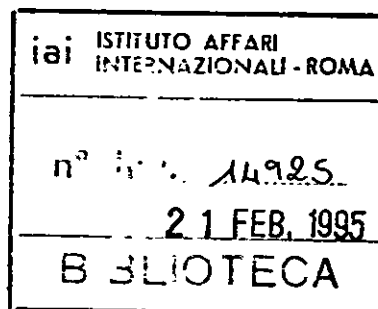


**UNA PACE DA COSTRUIRE: ACQUA, ENERGIA, TECNOLOGIE:  
RISORSE DA CONDIVIDERE PER LO SVILUPPO ECONOMICO  
DI ISRAELE E DELLA PALESTINA**

Società italiana per la organizzazione internazionale  
Roma, 17/I/1995

- a. Lista dei partecipanti
- 1. "Petroleum products ..."
- 2. "Economic aspects of Israeli-Palestinian relations"/ Simcha Bahiri
- 3. "The need for investment to increase water conservation measures in agriculture by Palestinians and Israelis"/ Said Assaf



**SEMINARIO: UNA PACE DA COSTRUIRE.  
ACQUA, ENERGIA, TECNOLOGIE: RISORSE DA CONDIVIDERE PER LO  
SVILUPPO ECONOMICO DI ISRAELE E DELLA PALESTINA**

**Roma, 17 gennaio 1995**

**Sala Conferenze SIOI**

**Al Quaryouti Samir**  
Radio Telev. Palest.

**Anav Marco**  
Via Ottaviano, 6  
Roma

**Andreocci Paolo**  
ECOS (ENI)

**Anzidei Giovanni**  
Giornalista AGI  
Via Misurina, 69  
00135 Roma  
Tel. 39-6-3313782

**Armstrong Michael N.**  
Amministratore Delegato  
AES Energia Srl  
Via Lazio, 6  
00187 Roma  
Tel. 06-48904618 Fax 06-48904628

**Ausili Gioacchino**  
Via S. Ippolito, 15a  
00162 Roma

**Dott. Ing. Baglioni Maurizio**  
Direttore Tecnico  
EniAcqua  
Via Barberini, 11  
00187 Roma  
Tel. 06-59821 Tel.06-59825307  
Fax 06-59825300

**Baldi Sandro**  
Via Chiana, 35  
Roma

**Bellacci Marzio**  
Il Sole-24 Ore  
Via del Corso, 184  
Roma

**Ing. Berlingeri Claudio**  
Responsabile Promozione e Qualità  
Comerint  
Via Paolo di Dono, 223  
00143 Roma  
Tel. 06-51990643 Fax. 06-51990722

**Blumetti Natascia**  
Via Latina, 33  
Brusasco  
PDS

**Caruso Antonella**  
Direzione Relazioni Esterne  
ENI

**Dott. Celletti Pietro**  
Vice Presidente  
EniAcqua  
Via Barberini 11,  
00187 Roma  
Tel.06-59001 Tel.06-59005301  
fax 06-59005318

**Dott.ssa Chiesa Thea**  
International Corporate Development  
Telespazio  
Via Tiburtina, 965  
00156 Roma  
Tel. 06-40796266 fax 06-40796260

**Conversano Raffaele**  
ENEA Cre Casaccia S.P. 77  
Via Anguillarese Km. 1300  
Roma

**D'Ercole Michele**  
Economista Industriale  
Italcementi Spa  
Via Sallustiana, 26  
00187 Roma  
Tel. 06-472961 fax 06-4872248

**Di Segni Marcello**  
Via A. Allegri, 11  
Roma

**Eugenio Carlos**  
Calle Leon Gil di Placio  
Madrid

**Fellus Claudia**  
Viale Libia, 209  
Roma

**Franchetti Gaia**  
Via Monte Santo, 2  
Roma

**Gandolfi Nicoletta**  
Fondaz. Internaz. Lilio Basso  
Via Dogana Vecchia  
00186 Roma

**Garibaldi Giuseppe**  
Responsabile Relazioni Esterne  
EniAcqua  
Via Barberini, 11  
00187 Roma  
Tel. 06-59821/59825308  
fax 06-59825300

**Guazzone Laura**  
Programma Mediterraneo  
Medio Oriente IAI  
Via A. Brunetti, 9 Palazzo Rondinini  
00186 Roma  
tel. 39-6-3224360 fax 39-6-3224363

**Generale Jean C.A. Carlo**  
Pres. del Centro Alti Studi per la Difesa  
Palazzo Salviati  
P.zza della Rovere 83  
Roma  
tel. 06-68804459 fax 06-68307825

**Lattes Renato**  
CGIL  
Corso Italia, 25  
Roma

**Levi Rafael**  
Via Val D'Ala, 18  
Roma

**Liuzzi Fernando**  
FIOM CGIL  
Corso Trieste, 36  
Roma

**Luciani**  
ENI  
Piazzale Mattei, 1  
Roma

**Magiar Victor**  
Viale Libia, 138  
Roma

**Meola Massimiliano**  
Via Dino Campana, 65  
Roma

**Morau Raphael**  
Consigliere (Affari Economici)  
Ambasciata d'Israele  
Via M. Mercati, 14  
00197 Roma  
Tel. 06-36198673 fax 06-3215762

**Moreschi Daniele**  
Via G. Mantellini, 38  
Roma

**Moschetta Giovanni**  
International and E.U. Law  
P.zza Venezia, 11  
Int. Affairs Office Ministry of  
Environment  
00187 Roma  
fax. 06-6870507 Tel. 06-6798741-6790130

**Paradisi Stefania**  
Via De Gasperi, 4  
Roma

**Perra Gianna**  
CONF COOPERATIVE  
Borgo Santo Spirito, 78  
00193 Roma

**Piperno Federica**  
Via Serranti, 13  
Roma

**Poidomani Simone**  
Largo degli Archetti, 26  
Roma

**Porcarelli Giovanni**  
Direttore Generale CIPS  
Via Nazionale, 200  
00184 Roma  
Tel. 06 4740241 fax 06 4740245

**Rapacciuolo Antonio**  
Capitano di Vascello Vice Direttore del  
Centro Militare Studi Strategici  
Palazzo Salviati  
P.zza della Rovere, 83  
00165 Roma  
Tel. 06-46913203 fax 06-6879779

**Riccioni Massimo**  
Responsabile di progetto  
Aquatec  
61047 S. Lorenzo in Campo  
Tel. 0721-7311 fax 0721-731308

**Saad Keewan**  
Manifesto

**Salemi Pierfrancesco**  
Via Bardanzellu, 8  
Roma

**Sangiovanni Ornella**  
Rivista ARES  
Vicolo dei Falegnami, 40  
Roma

**Schiavoni Anna**  
Vice President  
AIDoS + COCIS  
Via Dei Giubbonari, 30  
00186 Roma  
Tel. 06-6873214 fax 06-6872549

**Sisto Saverio**  
Via Bravetta, 270  
Roma

**Squitieri Gianni**  
GreenPeace

**Talciani Enza**  
Via P. Bonetti, 88  
00128 Roma  
Tel. 06-5085214 fax 06-47026780

**Torelli G. Agostino**  
ITALCONSULT SPA  
Via Giorgione, 163  
00147 Roma

**Vannini Arianna**  
Banca D'Italia

**Ziu Miriam**  
Ministro-Consigliere  
Ambasciata d'Israele  
Roma  
Tel. 06-36198500

**Zorzoli G. Battista**  
Vicolo del Ladro, 29  
Roma

iai ISTITUTO AFFARI  
INTERNAZIONALI - ROMA

n° Inv. 14925

21 FEB. 1995

BIBLIOTECA

①

11/04/94 (Final version)

PETROLEUM PRODUCTS

(to be included in the annex concerning import policy and import taxes)

11. a. Jordanian standards, as specified in the attached appendix, will be acceptable in importing petroleum products into the areas under the jurisdiction of the Palestinian Authority, once they meet the average of the standards existing in the European Union countries, or the USA standards, which parameters have been set at the values prescribed for the geographical conditions of Israel, the Gaza Strip and the West Bank.

Cases of petroleum products which do not meet these specifications will be referred to a joint experts' committee for a suitable solution. The committee may mutually decide to accept different standards for the importation of gasoline which meet the Jordanian standards even though, in some of their parameters, they do not meet the European Community or USA standards. The committee will give its decision within six months.

Pending the committee's decision, and for not longer than six months of the entry into force of this Agreement, the Palestinian Authority may import to the areas under its jurisdiction, gasoline for the Palestinian market there, according to the needs of this market, provided that:

- (1) this gasoline is marked in a distinctive colour to differentiate it from the gasoline marketed in Israel; and
  - (2) the Palestinian Authority will take all the necessary steps to ensure that this gasoline is not marketed in Israel.
- b. The difference in the final price of gasoline to consumers in Israel and to consumers in the areas under the jurisdiction of the Palestinian Authority, will not exceed 15% of the official final consumer price in Israel. The Palestinian Authority has the right to determine the prices of petroleum products, other than gasoline, for consumption in the areas under its jurisdiction.

*David Ben-Gurion*

*[Signature]*

D.B.

*[Signature]*

2 of 1200

DRAFT DRAFT DRAFT

WORKING AGENDA  
for

ANNEX no. 19

TO THE PEACE TREATY AGREEMENT  
BETWEEN THE GOVERNMENTS OF ISRAEL AND JORDAN  
AS RELATED TO THE FIELD OF ENERGY  
AND EARTH SCIENCES

Rev. 2 14.12.94

PREAMBLE

Both countries recognize the importance of creating a rational energy economy based on optimal utilizing of imported as well as indigenous energy resources.

The geographic proximity of the two countries, and the relatively long common border creates a unique opportunity for the cooperation in the Energy field. The high capital cost of developing Modern energy production and distribution systems, will yield big savings when the two systems are combined.

Realising the scarcity of water resources in the region both parties will endeavour in harnessing available energy resources providing additional water to the region.

Based on the above, both countries decided to take the following measures to strengthen their ties in the field of energy and related earth sciences.

1. ELECTRICITY INTERCONNECTIONS

It is agreed by both parties that their Electricity Systems will

connected so as to assure sales of Electricity produced in one country to the other. Interconnections will be made at the appropriate voltage level commensurate with the power transmission requirements of the connection.

The two parties will study thoroughly the techno-economic characteristics of their two systems in order to optimize the development of their respective systems as well as the electrical grid interconnections of the same. The studies will recommend the optimal electricity grid connections as related to location, amount of power to be delivered, and transmission Voltage levels to be used.

The first interconnection will take place between Eilat and Aqaba immediately.

## 2.DEVELOPMENT OF INDIGENOUS ENERGY RESOURCES

### 2.1 OIL SHALES

Lacking indigenous hydrocarbon resources, except Oil Shales and a small amount of natural Gas, the two countries decided to combine efforts, in the technical as well as the scientific fields, in utilizing oil shales for the purpose of Energy production. It is foreseen that both countries will install Oil Shale fired commercial Electricity producing power plants having a total capacity of a few hundred megawatts of Electric power, when the appropriate technology will be developed and deployed.

Both countries will cooperate, with each other as well as with other countries on a three partite or multilateral basis, through commercial or other agreements, in Oil Shale Research and in Oil Shale power plant design and commercialization.

### 2.2 OIL AND GAS EXPLORATION

Situated in a geographic area where Oil and Natural Gas is abundant and acknowledging the necessity of a thorough investigation



research in developing those resources, the two countries will undertake to perform common projects for the exploration of Oil and Gas. When necessary the countries will undertake the development of new methodologies to explore for the existence of Oil and Gas reserves in their territories.

### 3. RENEWABLE ENERGIES AND ENERGY EFFICIENCY

#### 3.1 SOLAR ENERGY

Both countries recognize that when properly developed, the abundant Solar insolation, in Israel and in Jordan, may become an important non polluting source of Energy.

Solar energy is on the verge of being competitive with other sources of energy for remote locations or for operating under peak load conditons.

It is foreseen that the first solar power plant will be constructed at the Ein-Evrana site, or close to it, for the purpose of providing electric power to the interconnected grids.

Both countries are ready to cooperate, with each other as well as with neighbouring countries, through commercial and other agreements, in developing of solar energy technologies for the purpose of producing power and for Industrial use.

Both are ready to share knowhow gained through Reaserch and Development performed as a result of this agreement.

#### 3.1 WIND ENERGY

The two countries will cooperate in developing a comprehensive program for the utilization of Wind Energy. A wind atlas will be issued and methodologies for Wind Farm economic evaluations will be reviewed and compared.

### 3.2 BIOMASS

The two countries will cooperate in developing a program for the utilization of Biomass as well as agricultural and house hold wastes, for Energy productions. Technologies will be reviewed and compared and projects identified for implementation.

### 3.3 ENERGY CONSERVATION AND ENERGY EFFIECIENCY

Both countries agree to cooperate in the field of Energy conservation, energy efficient buildings etc. and promote Energy efficiency through the exchange of experts and enacting of related programs and studies.

## 4. EARTH SCIENCES

Due to the similarity and complementarity of the Geological formations and structures in both countries, optimum results technically and economically could be achieved through concerted efforts.

The parties agreed that cooperation plans and programs in the field of Geology, Geophysics, Seismology, Limnology, Oceanography and Mariculture, will be developed and relevant common project based on agreed upon schedules, will be implemented.

Unifying the various Geophysical Data-Bases (Seismic, Gravity Magnetic) along the Arava Valley will provide data for new survey for Oil exploration in the Valley and for subsurface mapping in the region to be commonly performed.

Ground water potential along the Arava Valley will be evaluated. The seismic-activity-measurement grids, of both countries, will be connected.

The influence of the increasing anthropogenic activities in the gulf of Aqaba/Eilat will be evaluated and a regional project to develop a scientific Data-base for the management of the gulf will be prepared.

## 5. OIL AND GAS PIPELINES

Due to the central geographical location of both countries in the Eastern Mediterranean region, the two countries would like to promote projects that will enhance this centrality, by enabling the flow of Crude Oil, Oil products and Natural Gas to the Mediterranean, Through their territories.

Installation and interconnections of Binational, International and Regional pipeline systems for the conveyance of Oil and Gas through the two countries will be considered.

The possibility of the connection of the Zarqa'a refineries with the Israeli Oil distribution grid via the old I.P.C. line will be reviewed.

Joint projects of industries using Oil and Natural Gas as feedstock will also be considered.

## 6. OIL AND REFINERY PRODUCTS COMMERCE

Both countries agree to open their respective internal markets for trade in crude oil and in refinery products. No monopoly status may be granted to any commercial company in either country with respect to the supply of Oil and its products.

## MECHANISM OF COOPERATION

The two parties will adopt flexible ways and tools of cooperation in order to implement the above mentioned topics. This will include formation of working groups, technical committees, visits, exchange of information and publications, joint research, conferences and seminars, feasibility studies and projects.

The way of creating these tools and methods for the financing of this operation as well as the time schedules for implementation will be agreed upon on a case by case basis.

**MIDDLE EAST PEACE PROCESS  
REGIONAL ECONOMIC DEVELOPMENT WORKING GROUP**

**INTERCONNECTION OF ELECTRICITY GRIDS IN THE MIDDLE EAST**

**SUMMARY**

**OF THE WORKSHOP IN AQABA, JORDAN  
12 - 13 DECEMBER 1994**

1. The workshop on the interconnection of electricity grids in the ME took place in Aqaba on 12-13 december 1994, on the initiative of the EU Commission within the framework of the Multilateral Negotiations. 7 Delegations (4 regional parties plus EU, US and EIB) as well as representatives of Verbund Plan and Lahmeyer International participated.

All participants expressed their gratitude to the Government of Jordan and its Electricity Authority as the host of the Working Group for their kind hospitality and excellent arrangements they have made.

2. In active and productive discussions, the participants shared information, views, experiences and common issues regarding the interconnection of electricity grids and discussed direction to further enhance regional interconnections.

3. Based on the report presented by the consultants Verbund Plan and Lahmeyer International, the participants agreed to proceed with the development of the interconnection concept of the electricity grids of all four regional parties.

3.1. The optimal technical solution shall be worked out on least cost approach and additional criteria as described below :

- the meeting agreed on regional electricity interconnection with the following concept :

a. 400 kv line Amman - Jerusalem - Zafit

b. 500/400 kv line Ayoun Musa - El Arish - Gaza - Zafit (with variant solutions taking into consideration the utilization of 220 kv T.L. from Qantra - East to El Arish - under construction )

c. 500/ 400 kv line Ayoun Musa - Aqaba - Amman ( under construction )

3.2. Specific consideration shall be given to:

- (n-1) criteria
- Security
- Dynamic stability
- short circuit
- Voltage and reactive power control.

4. The Palestinian electricity grid including the power stations in West Bank and Gaza shall be established and linked to the regional interconnection grid. The consultant will in his report, consider the interconnection of the electrical networks of WB and Gaza from a technical and geographical point of view.

The meeting agreed that the Palestinian Authority should at least have enough generating power to cover their own future demand. In order to utilize the Palestinian electrical power system efficiently, the existing distribution networks should be rehabilitated and reinforced.

5. The consultant considering the electricity interconnection as one entity shall complete the report taking into account the various observations made by the participants.

6. Details of the electricity interconnection will be the subject of further detailed planning by the regional parties whereby all existing structures shall be taken into consideration.

7. The final draft report shall be circulated not later than 31/3/1995 to the four parties who will provide their comments within two weeks after its receipt.

8. The further project preparation shall be undertaken on a regional approach with the full and appropriate participation of the four regional parties with JEA as coordinating partner.

The European Commission expressed its readiness to financially support the further project preparation.

9. The financing of the project should fully reflect its specific nature as an important Peace Project.

---



MINISTRY OF ENERGY & INFRASTRUCTURE

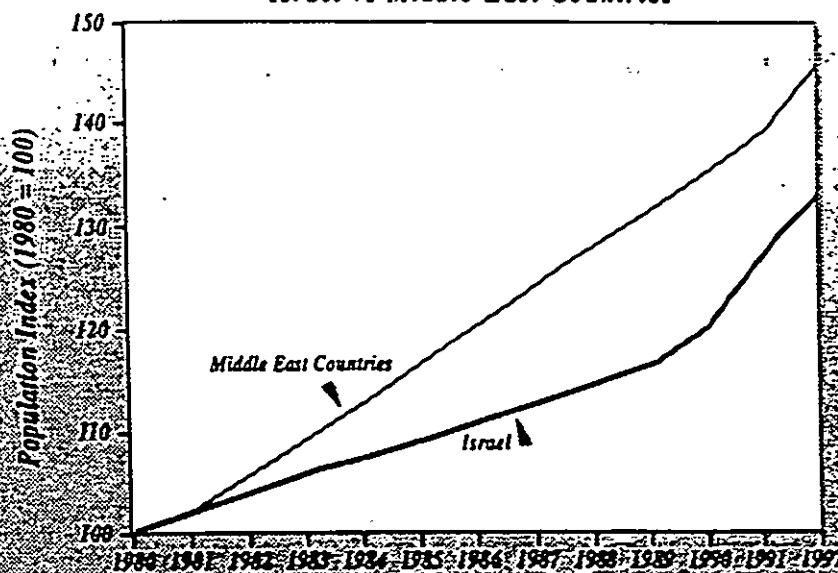
לוח 1. איפיונים חברתיים-כלכליים ובחרים - המזרח התיכון (1) 1991 Tab. 1 Selected Socio-Economic Indicators - Middle East

איפיון	ישראל Israel	סעודיה Saudi Arab	אירן Iran	עיראק Iraq	ירדן Jordan	סוריה Syria	מצרים Egypt	Indicator
שטח - אלפי ק"מ מרובע אוכלוסייה - מיליונים צפיפות האוכלוסייה (קמ"ר) שיעור גידול האוכלוסייה (%)	21 4.9 236 2.2	2,150 15.4 7 4.6	1,648 57.7 35 3.6	438 19.6 45 3.6	89 3.7 41 4.9	185 12.5 68 3.4	1,001 53.6 54 2.5	Area - 1000 sq.km Population - Millions Population Density (km <sup>2</sup> ) Population Growth Rate (%)
תמ"ג - מיליוני דולרים תל"ג לנפש בדולרים שיעור גידול התמ"ג (%) שיעור גידול התמ"ג לנפש (%)	62,719 11,950 3.9 1.6	108,786 7,820 1.0 (3.4)	99,696 2,170 4.3 0.6	n.a. n.a. n.a. n.a.	4,077 1,060 2.4 (1.2)	17,236 1,160 3.8 (0.1)	32,779 610 4.7 2.2	GDP - Millions of USS Per Capita GNP - USS GDP Annual Growth Rate (%) Per Cap GDP Growth Rate (%)
היצוא פו"ב - מיליוני דולר היבוא ס"ף - מיליוני דולר עודף (גירעון) מיסחרי עודף (גירעון) מסחרי- % תל"ג	11,891 16,753 (4,862.0) (7.8)	54,736 25,540 29,196 26.8	15,915 21,688 (5,773) (5.8)	n.a. n.a. n.a. n.a.	879 2,507 (1,628) (39.9)	5,594 3,002 2,592 15.0	3,887 7,862 (3,975) (12.1)	Exports, FOB Millions USS Imports, CIF Millions USS Trade Surplus (Deficit) Trade Surp (Dep) - % of GNP
חוב חיצוני - מיליוני דולר חוב חיצוני לנפש בדולרים	33,206 6,714	n.a. n.a.	11,511 199	n.a. n.a.	8,642 2,358	16,815 1,342	40,571 757	External Debt Millions USS Per Cap External Debt - USS



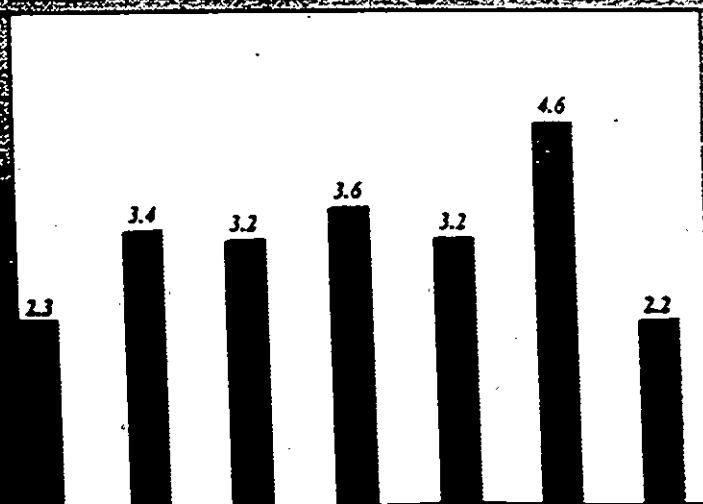
MINISTRY OF ENERGY & INFRASTRUCTURE

**Fig. 1 Population Trends**  
*Israel vs Middle East Countries*



Source: IMF provisional data

**Fig. 2 Annual Population Growth Rate**  
*Israel vs Middle East Countries 1980-97*







MINISTRY OF ENERGY & INFRASTRUCTURE

Fig. 3 Per Cap Gross National Product  
Israel vs Middle East Countries 1991

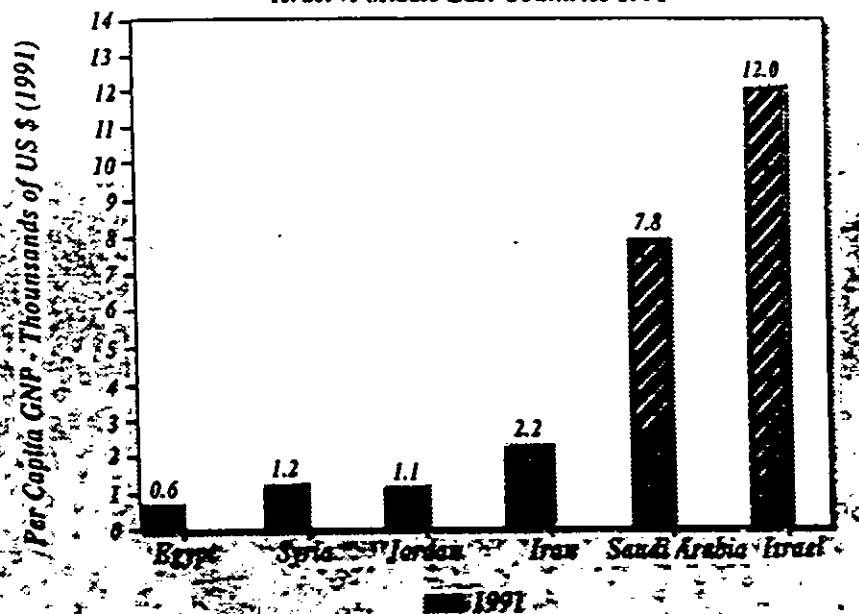
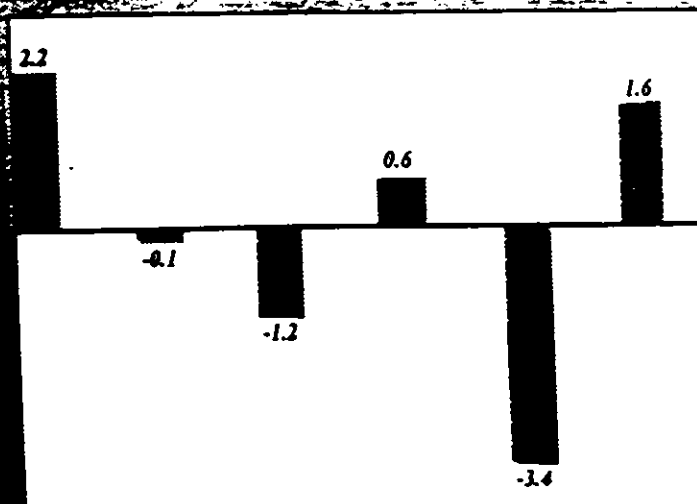


Fig. 4 Per Capita GDP Growth Rate  
Israel vs Middle East Countries 1980-91





MINISTRY OF ENERGY & INFRASTRUCTURE

Fig. 5 Net Fuel Export (Import) - % GNP  
Israel vs Middle East Countries

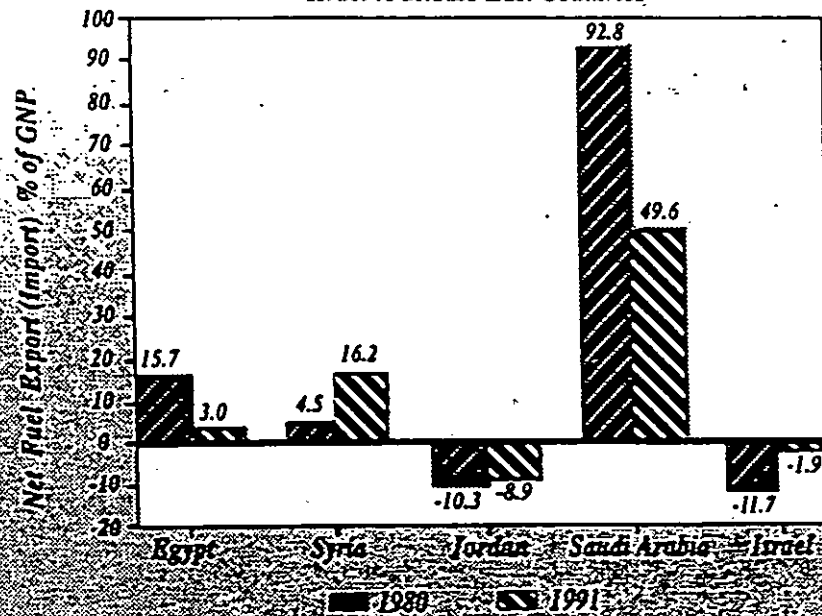
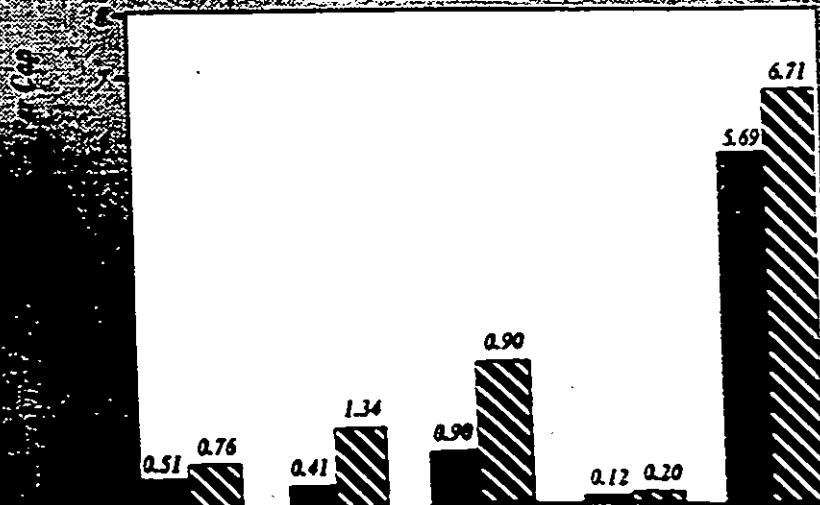


Fig. 6 Per Capita Total External Debt  
Israel vs Middle East Countries





MINISTRY OF ENERGY & INFRASTRUCTURE

Fig. 7 Petroleum Refining Capacity  
Israel vs Middle East Countries

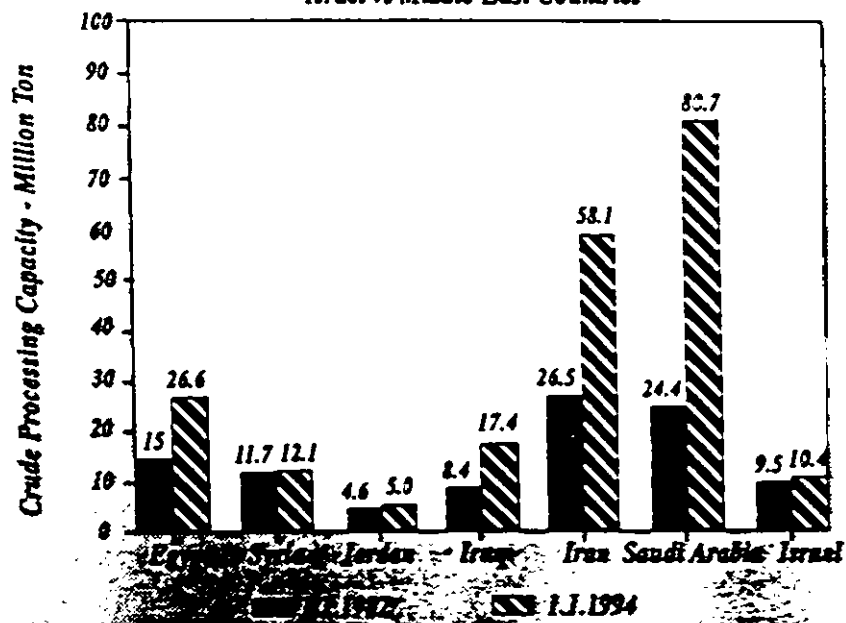
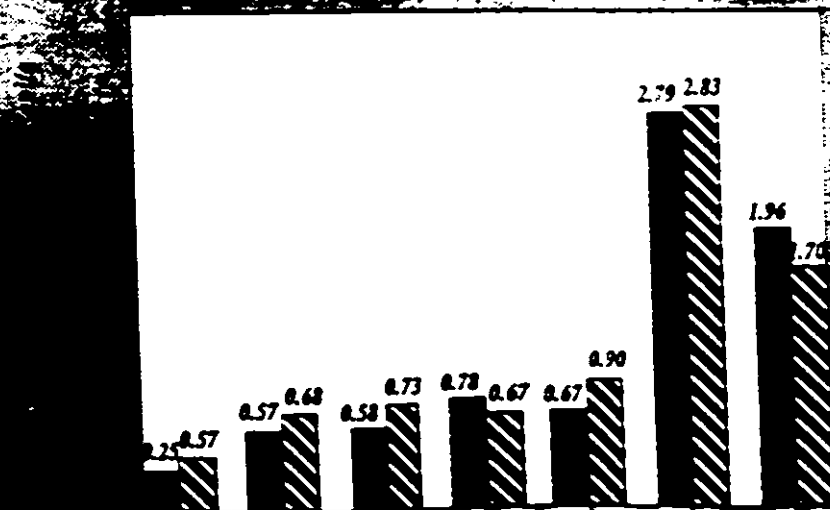


Fig. 8 Oil Production and Consumption in Middle East Countries





MINISTRY OF ENERGY & INFRASTRUCTURE

Fig. 9 Per Capita Motor Gasoline Consum  
Israel vs Middle East Countries

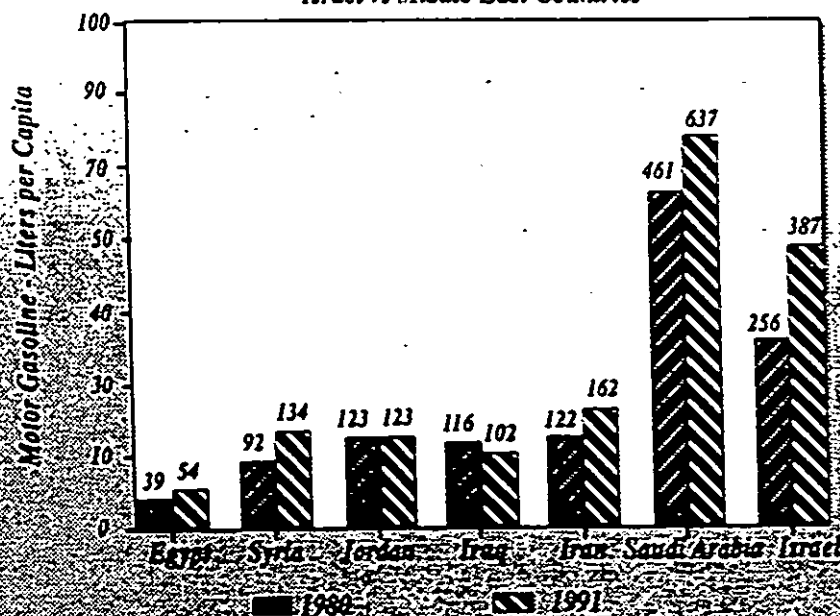
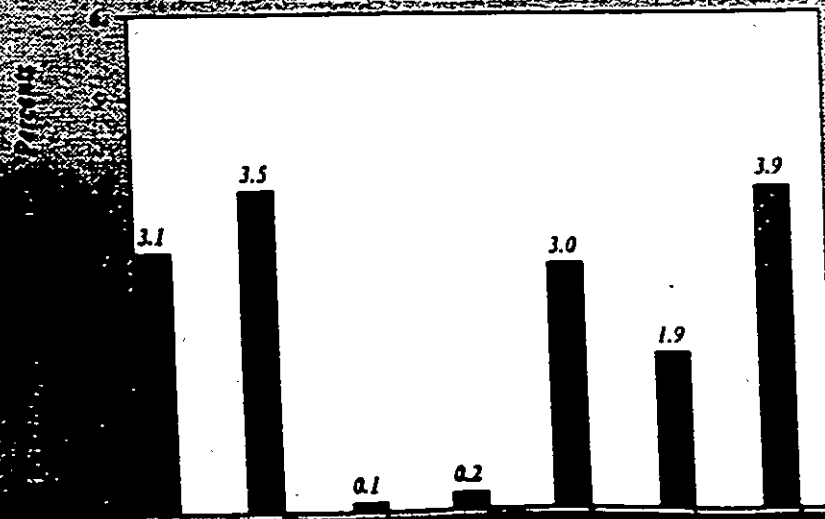


Fig. 10 Per Cap Gasoline Consump Growth  
Israel vs Middle East Countries





MINISTRY OF ENERGY & INFRASTRUCTURE

Fig. 11 Electricity Generation Capacity  
Israel vs Middle East Countries

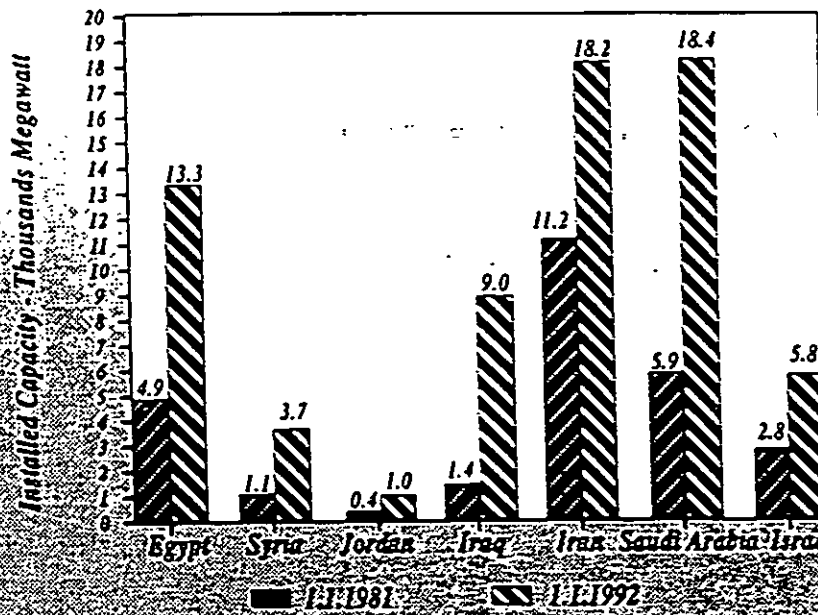
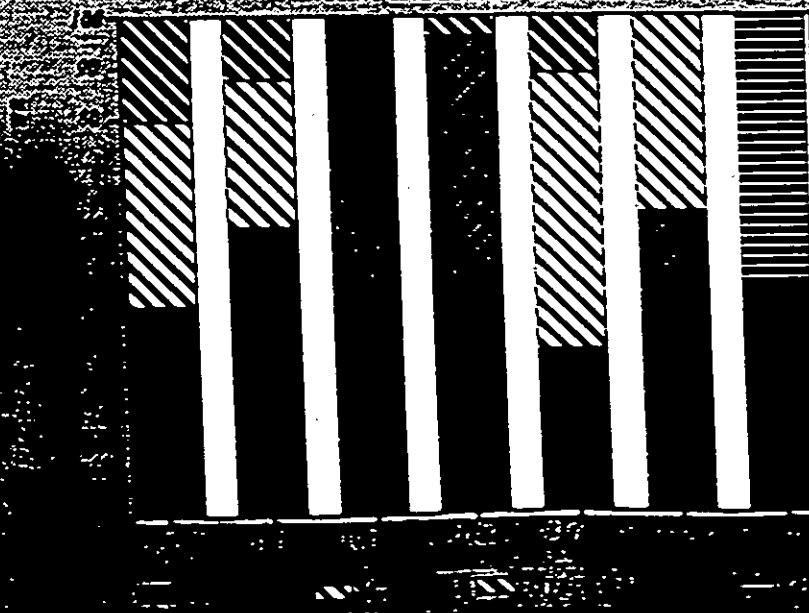


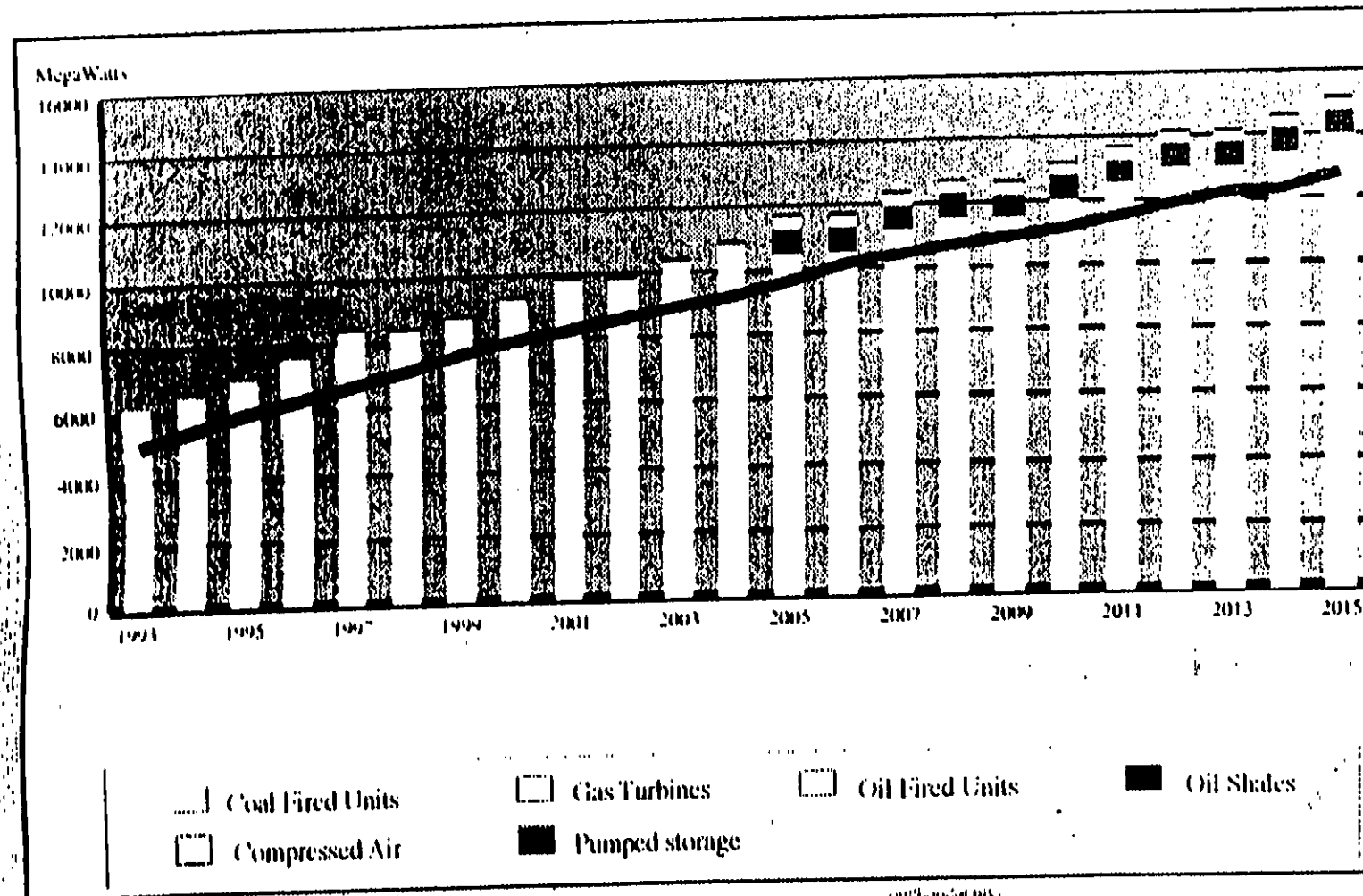
Fig. 12 Electricity Generation by Type  
Israel vs Middle East Countries





MINISTRY OF ENERGY & INFRASTRUCTURE

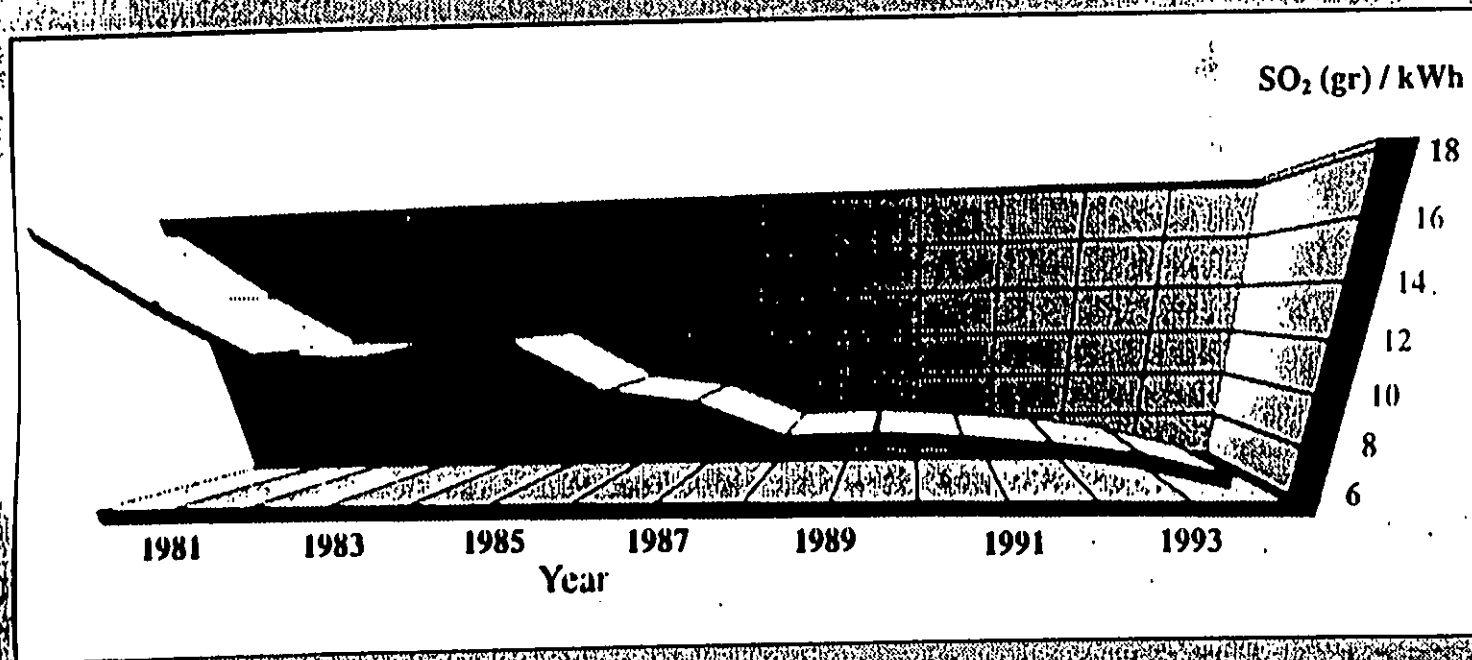
**Fig.16 Installed Power-Generating Capacity (MW) as Compared with Peak Demand, 1993-2015**





MINISTRY OF ENERGY & INFRASTRUCTURE

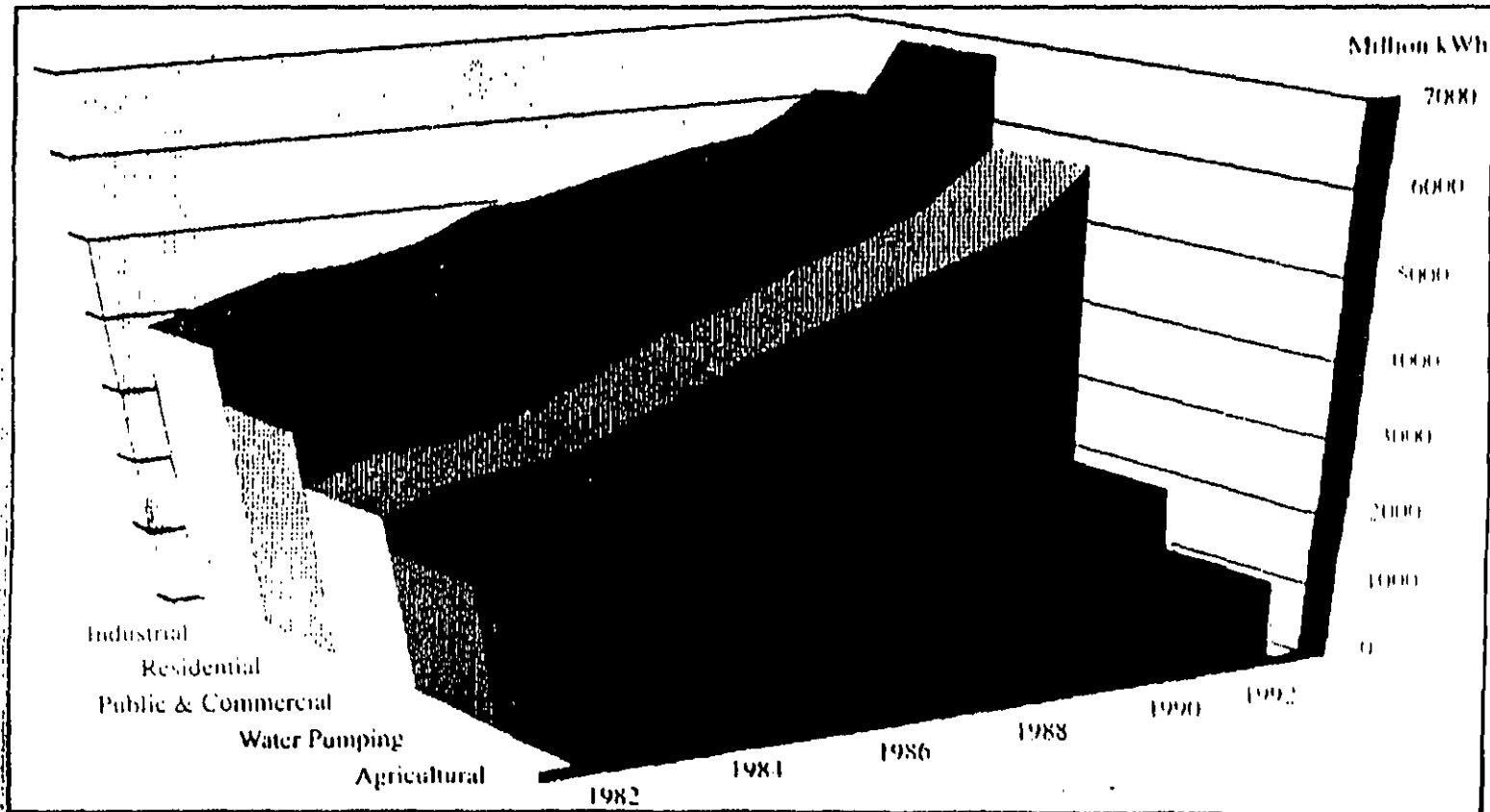
Fig.15 • SO<sub>2</sub> Emissions Per Electricity Production in IEC Power Plants  
1981-1993 (Prediction for 1993)





MINISTRY OF ENERGY & INFRASTRUCTURE

Fig. 17 Electricity Consumption by Sectors, 1982 - 1992





## **SUMMARY OF Dr. SIMCHA BAHIRI's PRESENTATION**

(Rome Seminar, January 17, 1995)

### **ECONOMIC ASPECTS OF ISRAELI-PALESTINIAN RELATIONS**

Five areas will each be briefly covered in the presentation. These are:

1. Economic aspects of the Oslo and Paris accords.
2. Palestinian Development, Cooperation and Industry.  
Comparative analysis of parallel attitude surveys of Israeli and Palestinian manufacturers.
4. Recent economic developments in the West Bank and Gaza (WBG).
5. Programs of the "Israel/Palestine Center for Research and Information" (IPCRI).

These will now be briefly highlighted.

1. The economic aspects of the Oslo Accords (Declaration of Principles - DOP) and the Paris Economic Agreement (PEA) are the basis for planned economic cooperation between Israel and the Palestinians.

Article XI of the DOP (Oslo) covers "Israeli-Palestinian Cooperation in Economic Fields" (establishment of a joint committee). This includes (and outlines) cooperation in the fields of: water, electricity, energy, finance, transportation and communication, trade, industry<sup>1</sup>, labor and social welfare and environment.

---

<sup>1</sup>Industries mentioned for cooperation and joint ventures were textile, food, pharmaceutical, electronics, diamonds, computer and science-based industries.

Note that Annex IV calls for a Mediterranean (Gaza)-Dead Sea canal. This conflicts with more recent accords with Jordan; Red Sea-Dead Sea canal.

The PEA (Paris) establishes a Joint Economic Committee (Article II). Article III deals with Import Taxes and Import Policies. Broadly, the existing customs union continues, albeit on a modified and more equitable basis.

Article IV discusses Monetary and Financial Issues. It allowed for the establishment of the Palestinian Monetary Authority (PMA) which will cooperate with the Bank of Israel (BOI).

Articles V and VI deal with direct and indirect taxation. Direct taxation in the "area of autonomy" is totally under the control of the Palestinian Authority (PA) while indirect taxes are similar to Israeli taxes and coordinated with them.

Article VII referred to labor and "attempted to maintain the normality of movement of labor between them." (This totally failed.)

Article VIII refers to agriculture and is the most favorable for the Palestinians as it allows for the (gradual) free movement of agricultural produce, free of customs and import taxes, between the two sides.

Article IX concerns industry and allows for the free movement of industrial goods as well as permitting the Palestinians to take measures promoting the development of their industry.

Other articles deal with tourism (establishing "Palestinian Tourism Authority" - PTA) and insurance issues.

2. The Palestine Development Plan (PDP, PLO, Tunis, July 1993) outlines some of their economic targets. It projected an annual 11.4 percent GDP growth rate between 1994 and 2000. Industrial (manufacturing) growth was projected at "only"

8.4 percent per annum, and the industry share was to be reduced (sic) from nearly seven percent to less than six by the year 2000. It only allocated 3.5 percent of total six year investment of \$11.5 billion to industry - some \$400 million.

Taking objective needs and real possibilities into account, the real GDP growth rate should be 9-10 percent for ten years and the growth in the manufacturing sector should be double that in order to reach a new target of 20 percent of the GDP in manufacturing and mining. Productivity in industry should be increased drastically.

The required investment would be \$1.5 billion.

Industry could be the motor that drives the Palestinian economy.

In order to really achieve this, institutional policies and strategies to promote rapid industrial development in the WBG should be followed.

Furthermore, a high degree of cooperation between Palestinian and Israeli industry should be developed.<sup>2</sup> This calls for innovative thinking, flexibility, a "mixed economy" and entrepreneurial oriented policies on both sides. Many joint ventures are possible (as Israel moves into higher technology industry) and much labor-intensive Israeli industry could be transferred to the much lower wage area in the WBG. Based on the experience of the EEC, the smaller weaker entity (e.g. the WBG) is likely to gain proportionally more from industrial trade and cooperation.

3. Comparative Analysis of Israeli and Palestinian manufacturers in parallel studies<sup>3</sup> showed that while both sides feared competition and a negative effect of the interim settlement, they both supported cooperating with the other side - 76 percent of

---

<sup>2</sup>See footnote on first page for list of agreed industries. In addition, cooperation in Dead Sea industries (with Jordan) and building materials should develop. Note also that the size of the Israeli economy is greater than that of all its neighbors together.

<sup>3</sup>There were 378 firms studied on the Israeli side representing around one-quarter of Israeli manufacturers and 195 Palestinian firms representing half of the larger Palestinian establishments.

Palestinian firms and 85 percent of Israeli firms. Joint ventures were the favorite form of cooperation on both sides, especially where links already existed, while on the Palestinian side, reciprocal marketing was rejected - probably because the importance of marketing was under-estimated. Licensing and subcontracting were also supported, but more by Palestinian firms than Israeli firms.

4. Recent economic developments (e.g. since the economic accords in Oslo and Paris) which, while showing mixed results in various areas, these were more often negative. The main area in which there were serious setbacks was in labor or employment in Israel of WBG workers. The average number has been reduced from 120,000 (pre-Oslo) to just over one-third that number (ostensibly for security reasons). Since this provided well over one-third their employment and close to one-half their income from wages, this was a big blow to their economy (GNP).

Another area in which there was a moderate decline was trade (e.g. industrial exports from the WBG to Israel).

One major area that directly improved as a result of Paris was agriculture (exports from the WBG to Israel). Progress was also made in developing business law, banking, housing and in releasing land for development.

Other areas in which there was little (e.g. less than expected) or no growth was non-housing investment, industry, infrastructure, environment and water.

5. IPCRI is a major think-tank (in existence since 1989) bringing together Israeli and Palestinian [and other] "experts" for joint research and information related projects. Italian cooperation in joint projects (also involving Jordan) are welcome - possible in an energy related field.

To summarize, while the Oslo and Paris accords brought much political progress (up to a point), gains to the economy since then have been mostly modest (in the WBG) despite plans for massive growth (PDP) and high expectations and positive attitudes in the business community. Post-Oslo Israel enjoyed the highest GNP growth rate in 1994 of OECD members at seven percent.

As these items are only covered briefly, any relevant questions will be answered.

iai ISTITUTO AFFARI  
INTERNAZIONALI - ROMA

n° inv. 14925  
21 FEB. 1995

BIBLIOTECA

## **THE NEED FOR INVESTMENT TO INCREASE WATER CONSERVATION MEASURES IN AGRICULTURE BY PALESTINIANS AND ISRAELIS**

**Professor Said Assaf**

**Director General**

**Palestinian National Agriculture Research Center**

**Palestine National Authority**

The water situation and its limitations in the West Bank and Gaza Strip compared to Israel has been studied by several investigators initiated by ASIR in 1985. Over 3/4ths of the water resources in the PIJ region (Palestine-Israel-Jordan) is used for agriculture. Irrespective of the reasons, nearly 95% of the cultivated lands in the West Bank which are farmed by Palestinians do not use a single drop of the region's water resources for agriculture as the Palestinians rely and utilize only rainfall for the growing of most of their crops.

The rainfall in the West Bank excluding the Dead Sea-Jordan River Valley and the eastern slopes is about 500 mm. In that valley, the average rainfall is only 150 mm and using the many springs in that warm area, the farmers in that Jericho area have succeeded throughout history in producing many crops, especailly vegetables and in the last four decades also citrus and various subtropical fruits and crops.

Nearly 80% of the West Bank's 1.4 million Palestinians are rural people living in an area of about 65 km by 250 km and composed of 400 villages, 8 cities, 20 towns, and a dozen refugee camps. The Gaza Strip is a small coastal strip area with an average of 6-12 km wide and 38 km long. It is a densely populated area of about 1 million people who are over 80% refugees from pre-1948 Palestine. They cultivate about one-fourth of that small land area and due to the low rainfall with an average of less than 300 mm, 40% of these farmed areas use irrigation.

In Israel, where the average rainfall in the country excluding Beersheva (Beer Sebi') is over 600mm, nearly half of the cultivated land is under irrigation utilizing the limited water resources of the region on which there is a great dispute and misunderstanding.

No one inside or outside the Israeli-Palestinian region disputes the fact that water supplies in this region are not sufficient for both agriculture and human use. While water conservation through maintenance and proper distribution of water is the municipalities' role, the main water conservation measures must be directed toward agriculture.

Agriculture in the West Bank represents about 30% of the GDP. While in the Gaza Strip it represents about 25% of the GDP. In Israel however, less than 15% of the GDP comes from agriculture. Israel benefits immensely from the good and steady foreign aid especially from the U.S.

The real need for water conservation in the state of Israel is of utmost necessity as that is required in meeting its expanding housing and industrial programs, while in the Palestinian territories of the West Bank and Gaza Strip, the need stems from the great dependence of the Palestinian economy on agriculture. The requirements of the Palestinian agricultural sector in that semi-dry region on water availability is critical. In the Gaza Strip, there is over withdrawal of underground water sources with a resulting increase in salinity. In the Jericho area, no crops can be grown without irrigation.

Without providing incentives to farmers and easy to apply environmental conservation education to students and the public, there will be little impact on the overall water conservation. A scenario in which high water use continues unabated without implementing a water conservation policy and techniques in both Israel and the Gaza Strip will lead to a bitter conflict between Palestinians and Israelis over the limited water supplies. The water conflict could unfortunately erupt anytime and the fragile peace in the region will shatter and conflict will arise.

Therefore I suggest that those who believe in simultaneously making money and promoting peace and stability to direct their investments in water conservation and increase their support of water research. This needs to be done not only because such efforts are appreciated by Palestinians and Israelis but also because such investments and efforts are very profitable. Some of the proposed projects for water conservation include the following:



#### **A. The Water Systems:**

1. Need to use more and more water pipes rather than open channels in the West Bank and Gaza
2. Need to use more and larger water reservoirs for the distribution of irrigated water varying in size between 10 cubic meters and 1000 m<sup>3</sup>.
3. Need to use more and more drip irrigation systems.
4. Need to place meters on all wells and fix pumps and other water withdrawing systems for the old wells.
5. Need to clean and improve some water wells capacity in areas where this is an obstacle in providing the needed water quantity and quality.
6. Need to institute a comprehensive program of water recharge of the wells. There is only one well out of ~2000 wells being recharged by Palestinians. In Israel water recharge is done by the government. The use of water recharge using Wadi Gaza or runoff water could potentially decrease water salinity in the wells of the Gaza Strip.
7. Need to set-up more sewage treatment systems for reusing water in agriculture.
8. Need to provide more training for the well operators especially for Palestinians as 95% of their wells are privately owned.
9. Need to provide grant support for water research in the eight Palestinian universities, the scientific NGOs and the Palestinian National Agricultural Research Center.
10. Need to provide financial support to a joint Israeli-Palestinian study on methods or programs for water conservation in the Israeli and Palestinian agricultural sector.

#### **B. Water Use in Agriculture**

1. Need to support programs of water harvesting, especially for the West Bank hills and wadis, to use for supplemental irrigation of fruit trees.
2. Need to provide support and investment in planting crops which can produce with minimal amounts of water and can use brackish water or treated sewage water when that is available.

In this respect, investments ought to be directed where the Palestinians and Israelis independently proved that a newly introduced desert plant cultivated only

recently in the world could succeed in that warm Mediterranean region. This plant called jojoba pronounced hohoba is a dwarf evergreen tree which is naturally existent in the Sonora desert area of Mexico and Arizona in the USA. It was known for hundreds of years to the Red Indians in America. Only when sperm whale oil which was used in cosmetics and lubrication became unavailable due to environmentalist pressure and scientists found that jojoba is a natural replacement for the whale oil, American investors went about jojoba oil production in a large scale and found that jojoba plantations could be highly economic if planted in the Southwest arid lands of the U.S..

The jojoba trees produce nuts like an acorn and when ripe they look like dark fava beans or the large roasted coffee beans. They produce at least 50% oil which is really chemically a liquid wax. Its successful use in cosmetics (hair and skin) is due to its fast penetration. It is several times more expensive than olive oil which itself is the most expensive commercial plant oil. It could be stated that jojoba oil is the best overall cosmetic oil for human skin.

The supply for jojoba oil will never meet the need and demand if it is used as it should be as an oil additive in the cars lubrication industry. Small amounts of jojoba oil protect the engines oil from oxidation and preserves the viscosity of the car's oil for over 15000 kilometers. Other uses for jojoba oil include its use in the leather industry for softening and protecting leather and in the drug industry for coating of pills and to prevent ulcers and to prevent throat irritation from coughing or talking, etc.

The Jojoba Association in Phoenix, Arizona publishes a bimonthly newspaper and there are many research centers in the world working on jojoba including the Arid Lands Research Center in Tucson, Arizona; Ben Gurion University Desert Research Center, and the Palestinian National Agriculture Research Center. The Arab Scientific Institute for Research and Transfer of Technology (ASIR) in Ramallah, the West Bank, is the institute which introduced jojoba in the West Bank about 10 years ago and there are over 60,000 jojoba trees planted in the West Bank. There is also a jojoba press with a research facility for jojoba oil which is the first and only in the Arab World run by the ASIR Institute in the north of the West Bank. All the Palestinian jojoba oil produced thus far in the West Bank is from trees which are rainfed with no irrigation and they are all organically farmed with no use of chemicals. The natural jojoba oil is obtained simply by pressing the nuts and then filtering ~~the~~ the oil.

About 1500 liters of Palestinian jojoba oil are produced every year and since jojoba cultivation is on the increase by Palestinians and the jojoba trees are long-lived, the Palestinians actually have another plant oil industry which complements but does not substitute that of olive oil production, a major agricultural crop in the West Bank.

From our point of view, if any one wants to do a direct and visible encouragement of water conservation in the Israel and Palestine region, they could do that by helping the Palestinians find good markets for the natural jojoba oil being steadily produced as that will encourage planting the profitable draught resistant low-water demanding jojoba trees and shift farmers away from planting crops which require a high amount of water. Another point that should be taken into consideration based on ASIR's experience is that initially the setting-up of profitable organic farmed jojoba fields in Palestine requires not only funds but also an intensive labor efforts because all of the Palestinian jojoba nuts are handpicked and the trees are hand-pruned and the weeds around trees are removed by hand-hoeing after plowing with a tractor.

Thus, cultivation and production of jojoba in Palestine is an economic investment requiring a great deal of labor and cuts down on unemployment. Employing Palestinians on their lands is not only now an economic priority for Palestinians and peace makers, it is also a social and political troublesome issue. Increasing employment of Palestinians in agro-industrial production as jojoba is one simple example of a curing antidote for the frustrations and violence in the Holy Land.

The aforementioned is presented only as a brief example of some of the practical economic ideas which are appropriate for economic investments in water conservation and appropriate land use.

iai	ISTITUTO AFFARI INTERN ZIONALI - ROMA
n° Inv. 24925	
21 FEB. 1995	
BIBLIOTECA	