create about 40 employment opportunities including part time employees.

The rest house will also function as a community meeting centre in the area.

5.3.5 Medical Rehabilitation Station

The Medical Rehabilitation Station is one of the most anticipated facilities in Afra-Burbeita hot springs by the local people and the people in Amman, Karak, Qatrana and Hasa. Analyses of water of the hot springs were already carried out by the Ministry of Health, and it is mentioned that the spring water is effective for skin disease and orthopedic treatment. Some of visitors are staying for treatment purpose in Afra at present. However, there is no specialist who stays at Afra and makes instruction for the treatment. Some specialists for the hot spring treatment should be employed by the Station for effective treatment.

Main facilities of the Station will consist of bathing pools for skin disease patients and some pools with different temperatures for orthopedic patients and relating facilities such as massage rooms, training rooms, etc. These facilities should be designed by experts from Mu'tah university, public and private hospitals, etc.

Not only indoor rehabilitation treatment, but also outdoor treatment should be taken into consideration. Mild winter temperature in the valley will lighten the difficulties of orthopedic patients to spend the winter time in this area. Outdoor treatment programme such as walking, stretch gymnastic, etc. will be taken into activities of the Station. Visiting the horticulture and fish culture stations will be one of the outdoor treatment programmes. The hot spring water pool will be opened through the seasons for the visitors.

5.3.6 Implementation Schedule and Organization

(1) Implementation schedule: At present, the development of Afra spring is being conducted with construction of Afra-Burbeita road. In accordance with the development, the number of visitors is increasing quickly but construction of infrastructure is not able to follow the situation.

Therefore implementation of this project is urgently required to accommodate more visitors.

(A) 1986-1990: Preparation of the project will be one of main works in this period. Site survey, survey of the spring, organizing a strategy for development and marketing, arrangement of a managing body, etc. will be made.

(B) 1991-1995: Designing, budgeting, construction, and installation should be completed by the end of this period.

(2) Organization: Since the project is positioned as of social welfare for the local inhabitants, the rest house with the medical rehabilitation station may be financed by the Tourism Investment Department of SSC and by the Ministry of Health. Operation of the facilities would be undertaken by SSC, and MCTA will undertake tourism promotion. SSC will

recruit personnel to operate and manage the rest house including instructors for the medical treatments.

5.3.7 Cost Estimation

This project includes the government rest house and medical rehabilitation station. The cost is estimated as follows. Unit costs are based upon the current market prices in Amman, August 1987, surveyed by the Study Team.

(1) Rest House

(A) Study and design	JD 50,000
(B) <u>Construction costs</u>	<u>JD 250,000</u>
Total	JD 300,000

(2) Medical Rehabilitation Station

(A) Study and design	JD 30,000
(B) <u>Construction costs</u>	<u>JD 170,000</u>
Total	JD 200,000

5.4 Development of Resort Area in Dhana

The objective of this project is to develop a resort area in Dhana. The rich natural environment, an archaeological site in Wadi Araba and an old village of Dhana are the tourism resources available for the project. The green area, the topographic character, the view to Dhana valley and Wadi Araba, the fresh and clean highland air and the ruin of copper smelter which was founded in the period of King Solomon, etc. are also available.

5.4.1 Position in Regional Tourism Network

This project is positioned as of a long-stay resort development in the rich natural environment of Tafila Governorate.

The Dhana Valley is appointed by RSS as a wildlife reserve. The resort area will offer pleasant climatic conditions and a beautiful natural view to the valley. It is considered as a base of the various recreational activities to the surrounding areas, such as sports, pic-

nic, observation of geology and animals, etc. Trekking, hiking, rock climbing and mountaineering as well as tennis etc. will be major sports activities of the visitors.

Expected visitors to Dhana will be Jordanians and foreign residents from Amman, Aqaba, Ma'an, Karak, Tafila, the Badia, etc. Visitors from the Gulf countries will also be targeted. The hotel will also function as a hotel facility of Tafila.

This project will contribute to expand the bilateral regional tourism network of Karak and Tafila and to connect to the network in South Jordan, such as Petra, Wadi Rum and Aqaba, which are the major tourist spots of the national tourism network. It will complete the tourism network along the King's Highway from Amman to Aqaba (Fig. E-7).

The tourism development of Dhana should be undertaken after obtaining a consensus of the inhabitants. Urgent development will not always bring good results. Patient and continuous efforts will be required to prepare the favourable environment for the project.

5.4.2 Tourist Attractions

The rich natural conditions of the area will offer various possibilities of recreational activities to the visitors. The old village of Dhana will offer a chance to touch an old Arab living style and community.

(1) Green area: A large green area abundant of grass and mediterranean oak trees is spread in the south of Dhana village. MOA is establishing a new agricultural station in this area. SSC has a plan to build a rest house for visitors.

(2) Topography: The Dhana valley shows an interesting geographic characteristics. The valley descends from east to west. The north bank of the valley comprises huge rock cliffs, and the south bank is rolling hills with rich green. The east end of the valley goes up to the plateau of Rashadiya and the west end down to Wadi Araba. The village of Dhana

is located at the upper reaches of the valley. The bottom of the valley is covered by rolling sand stones.

The top of the north bank has a gentle slope down to the west until the valley where it is used as a quarry site of limestone. This may be suitable for a site of the hotel and trekking course.

(3) View of the Dhana Valley: The view to the valley is one of the most remarkable tourism resources of the area. The valley shows a view of the huge rock wall on the north bank, an olive plantation and old village on the east bank and rock hills and green area on the south bank, and an open view of the valley to the west.

(4) Old Village of Dhana: The village still holds typical characteristics of old Arab village. The restored village will create a remarkable tourism resource especially for architects, urban planners and foreigners. Many houses are abandoned but remaining in a relatively good condition. It is considered that the restoration is rather easy and not costly. These houses will be restored and reused as tourism facilities such as restaurants, coffee shops, souvenir shops, pensions, etc. It will be a charming traditional community for the tourist.

(5) Fresh highland air: Dhana is located at about 1,400 m AMSL and has a lower temperature than Amman, approximately by 3 to 4°C, and fresh wind. This is a preferable condition for a long-stay summer resort to attract tourist from other parts of Jordan and the Gulf countries.

(6) Ruin of copper smelter in Wadi Araba: This is located outside the Study Area but is an interesting archaeological resource of the area. It was founded in the period of King Solomon. It will satisfy historical interests of visitors. A cableway from Dhana Village will be a convenient transportation mode if constructed.

5.4.3 Overall Plan

The goal of this project is to create income resources and employment opportunities through establishing tourism-relating industries.

In order to invite investment by the private sector, the following preparation should be undertaken by the public sector:

- (1) Preparation of utility and transportation systems to the project area
- (2) Assistance for investment from the private sector with regulations and financial arrangements
- (3) Promotion of resort activities by MCTA
- (4) Consecutive investment by SSC

This project includes the following facilities:

- Resort Hotel, bungalows, pensions
- Restaurants, coffee shops
- Souvenir shops, daily shops
- Sports facilities: tennis, trekking, hiking
- Public facilities: police station, fire station, post office
- Bus and taxi stations, heliport, cableway
- Utilities: water, sewerage, power, telecommunications

Resort Hotel will be required with the first priority as the base of this resort to accommodate visitors and to create employment opportunities. It must be of an enough comfortable type for a long-stay. The hotel will have 100 rooms and will function to entertain guests after dark, and as a lounge, shopping arcade, coffee shop, attraction programme, etc.

Tourism activities in the village of Dhana and the resort hotel should be linked together. A shuttle bus service will be operated between the village and the hotel. Supporting industries should be developed in linkage with both the hotel and the village.

Social education to local inhabitants should be made to avoid friction with visitors who may have different religious and cultural backgrounds. The tourism and local life must have a good harmony for further development of the tourism.

5.4.4 Resort Facilities

The required facilities for the project are as follows:

(1) Accommodation facilities

- (A) The Resort Hotel in Dhana will form the base of recreational activities not only in the Dhana area but also to Petra, Wadi Rum, Aqaba, etc. Visitors may prefer pleasant and comfortable accommodations and facilities for long-stay. Convention facilities will be prepared for the conference and banquet in the beautiful natural environment. Conventions in this area will raise the status of the region. The hotel will have 100 rooms, restaurants, coffee shops, lounge, shopping arcade and convention halls. Bungalows and pensions will be prepared to meet various needs of the visitors.
- (B) Other restaurants, coffee shops, etc. may be invested by the private sector.

(2) Recreational facilities

- (A) Sports facilities are indispensable facilities of a resort hotel. The climatic conditions from spring to autumn will be suitable for sports and training. Tennis courts, trekking and hiking course will be basic sports facilities. A swimming pool will also be prepared for summer visitors.
- (B) Cultural activities will be required in addition to the sports activities such as pottery, painting, hand weaving and lectures. These activities will give a beautiful memory of the resort and will contribute to invite them again to the resort.

(3) The following facilities would be prepared to ensure the safe and pleasant resort life:

- (A) Public facilities: Police station, fire station, post office, hospital, security guard
- (B) Transportation facilities: Bus and taxi stations, heliport, cableway
- (C) Utility systems: Water, sewerage, power, telecommunications, waste material treatment system.

5.4.5 Recreational Programme

Recreational programme aims to complement the resort life in Dhana. In order to satisfy various interests of the visitors, the programmes of sports, culture and excursion to the surrounding areas should be prepared.

(1) Sports programme: A fresh and cool highland climate in Dhana will be suitable for the sports activities by individual and group training visitors. The service facilities and field athletic equipment will be prepared in the picnic area.

(2) Cultural programme would be important to touch the local culture and to create the active and positive resort life.

(A) Handworks such as pottery, painting, hand weaving, etc.

(B) Archaeological survey to Wadi Araba such as of pre-historic remains and ruin of the copper smelter of King Solomon age

(C) Natural observation of stars, geology, birds, small animals

(D) Lecture and symposium

(E) Excursion to surrounding areas such as Karak, Hasa, Tafila, Petra, Wadi Rum, Aqaba etc. will make variety to the resort life.

5.4.6 Implementation Schedule and Organization

The project should be implemented in accordance with an overall strategy concerning the regional tourism network. In this relation, MCTA will establish a branch office in Tafila. It will be the first step of tourism development in the region.

(1) 1986-1990: A branch office will be established by MCTA in Tafila, and a study will be started to prepare a development plan. Discussions and adjustments with concerning authorities will be are required on the regional and national levels.

(2) 1991-1995: It is a period to prepare the development plan and financial arrangement for the project. MCTA, SSC and development councils should clarify and solve problems for execution. Planning and designing should be completed in this period. Promotion of the resort

in Dhana will be carried out prior to construction of the resort hotel. A picnic area will be completed in this period.

(3) 1996-2000: Construction of the resort hotel and restoration of old village will be undertaken in this period. Basic facilities such as tennis courts, swimming pool, ateliers for the cultural programme and convention hall will be prepared. An excursion programme will be commenced in this period.

(4) 2001-2005: Further development of the resort will be undertaken in this period. Service facilities for out-urban sports activities will be prepared in this period. Bungalows, camping sites, fruits garden for tourists, etc. will be prepared. Excursion systems and convention activities will be completed in this period.

5.4.7 Cost Estimation

This project includes construction of a resort hotel of 4-Stars, convention hall, swimming pool, tennis courts, vegetation and pavement. Access roads and utility systems in the public roads should be undertaken by MPW. Restoration of the old village of Dhana will be included in this project.

The interior restoration should be undertaken by the private sector. Exterior works will include planting, street furnitures and lighting.

(1) Resort Hotel

(A) Study and design	JD	50,000
(B) Construction (incl. Convention hall)		600,000
(C) Exterior works (incl. Heliport)		250,000
(D) <u>Infrastructure in the site</u>		<u>100,000</u>
Total		JD 1,000,000

(2) <u>Restoration of old village</u>		
(A) Study and design	JD	50,000
(B) Construction		300,000
(C) Exterior works		150,000
(D) <u>Infrastructure</u>		<u>50,000</u>
Total	JD	550,000

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

It is clarified through the field survey that the Study Area is abundant with tourism resources, but most of these are not developed yet for public exhibition. Among the numerous undeveloped tourism resources, the Castle of Karak is only the place prepared for public exhibition.

Tourism development in Tafila is considered to be commenced right now. The access road from the King's Highway to Afra and the Afra-Burbeita road are under construction. At present, MCTA is preparing to establish a branch office in Tafila.

Promotion of the Karak Museum City project will give an impact on the tourism development and on the formation of the tourism network along the King's Highway. Development of the Dhana resort will expand the network to the south.

The tourism development in the Study Area will require the strong initiative of the local development council in cooperation with concerned national authorities. Infrastructure and utility systems should be invested and provided by the public sector to invite investments from the private sector.

6.2 Recommendations

The following are recommended for implementation of the proposed tourism projects:

(1) Karak Museum City Project

- (A) Undertaking preventive maintenance works of the ruin of the castle, city walls and towers
- (B) Control of design of the new building in Old Karak to maintain the traditional townscape (to be controlled through the building permits)

(C) Briefing to inhabitants to grow a consensus on the tourism development of Old Karak

(2) Hasa Oasis Park Project: Restoration of Hasa Castle and construction of an access road to prevent further destruction of the ruin.

(3) Afra and Burbeita Resort Project: In order to maintain the good image of the hot spring in Afra, improvement of the sanitary condition is urgently required. Sewage, waste material management, cleaning of the site and river should be immediately conducted.

(4) Dhana Valley Resort Project: Promotion of the tourism development is required to prevent destruction of existing houses. Some of the houses should be properly maintained to prevent natural destruction. A briefing to inhabitants should be made to obtain a consensus on the resort development.

T A B L E S

Table E-1 INTERESTS OF TOURISTS (1/2)

	Pre-historic	Religious	Ruins	Arts	Folklore	Natural
1. Um Qais			Roman Decapolis			View to Tiberius Golam Heights
2. Castle Ajlun			Islamic Castle			View
3. Jerash			Roman Decapolis	Theatre	Theatre	
4. Amman	Museum	Mosques	Roman Theatre Citadel			View to the City from Citadel - Water level - Salt contents - Buoyancy
5. Dead Sea						
6. Desert Castle			Castle built by Umayyad	Fresco Painting	Bedouin	Desert
7. Zarqa Ma'in						Hot Spring View to dead Sea
8. Madaba	Bronze Age 2000 BC	Biblical Madaba		Mosaic Roman, Is- lam, Byzantine	Wool weaving Bedouin rugs	
9. Mt. Nebo		Mouse Byzantine Church		Mosaic		View to Jordan Valley, Dead Sea
10. (Karak) Dhiban		Biblical Dhiban	Moabite Capital			

Table E-1 INTERESTS OF TOURISTS (2/2)

	Pre-historic	Religious	Ruins	Arts	Folklore	Natural
11. Wadi Mujib						View to Valley and Soil Layer
12. Rabba			Roman			
13. Karak	Museum		Crusade Castle Medieval Burg			View from the Castle
14. Mu'tah		Mu'tah battle field				
15. Mazar		Tombs of Moslem Leaders				
16. Wadi Hasa						
17. Afra-Burbeita						View to Valley Soil layer Hot springs in the Valley Rocky Valley View
18. Dhana			Old Village			
19. Shaubak			Crusade Castle			
20. Petra		Biblical Wadi Musa of Mouse	Nabatean-Roman Rock-carved City	Remains Archi-tecture	Handi-crafts	Wadi, carved rock mountain
21. Wadi Rum						Desert
22. Aqaba			Crusade Castle			View to the Rocks Sea, Marine Leisure

Source: The Study Team

Table E-2 TOTAL ARRIVALS TO JORDAN BY NATIONALITY

Region	1985	1984	1983	1982	1981
Arab Countries:					
Syria	326,206	264,496	291,709	299,458	306,482
Lebanon	46,559	46,193	66,968	108,455	103,775
Iraq	71,612	61,809	35,479	133,130	158,713
Saudi Arabia	286,267	171,871	177,636	161,193	156,672
Egypt	717,455	635,237	756,708	919,356	345,512
Kuwait	21,038	13,428	13,802	10,814	8,562
Other	76,696	54,196	52,044	42,838	44,655
Total Arab	1,545,833	1,247,230	1,394,346	1,675,244	1,124,371
Non-Arab Middle East and Asia	132,299	132,942	120,749	100,083	108,775
European countries	108,155	102,151	98,075	110,382	141,319
American countries	60,853	71,635	75,311	50,122	77,528
Other countries	37,920	25,943	29,387	42,160	35,824
Total (ex Pilgrims)	1,885,060	1,579,801	1,717,868	1,977,991	1,487,817
Pilgrims	4,847	8,394	13,421	97,472	92,714
Grand Total	1,889,907	1,588,195	1,731,289	2,075,463	1,580,531

Source: Jordan Tourism Authority

Table E-3 ARRIVALS IN JORDAN

Year		
1981	1,487,817	Except Pilgrims
1982	1,997,991	Except Pilgrims
1983	1,717,868	Except Pilgrims
1984	1,597,801	Except Pilgrims
1985	1,885,060	Except Pilgrims
(1986	1,031,105	(Jan-Jun) Except Pilgrims)

Source: MCTA

Table E-4 MODE OF ARRIVALS

Year	Road	Air	Rail	Sea	Total
1980	1,192,585	395,294	16,966	30,769	1,635,614
1981	927,559	465,965	19,500	74,793	1,487,817
1982	1,120,775	560,380	12,686	284,150	1,977,991
1983	1,143,534	347,387	12,461	214,486	1,717,868
1984	947,762	329,415	-	302,624	1,579,801
1985	1,152,955	326,141	-	405,964	1,885,060

Source: MCTA

* Except Pilgrims

Table E-5 TOURISM INCOMES INDICATOR

(JD million)

	1980	1981	1982	1983	1984	1985
GNP at Market						
Price	1,199.3	1,466.1	1,695.4	1,770.3	1,844.2	1,856.0
Tourism Incomes	154.9	180.8	183.5	183.1	173.2	204.2
Share of Tourism						
Incomes in GNP(%)	12.9	12.3	10.8	10.3	9.4	11.0
Share of Tourism						
Incomes in FEI(%)	N.A.	14.7	14.9	15.4	13.9	16.6

Source: Central Bank of Jordan

FEI : Foreign Exchange Incomes

Table E-6 TRAVEL PATTERN BY NATIONALITY (1/2)

Destination Nationality	Amman City	Jerash Ajlun	West Bank	Dead Sea, Oasis	Azraq	Madaba	Karak	Petra	Wadi Rum	Aqaba
1. Jordanian										
1983	28	29	1	1	1	5	1	42	16	21
1984	27	33	1	16	1	14	1	43	31	31
1985	7	38	-	46	1	34	1	53	20	20
Total	62	100	2	63	3	53	3	138	67	72
2. Other Arab countries										
1983	45	42	1	9	2	9	1	70	28	33
1984	32	33	1	17	2	16	1	57	31	21
1985	43	52	1	42	2	36	1	66	31	36
Total	120	127	3	68	6	61	3	193	90	90
3. Non Arab Middle East										
1983	19	20	11	11	1	5	1	39	-	1
1984	8	9	1	1	1	19	1	35	-	-
1985	27	28	41	11	1	11	1	45	-	1
Total	54	57	53	13	3	35	3	119	0	2
4. European										
1983	5,374	3,645	3,416	1,391	703	3,532	3,240	4,421	982	3,384
1984	8,072	5,515	6,142	2,020	1,222	5,090	5,911	6,799	1,906	5,459
1985	8,268	6,920	6,535	2,082	898	5,544	5,120	7,729	2,091	5,454
Total	21,714	16,080	16,093	5,493	2,823	14,166	14,271	18,949	4,949	14,297
5. US American										
1983	1,708	967	9,215	28	11	5,890	17	8,369	15	19
1984	2,395	1,411	13,332	25	8	8,522	15	11,255	2	6
1985	2,245	2,244	10,718	34	8	7,216	14	9,424	12	15
Total	6,348	4,622	33,265	87	27	21,628	46	29,048	29	40
6. Other American										
1983	56	63	4	8	3	32	5	177	1	2
1984	49	55	3	8	2	27	4	154	1	2
1985	102	84	3	32	2	51	4	183	26	29
Total	207	202	10	48	7	110	13	514	28	33

Table E-6 TRAVEL PATTERN BY NATIONALITY (2/2)

Destination Nationality	Amman City	Jerash Ajlun	West Bank	Dead Sea, Azraq Oasis	Madaba	Karak	Petra	Wadi Rum	Aqaba
7. Asian									
1983	235	110	39	21	132	19	280	63	133
1984	166	121	12	109	178	47	299	107	103
1985	355	204	111	41	124	119	234	73	169
Total	756	435	162	171	434	185	813	243	405
8. Others									
1983	454	55	3	412	432	4	558	406	407
1984	437	47	3	402	419	4	528	396	396
1985	390	45	3	356	373	4	476	351	351
Total	1,281	147	9	1,170	4,234	42	1,562	1,153	1,154

Source: Sample Survey of Travel Agents in Amman (11 companies) Sept., 1986/The Study Team

Table E-7 HOTELS ON THE EAST BANK IN 1985

Location	Total															
	Unclassified					Classified										
	Empl- yees	Beds	Rooms	Hotels	Empl- yees	Beds	Rooms	Hotels	Empl- yees	Beds	Rooms	Hotels	Empl- yees	Beds	Rooms	Hotels
Amman	3971	10291	5302	161	257	2410	955	88	81	257	130	8	3633	7624	4217	65
Aqaba	526	2154	1026	25	15	210	80	6	43	121	64	4	468	1823	882	15
Petra	118	224	117	2	-	10	-	-	38	8	35	1	80	164	82	1
Ma'an	10	73	27	4	10	73	27	4	-	-	-	-	-	-	-	-
Karak	9	34	12	1	-	-	-	-	9	34	12	1	-	-	-	-
Ajlun	12	40	20	1	-	-	-	-	-	-	-	-	12	40	20	1
Irbid	75	297	135	7	7	111	41	4	8	28	15	1	60	158	79	2
Dibeen	7	50	25	1	-	-	-	-	7	50	25	1	-	-	-	-
Mafrag	2	7	5	1	2	7	5	1	-	-	-	-	-	-	-	-
Al-Ruwei-																
shed(1)	6	37	18	2	6	37	18	2	-	-	-	-	-	-	-	-
Zarqa	32	246	126	9	15	130	54	6	-	-	-	-	17	116	72	3
Azraq	29	118	52	3	2	30	8	1	-	-	-	-	27	88	44	2
Southern																
Shuneh	1	18	6	1	1	18	6	1	-	-	-	-	-	-	-	-
Ramtha	2	25	9	1	2	25	9	1	-	-	-	-	-	-	-	-
Sweileh	18	94	47	1	-	-	-	-	-	-	-	-	18	94	47	1
Hemah	16	69	30	2	-	-	-	-	16	69	30	2	-	-	-	-
Tala' Ali	3	72	36	1	-	-	-	-	-	-	-	-	3	72	36	1
Total	4837	13869	6993	224	317	3051	1203	114	202	639	311	18	4318	10179	5479	91

Source: MCTA
(1) Previously (H₄)

Table E-8 TOURISM-RELATING INDUSTRIES

Particulars	1981	1982	1983	1984	1985
Tourist Hotels "Rooms"	4416	5151	5867	5793	5790
Tourist Hotels "Beds"	8477	9553	10987	10839	10818
Travel Agents	150	170	192	211	229
Rent-A-car Co's	26	35	42	45	46
Travel Cars	420	520	590	620	630
Petra & Sweiemeh Guides	297	300	227	236	251
Tourist Shops	70	78	79	78	78
Tourist Guides	99	87	83	85	107

Source: MCTA

* Classified Hotels and Government Rest Houses

Table E-9 EMPLOYMENT IN TOURISM ACTIVITIES DURING 1981-1985

	1981	1982	1983	1984	1985
					(person)
Classified Hotels	3061	3765	4548	4512	4520
Un-Classified Hotels	291	323	338	333	317
Travel Agents	674	702	898	954	1058
Rent-A-Car Co's	74	80	126	138	140
Tourist Shops	130	145	148	156	159
Tourist Guides	99	87	83	85	107
Camel and Horse Guides	297	300	227	236	251
Total	4626	4504	6368	6414	6552

Source: Tourism Authority

Table E-10 EXEMPTION OF TAX

	Fixed Asset	Exemption
Area A	Touristic, Transport JD 500,000	First 5 years 100% Next 2 years 60%
Area B	Hotels 3 Stars or above Touristic, Transport JD 500,000	First 8 years 100% Next 2 years 60%
Area C	Hotels 3 Stars or above Touristic, Transport JD 500,000	Consecutive 12 years

Source: MOIT Karak Region is categorized as Area C.

Table E-11 EVALUATION OF TOURISM RESOURCES IN STUDY AREA

Resources	Dhiban	Wadi Mujib	Rabba	Karak	Mu'tah	Mazar	Wadi Hasa	Burbeita	Dhana Valley	Forests Parks	Other Castles	Dead Sea
<u>Historical</u>												(Outside the Area)
Ruins	B	NA	B	A	B	B	NA	NA	NA	NA		
Religious		NA	NA	NA								
Islam					A	A	NA	NA	NA	NA	NA	NA
Christianity	B											
Natural	NA		NA		NA	NA					NA	
View		A		A			A	A	A	A	NA	A
Resort		O					C	C	C	A		A
Health							O	A	C	A		O
Folklore and	C	C	C	C	NA	NA	C	C	C	A	C	A
Amusement	O	O	O	C				A		A		A
Facilities												
Accommodation	O	O	O	A(-)	O	O	O	C	O	O	O	O
Rest house	O	O	O	A(-)	O	O	O	O	O	O	O	O
<u>Infrastructure</u>												
Access	B	A	B	A	A	A	B	B	A	B	B	B
Utilities	B	B	C	A	A	A	C	O	O	O	C	C
<u>Attractiveness</u>												
Arabs	B	A	B	A	A	A	A	B	B	A	C	A
Foreigners	B	A	B	A	B	B	A	B	B	B	C	A

Note: A: Good

B: Must be improved

C: Potential but not yet developed

O: Supposed no potential

NA: Not applicable

Table E-12 VISITORS IN KARAK REST HOUSE

Nationality	1985 Aug.	1986 May	1986 Aug.	1987 Jan	1987 Feb.	1987 Mar.	1987 Apr.	1987 May	1987 Jun.
1. Jordanian	190	47	177	119	72	40	85	18	91
2. Other Arabs	16	5	6	6	4	12	5	-	19
3. Americans	4	11	5	28	6	4	8	11	19
3. Europeans	76	133	194	79	74	72	216	99	31
5. Others	7	6	3	76	117	118	27	4	5
Total	293	202	385	308	273	246	341	132	165

Source: The Study Team, from registration books of the rest house

Table E-13 INVESTMENT PROGRAM IN TOURISM

	Public	Private	1986	1987	1988	1989	1990
Karak	118	400	16	221	241	15	15
Tafila	218	300	11	21	131	132	213

Source: Ministry of Planning

Table E-14 ALLOCATION OF THE INVESTMENT

	Karak	Tafila	Safi	Others	Total
Karak	300	-	100	118	518
Tafila	-	400	-	118	518

(JD 1,000)

Source: Ministry of Tourism

- Karak
- (A) Karak Castle
 - (B) Tombs in Mu'tah, Southern Mazar
 - (C) Ruins in Rabba area
 - (D) Dead Sea (rest house and hotel in Safi)
 - (E) Mineral water in Al Haditha, Ghor, Wadi Mujib, Wadi Bin Hammad
 - (F) Forests and parks
 - (G) Development of landscape in Wadi
- Tafila
- (A) Natural landscape in Al Barra
 - (B) Forests, west of Al Qadiseya, Al-Sala, Bseira
 - (C) Mineral water in Afra, Burbeita, (Gharandal and Ain Lahda)
 - (D) Ruins, castle in Al-Sala, At-Tafila, Al Hasa
 - (E) Tombs of saint Al Harith Bin Amir, Urwah Al-Juthami (Near Afra)

Table E-15 VISITOR ARRIVAL STATISTICS (1/2)

Country	1981	1982	1983	1984	1985
<u>Non-Arab Middle East and Asia</u>					
Pakistan	10,355	5,607	4,535	3,291	4,235
Turkey	84,251	68,575	97,888	115,455	110,955
India	8,106	18,563	9,921	6,913	6,725
Cyprus	-	-	-	961	897
Others	6,063	7,338	8,405	6,322	9,487
TOTAL	108,775	100,083	120,749	132,942	132,299
<u>European Countries</u>					
United Kingdom	23,139	21,910	20,567	20,965	22,100
France	20,525	13,558	10,961	13,509	15,503
Italy	13,384	8,074	8,454	10,175	11,862
Denmark	3,887	2,678	1,801	1,876	1,575
Sweden	5,318	4,831	2,759	3,100	2,841
West Germany	26,135	20,545	21,313	24,510	24,042
Greece	4,098	3,835	3,665	3,714	2,594
Austria	4,150	4,942	3,176	2,684	2,830
Switzerland	3,010	2,438	2,208	2,262	2,780
Belgium	-	-	-	2,648	2,694
Spain	4,401	1,785	-	3,318	4,479
Netherlands	-	-	-	3,669	3,094
Bulgaria	-	-	-	1,177	1,832
Yugoslavia	-	-	-	2,637	3,168
Rumania	-	-	-	1,147	1,065
Poland	-	-	-	706	1,165
Norway	-	-	-	645	1,014
Others	33,272	25,786	23,171	3,409	3,517
TOTAL	141,319	110,382	98,075	102,151	108,155
<u>American Countries</u>					
Canada	3,700	2,758	3,327	3,230	3,198
U.S.A.	65,820	44,896	68,864	65,215	54,676
Mexico	-	-	-	482	670
Brazil	4,398	964	710	794	851
Others	3,610	1,504	2,410	1,914	1,458
Total	77,528	50,122	75,311	71,635	60,853

Table E-15 VISITOR ARRIVAL STATISTICS (2/2)

Country	1981	1982	1983	1984	1985
<u>Other Countries</u>					
Australia	2,230	2,092	2,277	2,453	3,340
Japan	4,506	5,154	4,751	4,166	4,497
Korea	5,301	4,101	2,944	2,132	2,377
U.S.S.R.	6,517	5,303	2,300	914	1,240
Philippines	8,458	14,220	6,839	5,320	9,161
Indonesia	-	-	-	279	1,214
New Zealand	-	-	-	777	767
China	-	-	-	2,411	2,388
Others	8,812	11,290	10,276	7,391	12,936
Total	35,824	42,160	29,387	25,843	37,920

"-" not segregated - if any, included in others.

Source: Jordan Tourism Authority

Table E-16 ARCHAEOLOGICAL AND TOURISM PROJECTS AND INVESTMENT SCHEDULE IN THE KARAK FIVE-YEAR PLAN

(JD 1,000)

No.	Projects	1986	1987	1988	1989	1990	Total
<u>Tourism Projects</u>							
1.	Improving Karak museum	1	1	1	2	3	8
2.	Constructing a hotel in Karak	-	100	200	-	-	300
3.	Improving Park Ghor Haditha	-	100	-	-	-	100
	Sub-total	1	201	201	2	3	408
<u>Archaeological Projects</u>							
1.	Restoring and fixing Archaeological areas	10	20	37	11	12	90
2.	Archaeological excavation	5	-	3	2	10	20
	Sub-total	15	20	40	13	22	110
	General sector	16	221	241	15	25	118
	Private sector	-	200	200	-	-	400
	Total	16	221	241	15	25	518

Source: Karak Regional Five-Year Plan, 1986-1990

Table E-17 ARCHAEOLOGICAL AND TOURISM PROJECTS AND INVESTMENT
SCHEDULE IN THE TAFILA FIVE-YEAR PLAN

(JD 1,000)

No.	Projects	1986	1987	1988	1989	1990	Total
1.	Tourist hotel	-	-	-	100	200	300
2.	Tourist rest house	-	-	70	-	-	70
3.	Improvement & maintenance of Afra spring	-	-	30	-	-	30
4.	Museums development	1	1	1	2	3	8
5.	Antiquities maintenance and restoration	10	20	25	25	20	100
6.	Search for antiquities	-	-	5	5	-	10
	General sector	11	21	131	32	23	218
	Private sector	-	-	-	100	200	300
	Total	11	21	131	132	223	518

Source: Tafila Regional Five-Year Plan, 1986-1990

Table E-18 EVALUATION OF TOURISM PROJECTS

	Rabba Ruins	Karak Castle & Town	Mu'tah Mazar	Afra Spring	Tafila	Old Villages	Old Dhana & Valley	Hasa Oa- sis Park
Historical	A	A	A	-	B	B	-	-
Religious	-	-	A	-	-	-	-	-
Natural	-	B	-	A	-	B	A	A
Attractive- ness	B	A	B	B	B	A	A	A
Present Condition	C	B	B	B	C	B	B	-
Location	A	A	A	C	B	B	C	B
Accessi- bility	A	A	A	C	A	B	B	A
Utility	B	A	B	C	A	C	C	A
Strate- gical	-	A	-	B	A	B	B	A
Social	-	A	-	-	B	A	A	-
Potential	A	A	A	A	A	B	A	A
Relation with other Sector	-	-	-	A	B	B	B	A
A=5 B=3 C=1	27	46	34	27	34	37	34	38
Priority	5	1	4	5	4	3	4	2

Source: The Study Team

Table E-19 QUESTIONNAIRE SURVEY ON KARAK MUSEUM CITY PLAN (1/2)

Questions	Amman	Karak	Tafila	Qatrania	Hasa	Jordanian	Fore- igner	Grand Total	%
<u>1. Which facilities are you interested in this project?</u>									
(1) Ruin of the castle	79	38	41	11	9	178	17	195	75.9
(2) Historical quarter in the town	64	31	21	7	2	125	13	138	53.7
(3) Hotels, restaurants, coffee shop	61	38	27	9	5	140	9	149	58.0
(4) Historic museum for medieval period	64	24	31	8	4	131	8	139	54.1
(5) Handicraft centre souvenir shop boutique etc.	40	29	19	6	5	99	8	107	41.6
(6) Cultural activities such as theatre music, sound and light, lecture, exhibition, symposium conference	52	40	35	6	6	139	8	147	57.2
<u>2. Are you interested in the above facilities?</u>									
(1) Very interested	91	31	29	7	4	167	16	183	71.2
(2) Interested but would not visit	79	12	11	3	3	110	2	112	73.6
(3) Not interested	12	19	18	4	1	57	0	57	22.2
<u>3. To the person who checked Q2. (2).</u>									
(1) It is too far from my house If it is near I want to visit	61	11	13	2	2	89	1	90	35.0
(2) The facilities are not enough attractive	55	28	23	7	3	167	1	168	65.4
(3) I prefer to stay at home	15	5	5	0	1	26	0	26	10.1
(4) I prefer to enjoy my leisure in other way	9	7	2	2	0	20	0	20	7.8

Table E-19 QUESTIONNAIRE SURVEY ON KARAK MUSEUM CITY PLAN (2/2)

Questions	Amman	Karak	Tafila	Qatrana	Hasa	Jordanian Subtotal	Fore-igner	Grand Total	\$
4. <u>If entrance fee for the performance is required, how much is acceptable?</u>									
(1) less than 1 JD	82	43	39	10	7	181	9	190	73.9
(2) 1 - 2 JD	23	7	10	1	3	44	6	50	19.5
(3) 3 - 5 JD	0	0	1	0	0	1	0	1	0.4
(4) More than 5 JD	0	0	0	0	0	0	0	0	0
5. <u>Have you ever visited the town and Castle of Karak?</u>									
(1) Yes	82	50	49	10	8	199	4	203	79.0
(2) No	23	0	1	1	2	27	12	39	15.2

Source: The Study Team

Table E-20 QUESTIONNAIRE SURVEY ON HASA OASIS PARK PLAN (1/2)

Questions	Amman	Karak	Tafila	Qatrana	Hasa	Jordanian Subtotal	Foreigner	Grand Total	%
1. Which facilities are you interested in this project?									
(1) Boating lake	27	13	10	5	2	57	8	65	25.3
(2) Fishing Pond	50	23	33	9	6	121	5	126	49.0
(3) Family garden with fountains river, water falls paddling pool	89	44	38	10	9	190	10	200	77.8

(4) Picnic garden, date plantation forest	70	32	25	7	5	139	10	149	58.0
(5) Golf links of 18 holes	50	32	24	9	8	123	6	129	50.2
(6) Tennis courts, volleyball, table tennis	7	9	3	3	3	25	7	32	14.5

(7) Swimming pool with sand beach	42	18	19	6	8	93	8	101	39.3
(8) Botanic garden and zoo	61	21	24	9	7	215	7	222	86.4
(9) Desert science museum	72	36	35	9	6	158	7	165	64.2

(10) Hotel and restaurant	40	26	31	8	8	113	9	122	47.5
(11) Conference and banquet hall	72	36	29	9	10	156	1	157	61.1
(12) Camel and horse racing track	21	18	19	5	9	72	3	75	29.2
2. Are you interested in above facilities?									
(1) Very interested	80	34	25	11	7	157	14	171	66.5
(2) Interested but would not visit	70	27	25	11	7	140	3	143	55.6
(3) Not interested	13	16	20	-	3	52	-	52	20.2

Table E-20 QUESTIONNAIRE SURVEY ON HASA OASIS PARK PLAN (2/2)

Questions	Amman	Karak	Tafila	Qatrena	Hasa	Jordanian Subtotal	Foreigner	Grand Total	%
Q3. To the person who checked Q2.(2)									
(1) It is too far from my house	81	24	13	1	3	122	3	125	48.6
If it is near, I want to visit									
(2) The facilities are not enough attractive	60	25	23	11	7	126	1	127	49.4
(3) I prefer to stay at home	10	2	2	-	1	14	-	14	54.5
(4) I prefer to enjoy my leisure in other way	-	1	1	-	-	2	1	3	1.2
Q4. If entrance fee to the park is necessary, how much is acceptable?									
(1) Less than 1 JD	85	44	42	8	8	187	8	195	75.9
(2) 1-2 JD	16	3	13	4	2	38	7	45	17.5
(3) 3 JD and more	1	-	-	-	-	1	2	3	1.2

Source: The Study Team

Table E-21 QUESTIONNAIRE SURVEY ON AFRA-BURBEITA HOT SPRINGS PLAN (1/3)

Questions	Amman	Karak	Tafila	Qatrana	Hasa	Jordanian Subtotal	Foreigner	Grand Total	\$
Q1. Which facilities are you interested in this project?									
(1) Greenhouse	29	17	20	5	5	76	5	81	31.6
(2) Fish-culture pond	36	19	21	7	6	89	5	94	36.6
(3) Medical rehabilitation station	97	47	50	11	10	215	4	219	85.2
(4) Hotels, camping places, bungalows and service facilities	74	40	45	11	9	179	7	186	72.4
Q2. Are you interested in above facilities?									
(1) Very interested	85	33	26	10	9	163	10	173	67.3
(2) Interested but would not visit	69	16	26	9	9	129	3	133	51.8
(3) Not interested	16	17	-	1	-	34	0	34	13.2
Q3. To the person who checked Q2.(2)									
(1) It is too far from my house. If it is near, I want to visit.	69	20	9	3	5	106	1	107	41.6
(2) The facilities are not enough attractive	58	20	25	11	9	123	3	126	49.0
(3) I prefer to stay at home	2	-	1	-	1	4	0	4	1.6
(4) I prefer to enjoy my leisure in other way	1	-	-	-	-	1	0	1	0.4
Q4. If entrance fee to the spring is necessary, how much is acceptable?									
(1) Less than 1 JD	74	45	41	8	9	177	7	184	71.6
(2) 1-2 JD	31	5	8	3	1	48	6	54	21.0
(3) 3-5 JD	2	-	2	-	-	4	1	5	1.9
(4) more than 5 JD	-	-	-	-	-	0	0	0	0

Table E-21 QUESTIONNAIRE SURVEY ON AFRA-BURBEITA HOT SPRINGS PLAN (2/3)

Questions	Amman	Karak	Tafila	Qatrana	Hasa	Jordanian Subtotal	Foreigner	Grand Total	%
Q5. How much do you spend for recreation?									
(1) Less than 10 JD/mon	31	21	27	5	3	87	4	91	35.4
(2) 10-20 JD/mon	43	17	14	5	6	85	1	86	33.5
(3) 20-30 JD/mon	18	6	7	1	0	32	4	36	14.0
(4) 30-40 JD/mon	10	5	2	0	0	17	1	18	7.0
(5) more than 50 JD/mon	5	1	0	0	1	7	5	12	4.7
Q6. What kind of recreation activities do you want to do during your leisure?									
(1) Swimming	33	5	18	3	3	62	-	62	24.1
(2) Football, Jogging	34	12	21	6	3	76	-	76	29.6
(3) Picnic	37	17	13	2	5	58	-	58	22.6
(4) Reading	21	16	11	5	2	55	-	55	21.4
Q7. Age group									
(1) 20 - 30	29	13	20	6	4	72	-	72	28.0
(2) 31 - 40	33	23	19	2	3	80	-	80	31.1
(3) 41 - 50	35	13	10	3	0	61	-	61	23.7
(4) 51 - 60	9	1	1	0	3	14	-	14	5.4
(5) more than 61	1	0	0	0	0	1	-	1	0.4

Table E-21 QUESTIONNAIRE SURVEY ON AFRA-BURBEITA HOT SPRINGS PLAN (3/3)

Questions	Amman		Karak		Tafila		Qatrana		Hasa		Jordanian		Fore- igner		Grand Total		%
Q8. Number of family member																	
(1) 1	5	1	4	1	1	1	1	1	1	1	12	12	-	12	12	4.7	
(2) 2	7	5	1	0	1	1	0	1	1	1	14	14	-	14	14	5.4	
(3) 3 - 5	43	32	18	2	5	2	2	5	5	100	100	-	100	100	38.9		
(4) 6 - 8	33	17	21	5	1	5	1	1	1	77	77	-	77	77	30.0		
(5) 9 - 10	19	8	6	3	2	3	2	2	2	38	38	-	38	38	14.8		
Q9. How much is your annual family income?																	
(1) Less than 1,000 JD	12	8	10	5	4	5	4	4	4	39	39	0	39	39	15.2		
(2) 1,000 - 1,500 JD	16	9	17	0	4	0	4	4	4	46	46	0	46	46	17.9		
(3) 1,500 - 2,500 JD	28	13	11	5	1	5	1	5	1	58	58	2	60	60	23.3		
(4) 2,500 - 3,500 JD	18	6	4	1	2	1	2	2	2	31	31	2	33	33	12.8		
(5) 3,500 - 4,500 JD	20	5	4	0	3	0	3	0	3	32	32	0	32	32	12.5		
(6) 4,500 - 5,500 JD	5	5	1	0	0	0	0	0	0	11	11	1	12	12	4.7		
(7) more than 5,500 JD	8	4	3	0	0	0	0	0	0	15	15	10	25	25	9.7		
Q10. What kind of facilities do you think necessary for tourism in Karak and Tafila?																	
(1) General service	66	30	29	7	9	7	7	9	9	141	141	-	141	141	54.9		
(2) Health service	31	13	13	2	6	2	6	2	6	65	65	-	65	65	25.9		
(3) Transport + communications	78	22	31	9	4	9	4	4	4	144	144	-	144	144	56.0		
(4) Information + guide	19	21	5	7	2	7	2	2	2	54	54	-	54	54	21.0		
(5) Restoration	21	31	13	4	3	4	3	3	3	72	72	-	72	72	28.0		

Source: The Study Team

FIGURES

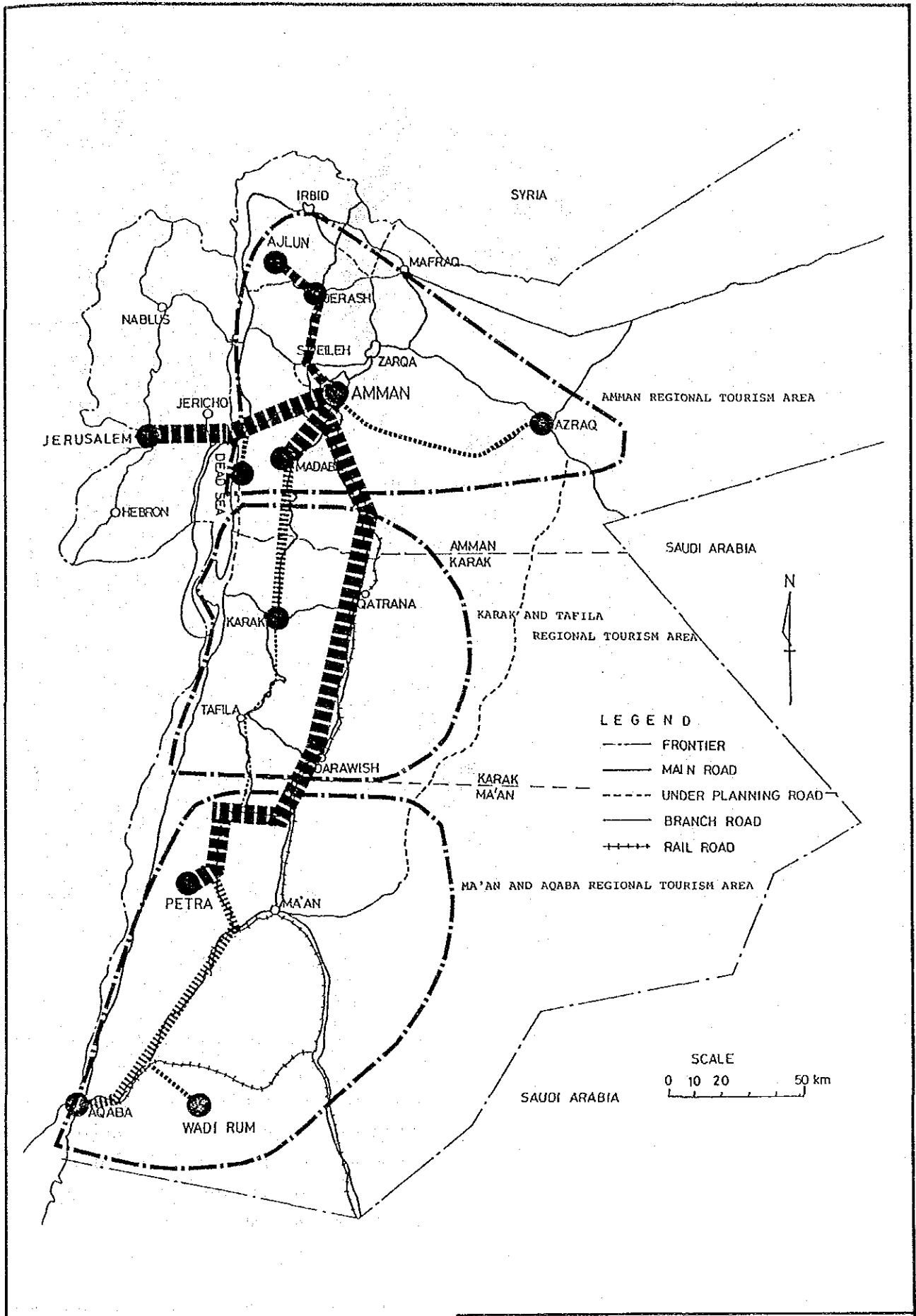
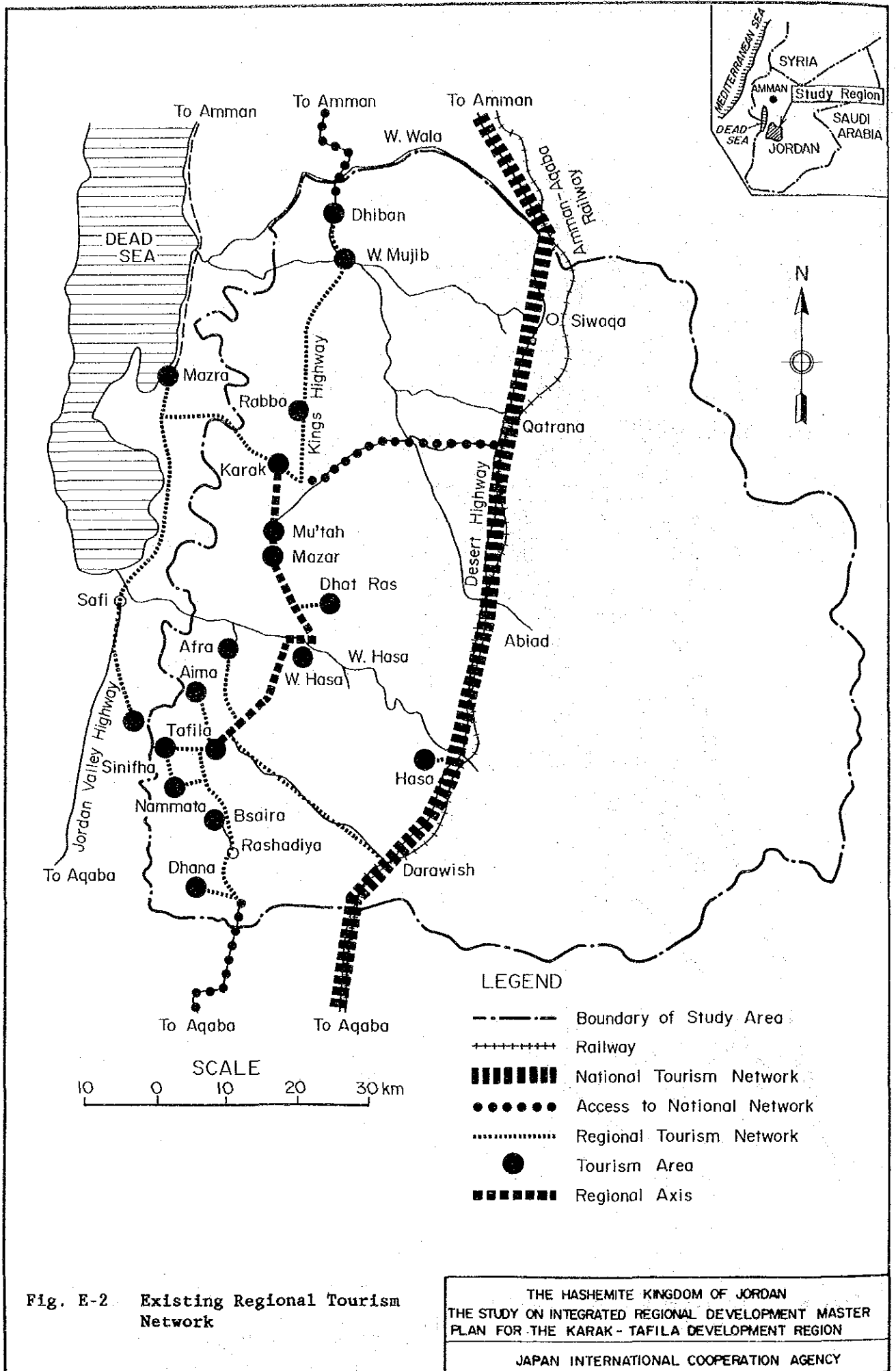


Fig. E-1 Existing National Tourism Network

THE HASHEMITE KINGDOM OF JORDAN
 THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION
 JAPAN INTERNATIONAL COOPERATION AGENCY



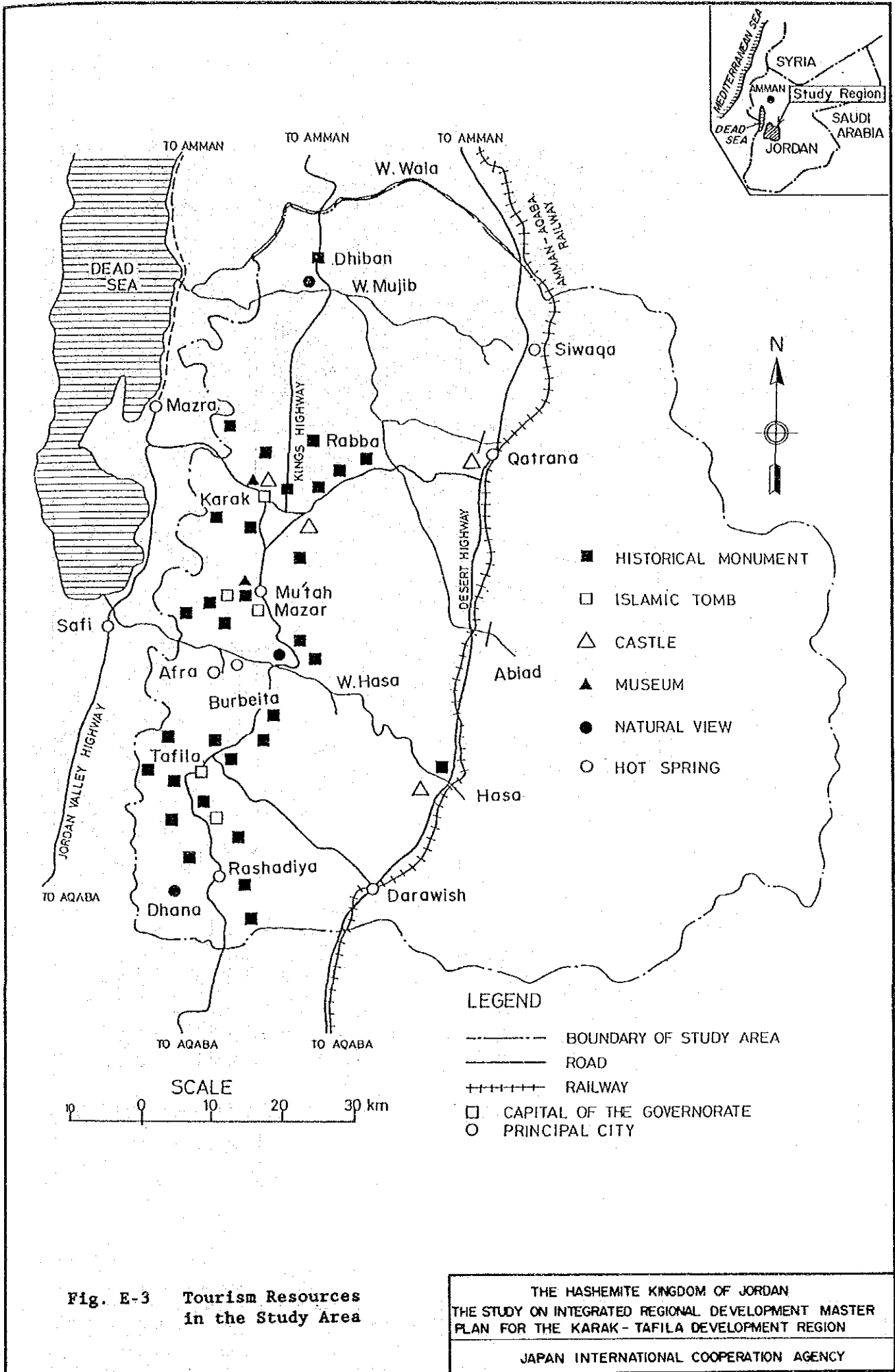


Fig. E-3 Tourism Resources in the Study Area

THE HASHEMITE KINGDOM OF JORDAN
 THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER
 PLAN FOR THE KARAK-TAFILA DEVELOPMENT REGION
 JAPAN INTERNATIONAL COOPERATION AGENCY

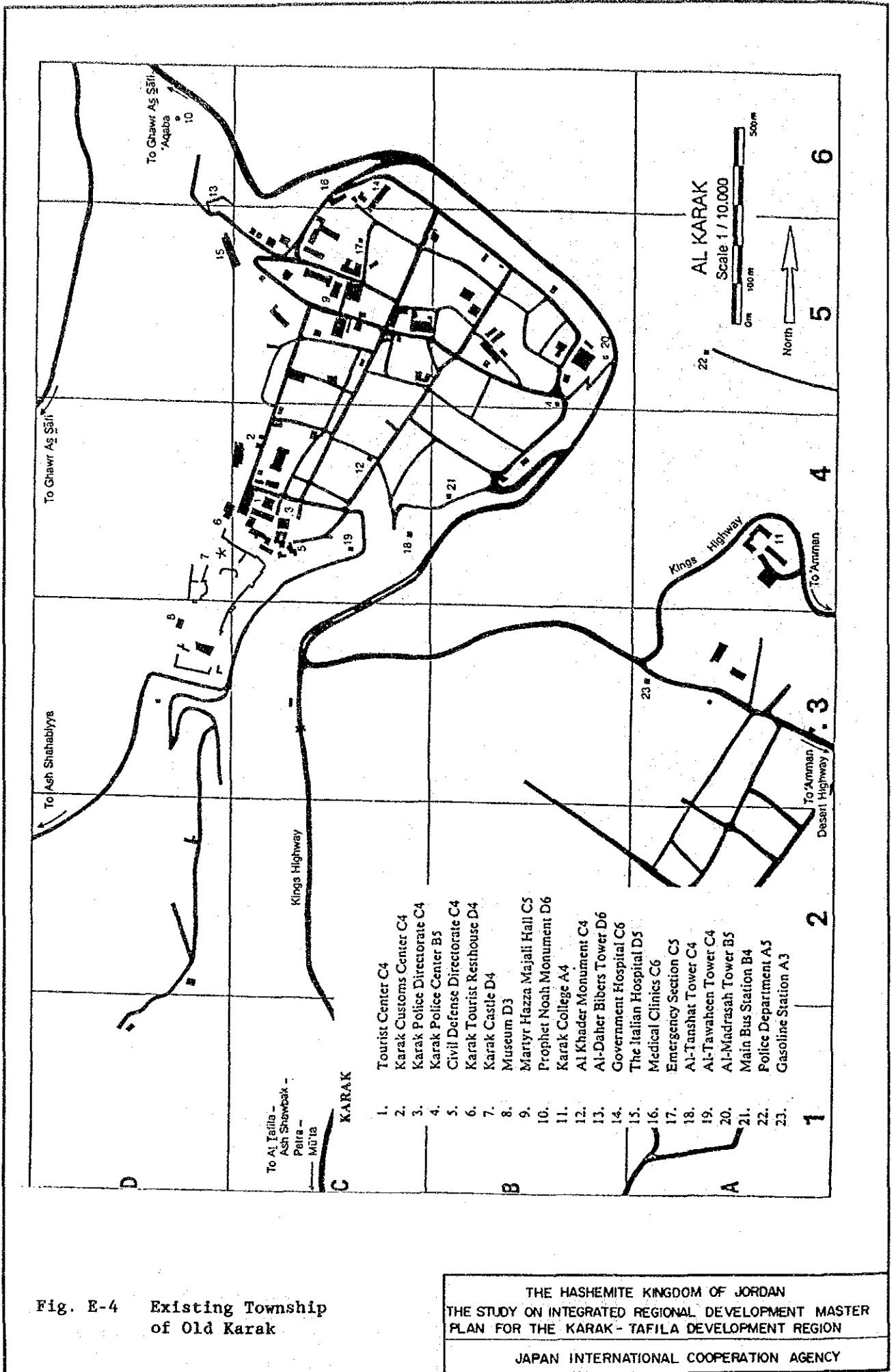


Fig. E-4 Existing Township of Old Karak

THE HASHEMITE KINGDOM OF JORDAN
THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION

JAPAN INTERNATIONAL COOPERATION AGENCY

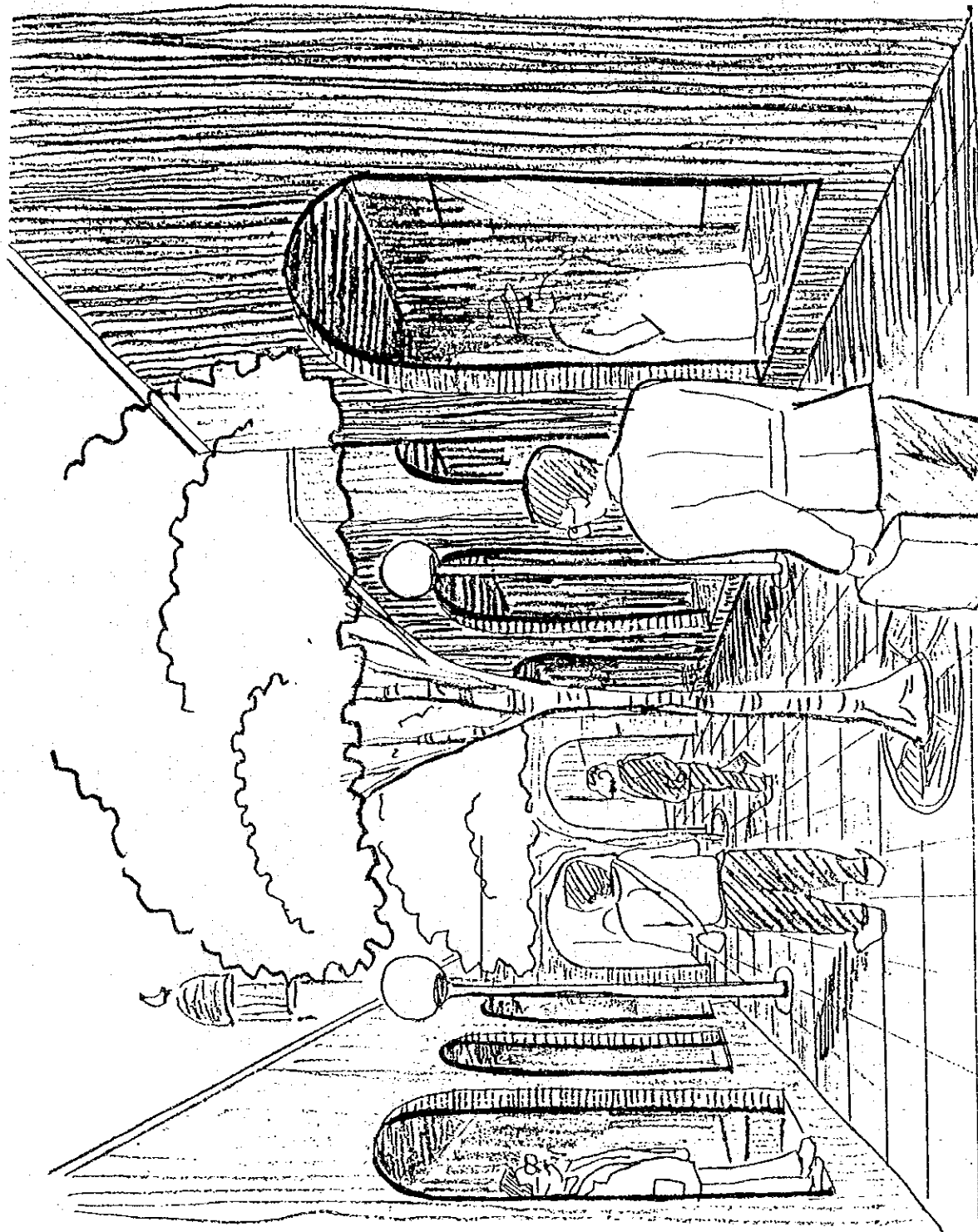


Image Sketch of Restored Historic Quarter (1/2)

K. Hashino / 1987

Fig. E-5 Image Sketch
of Restored Historic Quarter
(1/2)

THE HASHEMITE KINGDOM OF JORDAN
THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER
PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION
JAPAN INTERNATIONAL COOPERATION AGENCY

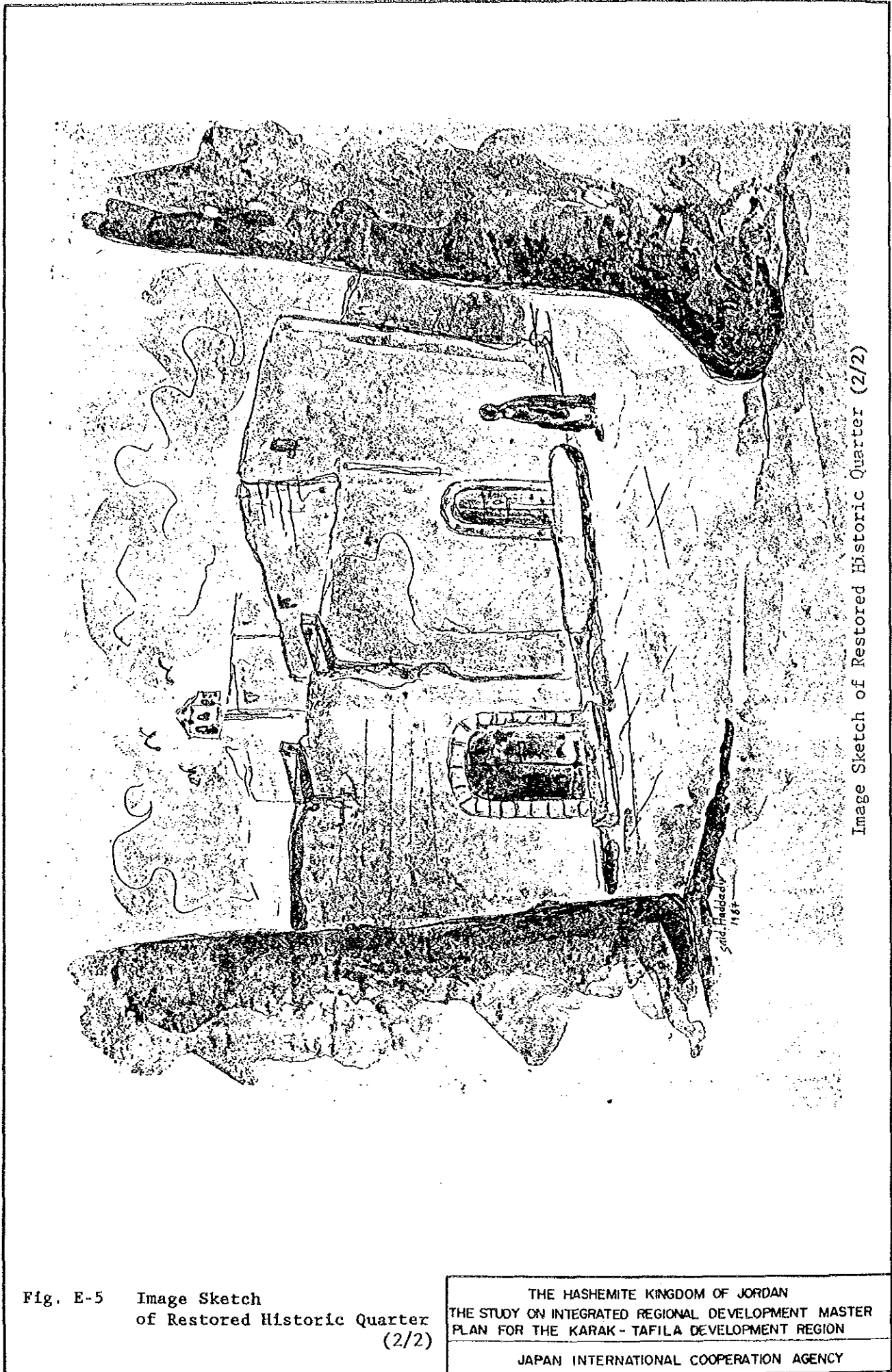


Image Sketch of Restored Historic Quarter (2/2)

Fig. E-5 Image Sketch
of Restored Historic Quarter
(2/2)

THE HASHEMITE KINGDOM OF JORDAN
THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER
PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION
JAPAN INTERNATIONAL COOPERATION AGENCY

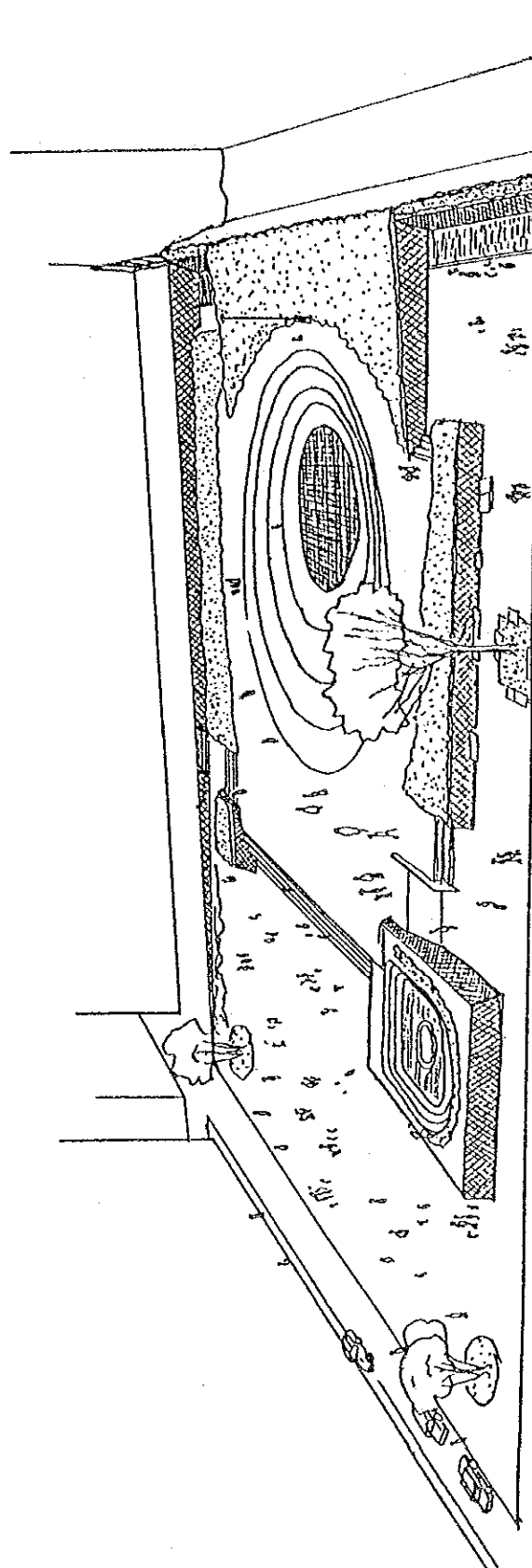


Fig. E-6 Image Sketch
of Restored Castle Square

THE HASHEMITE KINGDOM OF JORDAN
THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER
PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION
JAPAN INTERNATIONAL COOPERATION AGENCY

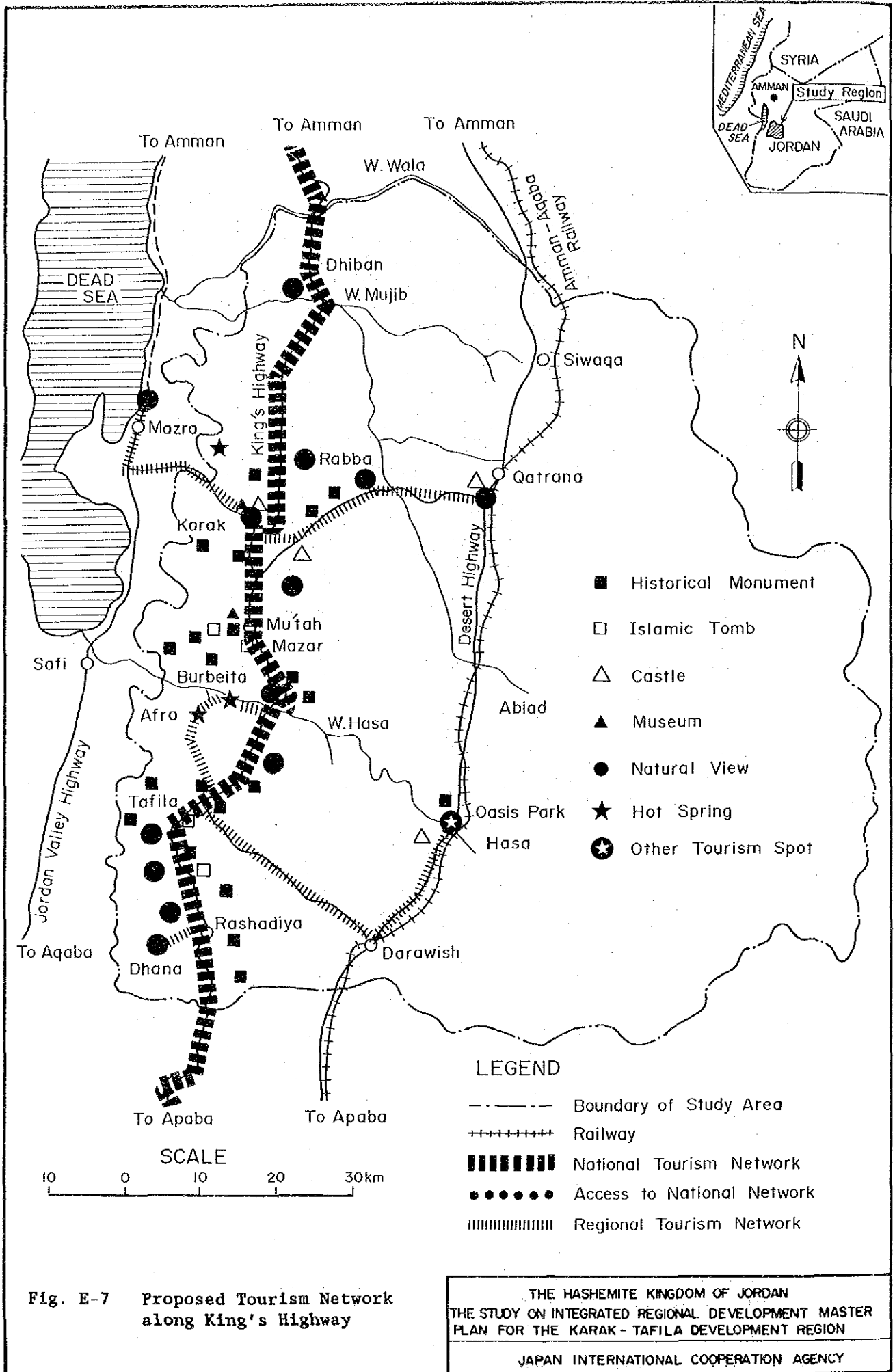


Fig. E-7 Proposed Tourism Network along King's Highway

THE HASHEMITE KINGDOM OF JORDAN
 THE STUDY ON INTEGRATED REGIONAL DEVELOPMENT MASTER PLAN FOR THE KARAK - TAFILA DEVELOPMENT REGION
 JAPAN INTERNATIONAL COOPERATION AGENCY

ANNEX-F TRANSPORTATION AND COMMUNICATIONS

THE STUDY ON
INTEGRATED DEVELOPMENT MASTER PLAN
FOR THE KARAK - TAFILA DEVELOPMENT REGION

FINAL REPORT

VOLUME 4: SUPPORTING REPORTS

ANNEX-F TRANSPORTATION AND COMMUNICATIONS

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1. INTRODUCTION

This Annex-F presents detailed results of the sector study on transportation and communications. Chapter 2 deals with the transportation system, and Chapter 3 deals with the communications system including postal services. Conclusions and recommendation of the Study Team are presented in Chapter 4.

2. TRANSPORTATION

2.1 National Transportation System

The national road network Jordan is shown in Fig. F-1.

2.1.1 Road Transport

- (1) Road network: Roads in Jordan are classified by function of each road as follows:
 - (A) Primary roads: These interconnect large population centres, and serve for international transportation
 - (B) Secondary roads: These provide access between small cities and towns, and connect to the primary road system
 - (C) Village and agricultural roads: Village roads serve small villages, connecting them to the primary and secondary roads, which agricultural roads serve agricultural areas, connecting them to the village roads.

As shown in Table F-1, total length of the national roads was 8,003 km in 1985. Primary roads comprise 2,436 km, which are 30 per cent of the total.

- (2) Traffic volume in Jordan is shown in Fig. F-2. Trucks are predominant in number of road traffic, particularly between Hasa and Ma'an, and Ma'an and Aqaba standing at more than 70 per cent. The registered number of vehicles increased to 1.4 times in the past 5 years (1981-1985) but the growth rate decreased year by year as shown in Table F-2.

- (3) Road passenger transportation: Means of passenger transportation consist of buses and taxis. Registration of buses stood at 3,633 in 1985 which showed an increase of about 71 per cent in the past 5 years, but registration of taxis showed an increase of about 10 per cent (Table F-3).

- (A) Bus services: Local buses have been operated since 1950's, and are generally operated by individuals or consortia.
Chartered and regular inter-urban bus services are operated by

Jordan Express Tourist Transport (JETT) and private companies such as ARABELLA, HEJAZ and so forth. JETT is a semiprivate company, of which share is partly owned by the Government, and has a monopoly over the domestic transport of foreign tourists. It also offers international services to Syria, Iraq and Egypt.

Regular municipal bus services are provided by the Public Transportation Corporation, which was established in 1975 with exclusive rights for operation in Amman Region.

- (B) Taxi services: Call taxis are not allowed by law to ply for hire on streets but must be based at an office. All taxis have a taximeter. Service taxis are licensed to run on particular routes which must be stenciled on sides of vehicles.

(4) Road freight transport: The road haulage industry in Jordan can be divided into 3 groups in terms of vehicle types and goods. The first group is for evacuation of sea cargoes from Aqaba. Practically all this traffic uses the Desert Highway for Amman or beyond. The second group is local transport which is largely concerned with movement of agricultural commodities from farms to markets and with local distribution of foodstuffs, consumer goods and construction materials. The third group is bulk transport. Phosphate, potash, cement, grain and so forth are carried in bulk.

The total number of freight vehicles in Jordan was 52,366 in 1985, which showed an increase of about 46 per cent in the past 5 years (see Table F-4). Freight vehicles are licensed either to ply for hire and reward or to carry owners' goods only. The Government of Jordan has 50 per cent share in two freight companies; Jordanian Syrian Land Transport Company, and Iraq Jordanian Land Transport Company.

2.1.2 Railway Transport

The railways in Jordan are operated by Hejaz Jordan Railway (HJR) and Aqaba Railway Corporation (ARC). Total length of railways is 609 km.

HJR owns such part of the Hejaz Railway as lies within Jordan and a branch line between Ma'an and Ras en Naqb. But the current operating line is between Amman and Damascus only.

ARC was established in 1971 and began its operation in 1975 to transport phosphates from El Hassa Mine to Aqaba, and later also from El Abiad Mine. ARC leases land and buildings between El Abiad and Batn el Ghul Junction from HJR. The operating line of ARC is currently between El Abiad Mine and Aqaba Harbour and between El Hassa Mine and Hasa Junction. It has been operated for freight traffic only. The number of rolling stock in use during the past 5 years is shown in Table F-5.

2.1.3 Airports

There are three airports in Jordan. One is Queen Alia International Airport (QAIA) which lies close to Jiza, some 32 km south of Amman. QAIA started operation in May 1983. The runway capacity of QAIA is 60 flights an hour but it is restricted to 45 flights an hour by Air Traffic Control. Its cargo and mail storage yard is 16,786 m², which provide handling capacity of over 200,000 t/yr. Passengers arrived in 1981 were 1.24 million and cargoes moved in and out of Amman in 1981 were 61,000 tonnes.

The second is Aqaba Airport. It is used by the Royal Jordanian Airline (ALIA) for one flight a day, and by private and some chartered aircraft. About 3,700 passengers arrived at Aqaba in 1981 and 3,300 departed. There is little freight potential.

The third is Amman Airport. After the opening of QAIA, Amman Airport is used as the King Abudallah military airbase, and as a civil airport for training purposes and use by Arab Wings business aircraft.

There was a noticeable increase in the number of passenger and volume of freight transport by ALIA between 1980 and 1985. The number of flights and passengers in 1985 were 16,262 and 1,575,928 respectively.

2.1.4 Seaports

In Jordan there are one seaport at Aqaba and one domestic ship operator, Jordan National Shipping Line. Total goods handled in Aqaba Port were about 14.5 million tonnes in 1985 which were 1.5 times of 9.4 million tonnes in 1981 and were the highest record in the past 5 years (see Table F-6). The number of vessels called was 2,671 in 1985 which were 1.5 times of 1,744 in 1981.

Import and transit goods handled in Aqaba Port remained on the same level (see Table F-7). But export goods amounted to about 8.2 million tonnes in 1985 which were 2.3 times of about 3.6 million tonnes in 1981 and were 57 per cent of the total goods handled. The bulk of the transit cargoes was accounted for Iraq (see Table F-8).

2.2 Present Conditions of Transportation System in the Study Area

2.2.1 Roads

(1) Road network: Total length of national roads in the Study Area is about 760 km which is 9 per cent of the nation's total as shown in Table F-9. Total length of primary and secondary roads in the Study Area is 415 km which is 12 per cent of the nation's total. The general road network in the Study Area has a ladder-form structure with two north-south primary roads and three east-west secondary roads (Routes-78, 80 and 84).

Principal roads in the Study Area are shown in Fig. F-3. Functions of these roads are as follows:

- (A) Route-15 (Desert Highway) connecting Aqaba, Ma'an and Amman and Route-65 (Aqaba-Suweimeh Road) connecting Aqaba and the Jordan Valley are used for long trip through traffic. These are categorized as Primary Road.
- (B) Four east-west roads are used for out-in traffic for access to the primary roads.
- (C) Route-49 (King's Highway) has many villages along the road and is connected with the east-west roads. It is used for in-in and in-out traffic. The east-west roads and the King's Highway are

categorized to be Secondary Road.

The Desert Highway has 4 lanes from the neighbourhood of Qatrana to Ma'an while others are of 2 lanes.

(2) Traffic volume: In Karak traffic volume of vehicles showed an increase to 1.3 times in the past 5 years, but in Tafila the volume remained on the same level as shown in Fig. F-4. In 1985, traffic volume of vehicles was between 4,000 and 5,000 a day in the neighbourhood of Qatrana junction of the Desert Highway, and traffic volume of vehicles on the King's Highway was between 2,000 and 6,000. At the gate of Old Karak, traffic volume of vehicles was above 8,000 a day.

(3) Road safety measures: Traffic safety measures and facilities need expansion and reinforcement in general.

2.2.2 Public Passengers Transport

There are nineteen-seater bus services and taxis operated by the private sector. Small buses are carrying school children and workers between villages and towns. In towns small bus services are frequent. There are no bus stops, and buses stop upon a signal of passengers. The operation system is not on time schedule, but on the number of passengers. Each line has basically a certain route but it is operated in accordance with requests made by passengers.

The registration number of buses in the Kingdom was 3,633 in 1985, of which 26 was in the old Karak Governorate. The registration number of taxis stood at 80 in the old Karak Governorate in 1985.

According to a survey carried out by MPW, traffic volume of buses in Karak showed an increase to 2.1 times in the past 5 years, but a decrease of 30 per cent in Tafila.

2.2.3 Road Freight Transport

According to a traffic volume survey made by MPW, traffic volume of freight vehicles showed an increase to 3.8 times in Karak and 1.7 times

in Tafila in the past 5 years. As to a rate of heavy trucks to the total traffic, the Desert Highway gave 60 to 70 per cent which were highest compared with other roads in the region. The rate of heavy trucks on the King's Highway becomes larger towards south and stands at 11 per cent in the vicinity of Tafila (Fig. F-4). A high percentage was also recorded in the vicinity of Karak. The registration number of freight vehicles amounted to 661 in the old Karak Governorate in 1985.

2.2.4 Railways

In the Study Area, railways are operated by ARC. The number of locomotives as of September 1982 was as shown in Table F-10. Some locomotives were not used due to damages or repairing. ARC has a transport offer of 8 phosphate-loaded trains a day. The volume transported by railway in 1984 was about 3.2 million tonnes which was highest in the past 5 years, and was at an extreme state of congestion (see Table F-11).

2.3 Existing Expansion Plans of Transportation System

2.3.1 Roads

Road projects of the Third Five-Year Plan are shown in Fig. F-5.

Primary and secondary roads: Among projects listed in the Third Five-Year Plan, 13 projects are closely related with the traffic system in the Study Area. These projects will be effective for improvement of accessibility and for reduction of traffic congestion on the Desert Highway and King's Highway.

The following projects will contribute to improving access to Amman and Irbid from the Study Area:

- (A) Completion of Amman - Ras Al Naqaba Highway
- (B) Completion of Amman - Jerash - Irbid Road

The following projects will contribute to improving access to Mafraq and Syrian Border from the Study Area:

- (C) Completion of Zarqa - Mafraq - Syrian Border Road

(D) Construction of Amman Outer Ring Road

The following projects will be important for the inner and outer traffic of the Study Area:

- (E) Completion of Rashadiya Desert Highway
- (F) Improving of Tafila - Jurf Ed Darawish Road
- (G) Completion of Amman - Na'ur - Dead Sea Road
- (H) Construction of Zara - Ghor Al Haditha Road
- (I) Construction of Tafila - Ghor Road
- (J) Widening and Upgrading of Karak - Ghor Es Safi Road
- (K) Construction and Upgrading of Amman - Madaba - Karak - Tafila Road

The following projects will be important for reducing the traffic volume of the Desert Highway. Traffic from Aqaba to Iraq and Kuwait will be transferred to these roads and inner and outer traffic volume of the Study Area will be influenced as the transport between Aqaba and Iraq/Kuwait would shift from the Desert Highway to these new roads.

- (L) Completion of construction and paving of Al Azraq - Bayir - Al Jafr - Ma'an Road
- (M) Widening and upgrading of Al Azraq - Iraqi Border Road

2.3.2 Railways

The following projects are included in the Third Five-Year Plan:

- Increasing capacity of phosphate transport from 3.3 million t/yr at present to 4.5 million t/yr
- Transporting grain from Aqaba Harbour to Jweideh

As a result, the cargo transport from Aqaba to Amman will resume operation again.

2.4 Traffic Volume Projection

2.4.1 Methodology

A forecast on traffic volume was made for the target year 2005. Traffic zones classified by regions are shown in Figs. F-6 and F-7. OD tables for passenger cars and cargo trucks were prepared in accordance

with the work flow shown in Figs. F-8 and F-9. Population in the Study Area classified by sub-regions is shown in Table F-12.

A passenger car OD table was prepared in accordance with the following procedures:

- (1) OD of inter-regional and intra-regional traffic is obtained on the basis of the traffic assignment presented in Ref. F-2.
- (2) The Study Area is divided into 13 zones as shown in Fig. F-7. Traffic volume of respective zones is estimated based on traffic distribution with adjustment by population ratio.
- (3) Traffic volume for the period from 2000 to 2005 is assumed to grow at the same rate with the one which was projected for the period from 1990 to 2000 in Ref. F-2.
- (4) Unit traffic generated in the Study Area is assumed at 3.0 trips per capita per day referring to data in other countries.
- (5) Based on the traffic generated in respective zones, traffic assignment is obtained by Gravity Model with Flater Conversion Method.
- (6) The OD table of passenger cars for this study is then obtained by summing up OD tables for intra-regional, In-In and In-Out traffic.

2.4.2 Passenger Cars

(1) Growth rate of traffic volume: Traffic volume in transit and that between outside and inside the Study Area are assumed to increase towards 2005 at the same rate with that estimated for the period between 1990 and 2000 as shown in Table F-13.

(2) Intra-regional generation and attraction of traffic volume

Population in the Study Area by region is multiplied by the number of trip per inhabitant to obtain total traffic volume generated in and attracted to each region. Since the products include both the volume of intra-regional and inter-regional traffic, the volume of intra-regional traffic by region is obtained by deducting the inter-regional traffic from the total.

Traffic volume by region is calculated on the basis of the number of people, while volume of inter-regional traffic is calculated on the

basis of the number of automobiles. Accordingly, a figure for the number of automobiles is multiplied by an average number of passengers so as to make the basic elements on the same basis.

The average number of passengers by types of automobiles is assumed as follows:

Car	: 1.8 persons/vehicle
Taxi	: 2.0 persons/vehicle
Minibus	: 19.0 persons/vehicle
Bus	: 30.0 persons/vehicle
Pick-up	: 1.0 persons/vehicle

2.4.3 Trucks

An OD table for trucks was prepared on the basis of separate analyses of demands for ordinary and generated traffic.

(1) Ordinary transport demands: Ordinary transport demands in the year 2005 are estimated using data on projected traffic volume which was estimated and presented in the National Transport Study (Ref. F-2). The traffic volume is assumed to increase towards 2005 at the same rate with one for the period between 1990 and 2000 (estimate of Ref. F-2). The growth rate of cargo truck traffic is shown in Table F-14.

(2) Estimation of traffic demands arising from development of the Study Area: Tables F-15 to F-17 show average volume of daily traffic which would result from the proposed development of agriculture, industry and mining. Volume of distributed traffic except mining is obtained in proportion to population shares between the Study Area and the outside zones. The population share by zone in Jordan is shown in Table F-18.

2.4.4 Traffic Assignment

OD volume of traffic is distributed to highly accessible routes between each OD, using the OD tables for passenger cars and trucks. The OD table for passenger cars is prepared on the basis of the number of people. Accordingly, the projected volume of traffic is converted to the number of automobiles by an average number of passengers. Results

of the projected volume of traffic are shown in Fig. F-10.

2.5 Expansion Plan of Transportation System

2.5.1 Basic Concept

An expansion plan was prepared for road facilities, railway facilities and transportation system in view of the following points:

(1) Road network

(A) Primary and secondary roads

(a) Traffic assignment in 2005 and road capacity

(b) Road network in the Study Area

(c) Hierarchy of road network

(B) Village and agricultural roads

(a) Widening to the standard road width of MPW

(b) Establishment of village road network for rural life

(C) Road safety measures

(a) Reduction of traffic accidents

(b) Guiding safe and smooth traffic

(2) Bus service system

(A) To provide passengers with prompt, convenient and on-schedule bus services

(B) To improve transport efficiency

(3) Cargo transport system

(A) To improve transport efficiency

(B) To improve goods distribution services to people in rural areas

(C) To reduce unnecessary or duplicated cargo trips by establishing goods distribution system

(D) To contribute environmental preservation by avoiding unnecessary noise, air pollution, etc.

(4) Railways: Passenger services by railway are not envisaged in the Third Five-Year Plan but reinforcement of the cargo transport system is listed for phosphate from El Abiad and El Hassa Mines to Aqaba and grain

from Aqaba to Jweideh. Accordingly, unloading facilities is proposed to be built for grain destined to the Study Area.

(5) Role of road and railway transport: Presently almost all the transport in the Study Area is made by road transport except bulk transport of phosphate by railway. In the Third Five-Year Plan, an investment of JD 28 million is allotted to the reinforcement of railway transport facilities, while JD 214 million are allotted to road projects.

One of merits of railway is its lower cost for bulk transport over long distance compared to the road transport.

The Study Area has a limited area of 8,100 km² even including the Badia to the east of the Desert Highway, and has the limited number of population (270,000 projected for 2005). Such being the situation, it is considered that road transport should cover all the passenger transport as well as general cargo transport as done at present.

Transportation of phosphate and grain by railway should continue taking advantage of this merit.

2.5.2 Road Network Expansion Plan

(1) Primary and secondary roads: The existing primary and secondary roads in the Study Area are as follows: Desert Highway, King's Highway, Route-78, Route-80 and Route-84. The transport capacity of these roads was examined for those sections that have large volume of traffic.

According to the traffic volume and capacity shown in Table F-19, the traffic capacity is enough to cover the projected traffic volume by the target year 2005. Of the other roads, projected volume of traffic on Huseineyyeh-Abiad Road is large, being at 7,200 vehicles per day. This road is important in the road network in the Study Area, being equivalent to a secondary road. Therefore, an improvement plan of this road should be considered to enhance the level of specifications for its construction works.

An improvement plan for the Huseineyyeh-Abiad Road is proposed as follows. Present width of its carriageway is 5 m. Since the projected volume of traffic in the year 2005 is about 7,000 cars a day, width of the carriageway should be increased to 7.2 m, being the same with that of Route-80. The road section of 29 km long between the King's Highway and the Desert Highway requires upgrading to widen its width to 7.2 m. These improvement works should be completed before the volume of traffic exceeds the road capacity, probably by 2000.

(2) Village and agricultural roads: It is proposed to connect village roads with secondary roads, other village roads and agricultural roads. Those village roads which are of closed type in certain villages should be extended and connected to other village roads or main roads nearby to improve their accessibility. Some village roads should be designed to be usable for a detour when main roads are closed due to maintenance works, accidents and so forth.

Some of the existing village roads have insufficient cross sections to meet the criteria defined by MPW. Those roads having carriageway width of less than 4 m should be expanded to 6 m, the MPW's standard carriageway width. The expansion of the cross section and pavement of unpaved roads will be a considerable task in the improvement plan of village roads.

Construction of new village and agricultural roads and improvement of the existing roads will be required in accordance with development of agriculture, tourism, industries and so forth in the Highlands.

The above expansion plan of village roads is shown in Fig. F-11 and Table F-20.

(3) Road safety measures should be improved promptly to avoid traffic accidents, especially on the Desert Highway, the King's Highway and other secondary roads where traffic volume is large. In future, traffic lights will be required on principal crossings of trunk roads to control traffic safely and smoothly in accordance with an increase of traffic

volume induced by the proposed urbanization and development of the Study Area. To counter the situation, MPW has a comprehensive scheme to expand road safety measures covering roads in the Study Area.

An expansion plan proposed by the Study Team for road safety measures on primary and secondary roads in the Study Area is shown in Fig. F-12. An outline of road safety measures is shown below:

- (A) Road marking (centre line and pedestrian crossing for all roads)
- (B) Side walks (major villages)
- (C) Guard fences (mountainous regions, hairpin bends)
- (D) Delineators along centre line (mountainous regions, hairpin bends)
- (E) Mirrors (hairpin bends)
- (F) Retaining walls (mountainous regions)
- (G) Pedestrian overpass (Desert Highway)
- (H) Street trees (major villages)
- (I) Lighting (major villages)
- (J) Parking (major villages)
- (K) Signals (major intersections)

2.5.3 Improvement Plan of Bus Service System

Coupled with promotion of the proposed urbanization, present bus services would face problems in quality of passenger services and efficiency of transport. To solve these problems, the following counter-measures are proposed:

- (A) Functions of intra-regional and inter-regional transport should be separated.
- (B) Operations of inter-regional transport should be made on a time schedule and on specified routes.
- (C) In the secondary urban centres proposed in the Master Plan, bus terminals should be established. Inter-regional buses should stop only at those bus stops where intra-regional bus services are available.
- (D) Since intra-regional buses run mainly on village roads, minibuses will be convenient.
- (E) On the other hand, large-sized buses will be convenient for the long distances of inter-regional transportation.