

ENERGY PROBLEMS IN THE MEDITERRANEAN

by

Hassan Boussoffara

IAI/22/82

CONFERENCE ON  
" Growing Economic Interdependence and the Future of  
Security in the Mediterranean" 5. 9. september 1982

ROME

Working group  
Energy Problems

Comments by

HASSAN BOUSSOFFARA

Energy and Technology Adviser

Tunis - TUNISIA

Mr. President. Dear Colleagues.

Permit me to very briefly express my happiness at being here at this important conference organized by the Istituto Affari Internazionali on the theme:

" Growing Economic Interdependence and the Future of Security in the Mediterranean"

This encounter represents an extremely interesting opportunity for discussion, not only because of the difficult international situation with which we are faced, political as well as financial and economical, but also due to the gravity of the Future World Situation, as well as that of the Mediterranean Region - in the Energy Sector, which calls for the acceleration of efforts to meet the energy challenges and achieve the objectives of the mediterranean Energy Strategy to be worked out, with a view to promote increasingly the Mediterranean Economic and Social Development, in the framework of the growing world economic interdependence.

I think that our conference should lay some basis down as principle to build up a Mediterranean Energy Strategy involving greater cooperation between the riparian countries as well as with the rest of the world.

.../...

As a contribution to working out these basis, I will try to very briefly picture the Worldwide Energy Disquieting Future, the Amazing Future Prospects of the Developing Countries including the Arab World in the Energy Field , and to submit some suggestions about the need of a Mediterranean Energy Strategy for the Mediterranean Region

#### I - The Worldwide Energy Disquieting Future

The security of world Energy supply is under aggravated conditions. The expansion of world primary energy supply in the post - war period kept pace with the historically unprecedented growth in gross world product. There was ample primary energy, its real prices were low and even showed a slightly declining trend until a decade ago.

Primary energy supply in the post-war period was characterised by the quick expansion of oil. Over the 1950 - 1975 period, this versatile and easily transportable energy source whose development costs were mostly low initially, accounted for about 50% of the growth in world primary Energy consumption . At 40% in 1976, oil reached a share in world Energy supply which is unlikely to increase any further. This share will likely decrease at about 36% in 1985 , 25% in 2000 and only 12% in 2020.

Therefore the greater part of the growth in world energy consumption in the next four decades will have to be met by other energy sources ( gas, coal, nuclear) whose development will have to be accelerated accordingly. Mainly coal production must increase from 1.9 in 1976 to 5.6 billions T.O.E in 2020 , and the nuclear production share from 1% in 1976 to 22% in 2020. The mere maintenance of and limited increase in world oil production - and the more so the increased production of alternative energy sources - require a significant shift of production factors (capital and human resources, human work and energy) to the energy sector. In other words, the real cost of making available primary energy will increase world-wide.

.../...

II The Amazing Future Prospects of the Developing Countries Including the Arab World, in the Energy field.

The second Arab Energy Conference held in 1982 in Doha-Qatar has revealed that the energy consumption in the Arab World will likely increase from 74 millions T.O.E. in 1976 to about 500 millions T.O.E. in 2000, that is the half of the arab oil production.

Thus the Arab World cannot remain a principal source of Energy because its growing need for Energy makes of it one of the regions that will depend most on oil in the future.

It is worth thinking about, mainly if we compare these figures with those relating to the developed and developing countries.

Expected Aggregate Consumption in Developing Countries  
( billions T.O.E )

	1976	2000	2020
Developing Countries	1.66	5.30	10.40
% of the world	25 %	40 %	51 %
Arab world	0.074	0.500	?
% of the world	1.1 %	3.8 %	?

World Energy Demand will continue to rise at the rate of 2.5% for the period 1976 - 2020 under the pressure of Developing Countries.

Consumption in the developing countries will rise at 4.3% annually, which will represent 40% of the world demand in the year 2000 and 51% in the year 2020, a rate which cannot be considered high at any standard, as most developing countries are close to the base of the S - curve of per capita energy use and virtually all development opportunities and plans involve a greater use of energy and the generally high rates of population growth also raise the level of demand anticipated in the future.

Consumption in industrialized countries will rise at only 1.5% . These forecasts are based on an international economic development estimated at 3.4%.

TOTAL PER CAPITA CONSUMPTION (T.O.E)

	1976	2000	2020
Developed countries	4.5	5.70	6.60
Developing countries	0.51	1.10	1.50
Arab world	0.51	1.70	?

.../...

However per capita consumption in the developing countries will remain low in the next few decades, despite the increase of Energy consumption. It will similarly increase in the Arab World but will nevertheless remain low in comparison with that in industrialized countries .

Therefore the Mediterranean Energy Strategy should take into account the pressure of the developing countries on the oil consumption in the future and thereby on the acceleration of oil depletion.

### III THE Need of a Mediterranean Energy Strategy

The above mentioned challenges call for a Mediterranean Energy Strategy. A satisfactory solution to the World Energy Problem and particularly to mediterranean Region requires intensified international and regional cooperation. First of all, there are mediterranean countries which are energy have-nots. These countries must be given security of access to the energy resources under conditions which are fair from the owners' point of view in that they are compatible with their national development objectives and the resultant objectives of optimum utilization of their resources.

Secondly, regional and international cooperation is indispensable, because also the technological knowledge is distributed unequally among the mediterranean countries. Thus, there is a natural mutual interest in economic and technological cooperation between the technology-rich countries and, on the one hand, the Energy-rich countries which lack the knowledge necessary to create the industrial environment for the time following exhaustion of their energy resources, and on the other hand, the Energy and Technology-poor countries which need both , Energy and Technology for a harmonious development in the Region.

Nevertheless, we must bear in mind that the subject of Energy cannot be discussed in isolation from other economic sectors, in view of their interaction and interdependence. It should be discussed from the main stand point which is taken by energy within the framework of the New International Economic Order.

.../...

However the basis for a mediterranean Energy strategy should include cooperation for :

- Exploration and production
- Transportation
- Environment protection.

1 - EXPLORATION AND PRODUCTION :

Undoubtedly the oil prices will be rising as the oil depletion proceeds, and the national consumptions of oil increase.

Consequently the off-shore mediterranean exploration will become more interesting and even the small fields will be economically profitable. The experience of Tunisia in this matter is probative.

The cooperation in " Exploration and Production " in the mediterranean could be worked out by the main oil companies in collaboration with the riparian countries, with a view to facilitate the exchange of information and to speed up the operation of Research and Development. It is likely that an agreement could be achieved for fostering the exploration for oil and gas in the mediterranean and their use by the riparian countries which have priority over their exports.

2 - TRANSPORTATION :

The problem of transportation should be studied carefully in regard to the following aspects;

a) The transportation of oil will be increasing by the end of this century and will be decreasing according the forecasts of declining production (see Annex 1) and increasing national consumption in oil exporting countries .

b) the transportation of gas will be increasing by 2010.

c) the transportation of coal will be rising because the use of coal will become more and more economic as oil substitution.

This mode of substitution implies new infrastructure in the trading ports for coal discharges : as it is expected that one of the bottlenecks to future coal export trade may be superport facilities for the seaborne coal.

.../...

Therefore the cooperation in the field of transportation could be directed :

2.1. - to work out the national energy policy compatible with the national development objectives, with regard to the energy conservation, and the need of exploration in off-shore.

2.2. - to forecast the construction of large capacity port facilities for coal discharge .

2.3. - to set up oil traffic separation schemes binding regulations

At present the schemes are implemented on a voluntary basis. But the increase in traffic density, combined with the use of ships of greater tonnage and higher speed indicates that the principle of traffic separation which contributes substantially to safety at sea by reducing the number of ships meeting on opposite courses and by providing an orderly flow of traffic, should be observed in a compulsory way .

### 3 MARINE ENVIRONMENT PROTECTION :

The environmental aspect is the only one for which there exists a regional mediterranean cooperative approach following the Barcelona convention.

In this respect only three protocoles have been adopted,  
- the protocole relating to the cooperation in case of pollution resulting from critical situation.

- The protocole relating to the dumping from ships and aircrafts

- The protocole relating to telluric pollution .

With a view to achieve the over-all objectives of Barcelona convention, we should speed up

3.1. - The approval of the international convention for the prevention of pollution from ships 1973 and its Protocole 1978. The 1973 convention and its protocole 1978, will supersede the 1954 convention. They strengthen earlier regulations for dealing with oil pollution and introduce new control measures for dealing with other forms of pollution from ships, such as noxious liquid substances in bulk, and sewage and garbage from ships.

.../...

3.2. - The setting up the protocole relating to the pollution resulting from exploration and exploitation of the continental shelf, the sea bed and its subsoil in the mediterranean .

3.3. - The Enforcement of Conventions relating to the prevention and control of pollution from ships which is a most important factor for the effective implementation of the rules and standards contained in such conventions.

This enforcement involves:

- the development of Procedures and Arrangements for the surveillance and detection of discharges in contravention of the convention. In this respect the Malta Center should be strengthened.

- The setting up of adequate reception facilities which must be available at the time of entry into force of the 1973 convention and its protocole 1978.

Furthermore, studies must be carried out about the pollution resulting in the future, from :

1 - The dumping of ashes coming from ships propelled by coal firing engines in lieu of oil - due to increasing oil prices -

2 - The harmful effects that the nuclear power will cause by its operation, fueling and waste disposal; as it is expected that some nuclear plants will be erected along the mediterranean coasts.

#### IV CONCLUSION :

To day more than ever it is important not only for National Energy Policy but also for Regional and International Cooperation in the Energy Sector and for Energy-related Environmental and Safety Policies to take into account that the limited time available to meet the energy challenges must be efficiently utilized. The Mediterranean Region Stands a Chance to Succeed in Time, Providing That we Start in Good Time, Now .

ANNEX I

Forecasts of the Minimum Supply of Energy  
(Billion tons of oil equivalent)

Source	1976	%	1985	%	2000	%	2020	%
Petroleum	3.0	40	3.1	36	3.1	25	2.4	12
Gas	1.3	18	1.7	20	2.8	22	2.8	14
Coal	1.9	26	2.3	26	3.7	28	5.6	28
Nuclear	0.1	1	0.4	5	1.2	9	4.5	22
Hydroelectric	0.4	5	0.5	6	0.8	6	1.3	7
Petrol and Industrial gas					0.2	2	1.3	7
Renewable Energies	0.7	9	0.7	8	1.0	8	2.1	10
Total	7.4		8.7		13.0		20.1	

Source: World Energy Conference.

World Reserves of Fossil Energy  
( Tons of coal equivalent )

Primary Energy	Proved Reserves	Possible Geological Reserves	Present Exploitable World Reserves
Oil	127.10 <sup>9</sup>	360.10 <sup>9</sup>	127.10 <sup>9</sup>
Natural gas	79.10 <sup>9</sup>	276.10 <sup>9</sup>	79.10 <sup>9</sup>
Shale oil	50.10 <sup>9</sup>	720.10 <sup>2</sup>	30.10 <sup>9</sup>
Tar sands	50.10 <sup>9</sup>	360.10 <sup>9</sup>	30.10 <sup>9</sup>
Coal	2000.10 <sup>9</sup>	7728.10 <sup>9</sup>	493.10 <sup>9</sup>
Lignite	1000.10 <sup>9</sup>	2999.10 <sup>9</sup>	144.10 <sup>9</sup>
	3306.10 <sup>9</sup>	11843.10 <sup>9</sup>	903.10 <sup>9</sup>

Source: World Energy Conference.

Arab and World Proven Oil Reserves

(Billion barrels at year end)

C o u n t r y	1 9 8 0	Year to Depletion
All OAPEC countries	336.1	46.1
All OPEC countries	434.3	44.7
All North Sea countries	20.3	26.0
All North American countries	76.8	17.4
All Soviet Bloc countries	83.5	16.0
Total World	648.5	29.8
OAPEC to World	51.8%	

Source: Oil & Gas Journal.

iai ISTITUTO AFFARI  
INTERNAZIONALI - ROMA

n° Inv. 10459.

01 GIU. 1991

BIBLIOTECA