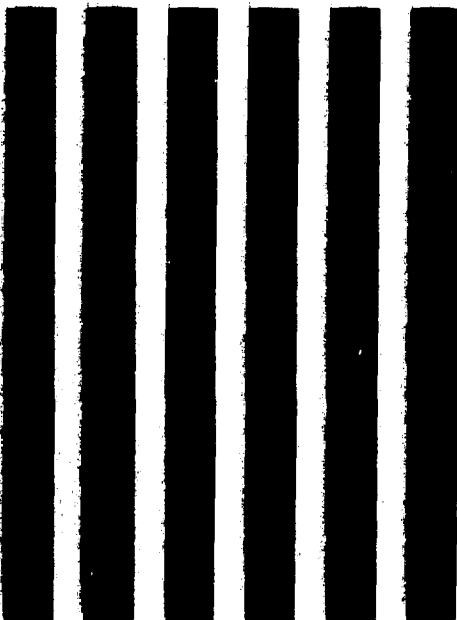


A R 00104

INIS-mf--11259

A graphical analysis of world energy up to 1986



Introduction

FACTS AND FIGURES is produced annually at the OPEC Secretariat in Vienna, to assist people requiring a means of rapidly assimilating important facts about the energy industry, without themselves having to delve into time-consuming research from an array of sources. Since it is the belief of OPEC Member Countries that energy cannot be viewed in isolation from other global economic considerations, parts of this booklet broach such related issues as comparisons between the economic fortunes of industrialized and developing nations.

A wide range of authoritative sources have been consulted in producing this booklet. Where disparities have occurred among sources, great pains have been taken at the Secretariat to distill those figures which most faithfully reflect observed market trends.

The graphs are presented in six sections. The first three examine energy issues on a global scale, the next two concentrate on OPEC, while the final one makes broad economic comparisons between different world groupings.


It is hoped that this latest issue of FACTS AND FIGURES, which covers the period up to the end of 1986, will prove of interest and value to its readers.

November 1987

Published by:

The Secretariat,
Organization of the Petroleum Exporting Countries,
Obere Donaustrasse 93,
A-1020 Vienna,
Austria

1987

Printed in Austria by  Carl Ueberreuter Ges. m. b. H., Vienna


OPEC flows of crude and refined oil — 1986

□ OPEC Far East	— 4 Indonesia
■ OPEC Latin America	— 2 Ecuador; 13 Venezuela
■ OPEC Africa	— 1 Algeria; 3 Gabon; 9 Nigeria; 8 SP Libyan AJ
■ OPEC Middle East	— 5 IR Iran; 6 Iraq; 7 Kuwait; 10 Qatar; 11 Saudi Arabia; 12 UAE



facts&figures

SECTIONS

	World primary energy trends	1-5
2	World energy resources	6-12
3	World energy demand	13-19
4	World energy supply	20-26
5	World energy efficiency	27-33
6	World energy security	34-40

Glossary

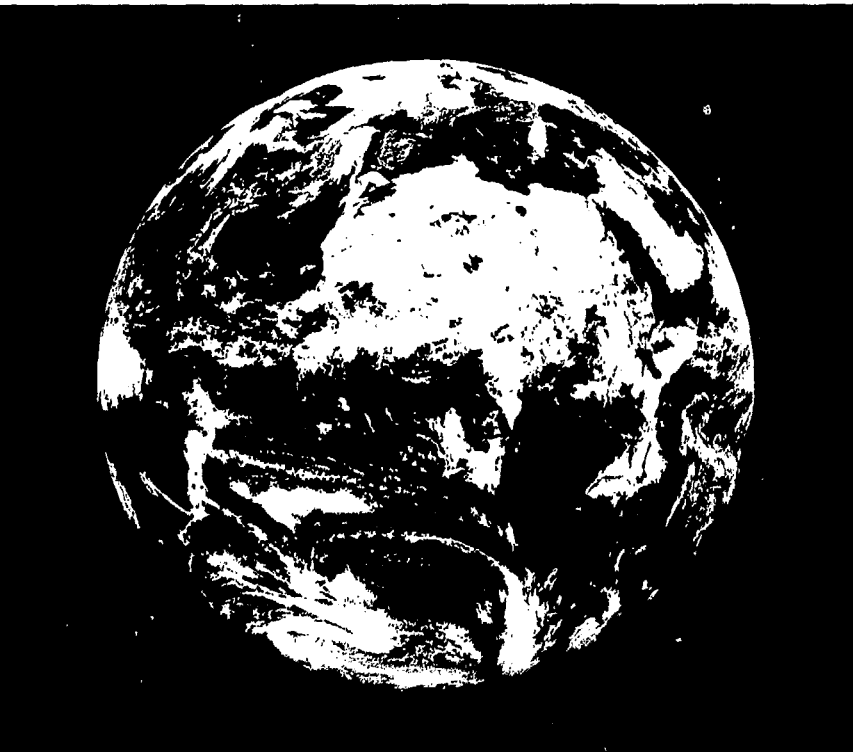
Aus/NZ	Australia/New Zealand
b/d	Barrels per day
billion	Thousand million
bboe	Billion barrels oil equivalent
CPE	Centrally planned economy
DC	Developing country
dollar	US dollar
dwt	Deadweight tons
EEC	European Economic Community
GDP	Gross domestic product
GNP	Gross national product
IAEA	International Atomic Energy Agency
IR Iran	Islamic Republic of Iran
mb/d	Million barrels per day
mtoe	Million tons oil equivalent
North	Industrialized countries
Oceania	Australia, New Zealand, Papua New Guinea and South Pacific islands
OECD	Organization for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
South	Developing countries
SP Libyan AJ	Socialist Peoples Libyan Arab Jamahiriya
UAE	United Arab Emirates
US	United States of America
USSR	Union of Soviet Socialist Republics
W Eur	Western Europe

Sources

- 1 BP Statistical Review of World Energy
- 2 UN Energy Statistics Yearbook
- 3 Direct communications to the OPEC Secretariat
- 4 World Oil
- 5 Petroleum Intelligence Weekly
- 6 OPEC Secretariat calculations
- 7 Cedigaz
- 8 National sources
- 9 Middle East Economic Survey
- 10 Oil and Gas Journal
- 11 Hydrocarbon Processing
- 12 Arab Oil and Gas
- 13 Economic Intelligence Unit
- 14 World Tanker Fleet Review
- 15 France in the World, 1986
- 16 OPEC Annual Statistical Bulletin, 1986
- 17 20th Century Petroleum Statistics
- 18 Oil and Energy Trends, Statistical Review
- 19 Nuclear Power Reactors in the World, IAEA
- 20 OECD Quarterly Oil and Gas Statistics
- 21 OAPEC report
- 22 OECD Economic Outlook
- 23 International Petroleum Times
- 24 IMF International Financial Statistics
- 25 OECD Trade by Commodity
- 26 GATT, International Trade, 1985-86
- 27 UN Monthly Bulletin of Statistics
- 28 OECD press release, Financial Resources for Developing Countries, 19 June 1987



World primary energy trends



**Primary energy consumption by type
1974-86 — flow chart**

1

**Primary energy consumption by type
1974-86 — selected years**

2

**Primary energy consumption by group
1974-86**

3

**Primary energy production by group
1974-86**

4

**Primary energy comparison between
regions of the South 1986**

5

World primary
energy trends

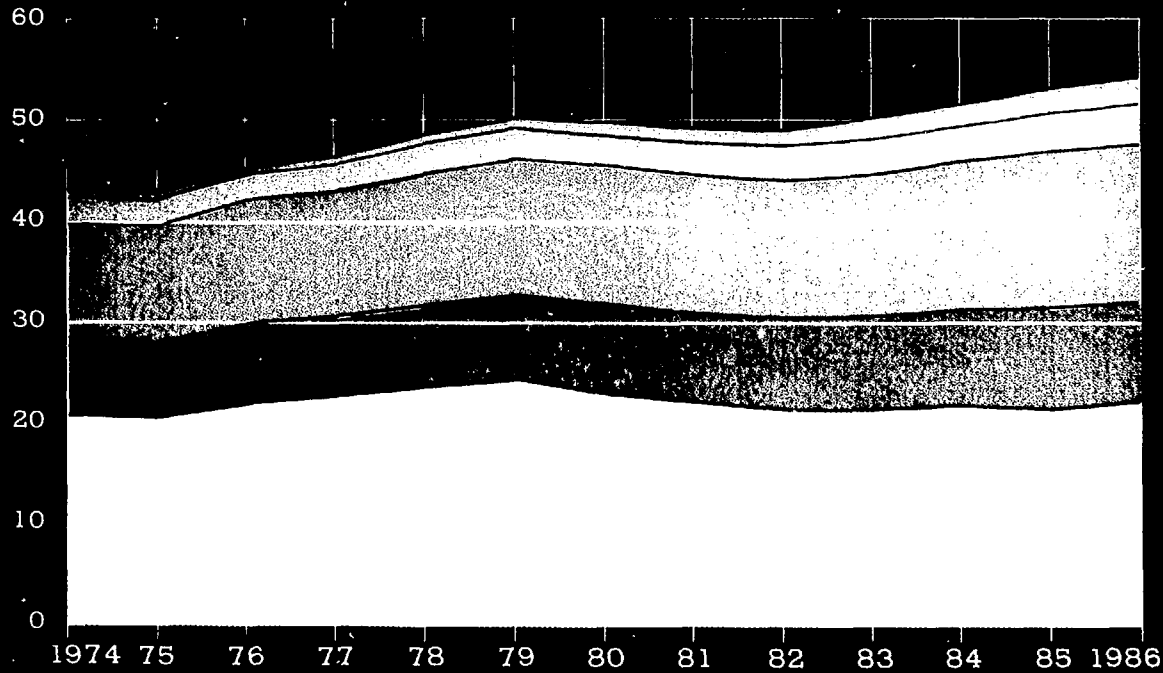
1974 - 86

Primary energy consumption by type — flow chart

Billion barrels oil equivalent



1



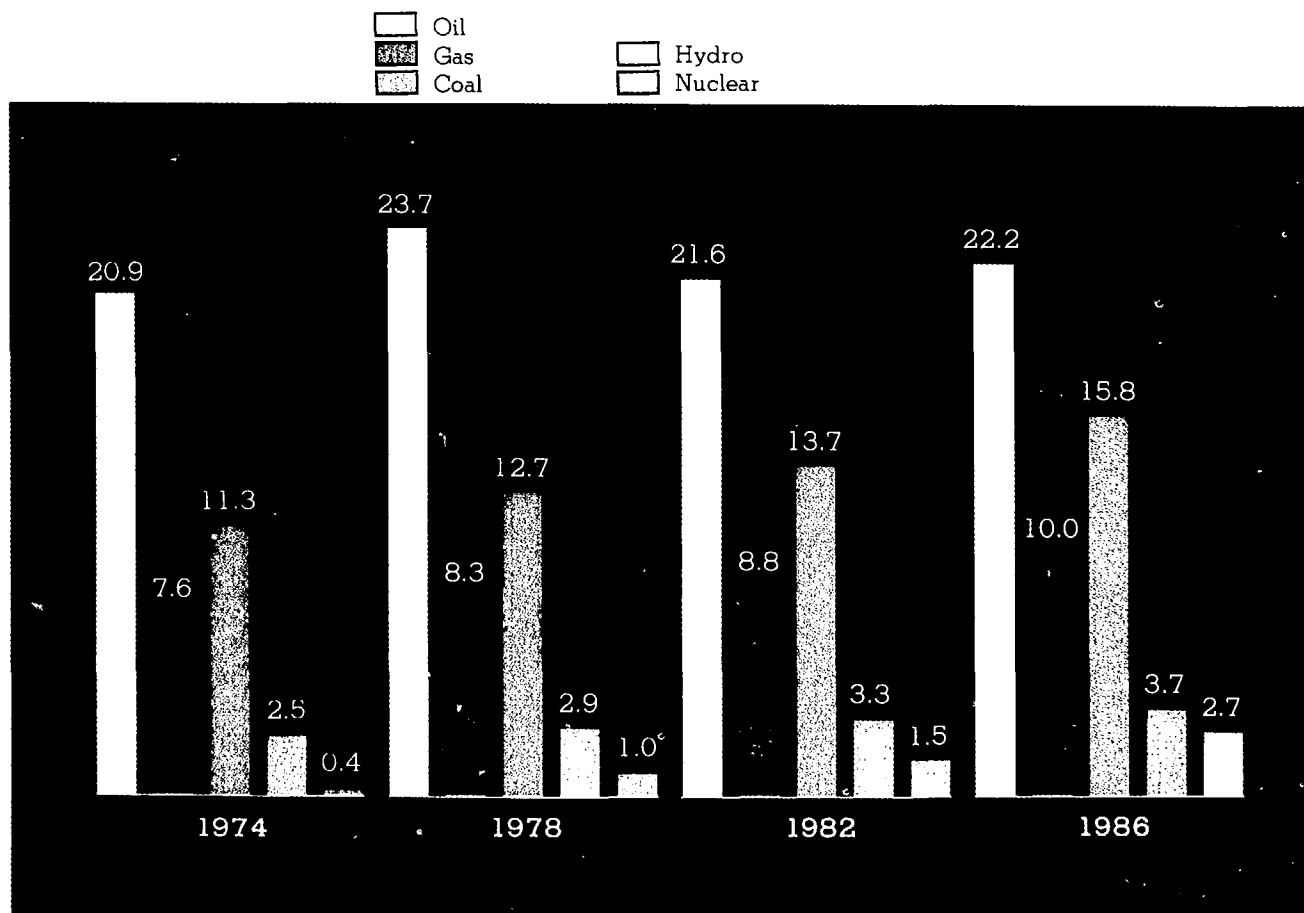
■ World totals (bboe) — 1974, 42.75; 1978, 48.60; 1982, 49.05; 1986, 54.41.
■ The figures include bunkers.
■ Sources: 1, 2.

World primary
energy trends

1974-86

Primary energy consumption by type — selected years

Billion barrels oil equivalent



2

■ The figures include bunkers.
■ Sources: 1, 2.

World primary
energy trends

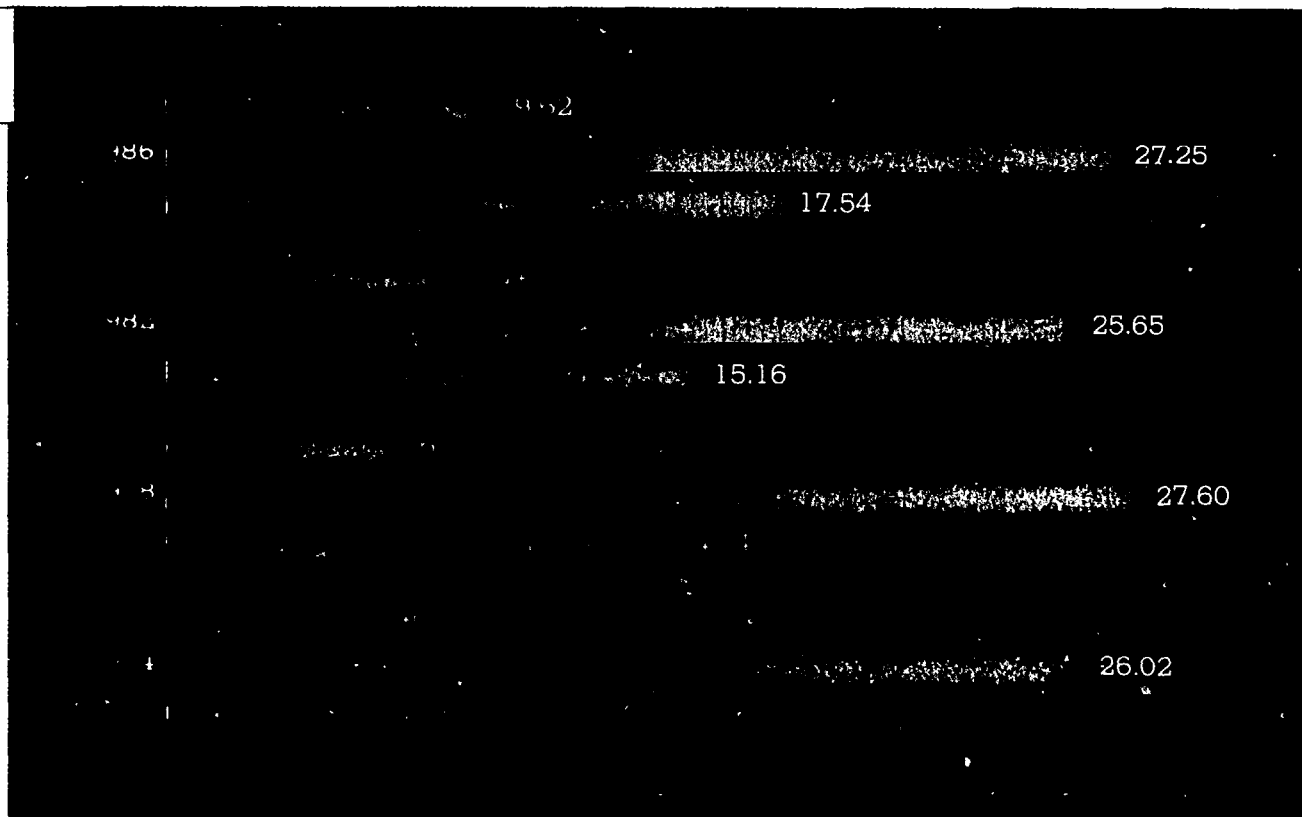
1974-86

Primary energy consumption by group

Billion barrels oil equivalent



3

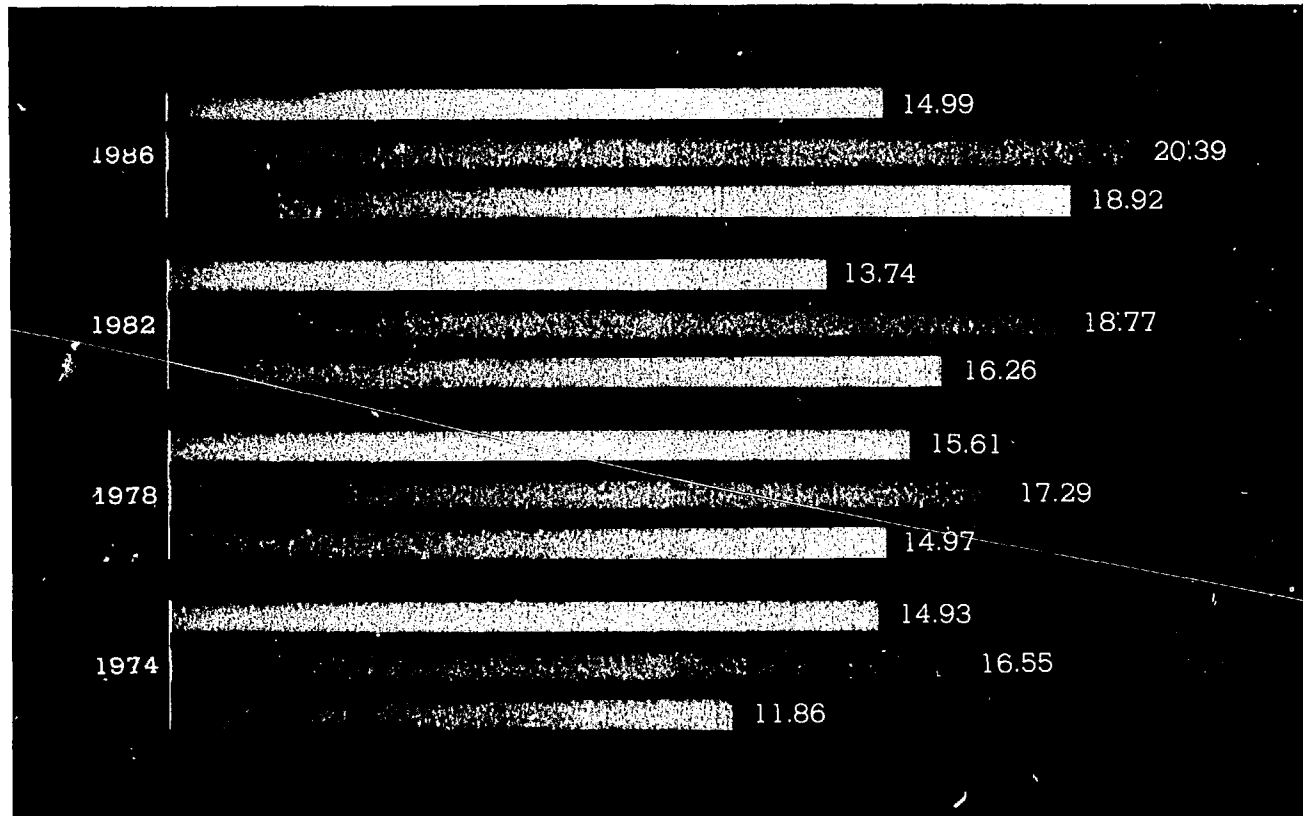


■ The figures include bunkers.
■ Sources: 1, 2.

Primary energy production by group

Billion barrels oil equivalent

DCs
OECD
CPEs



4

World primary
energy trends

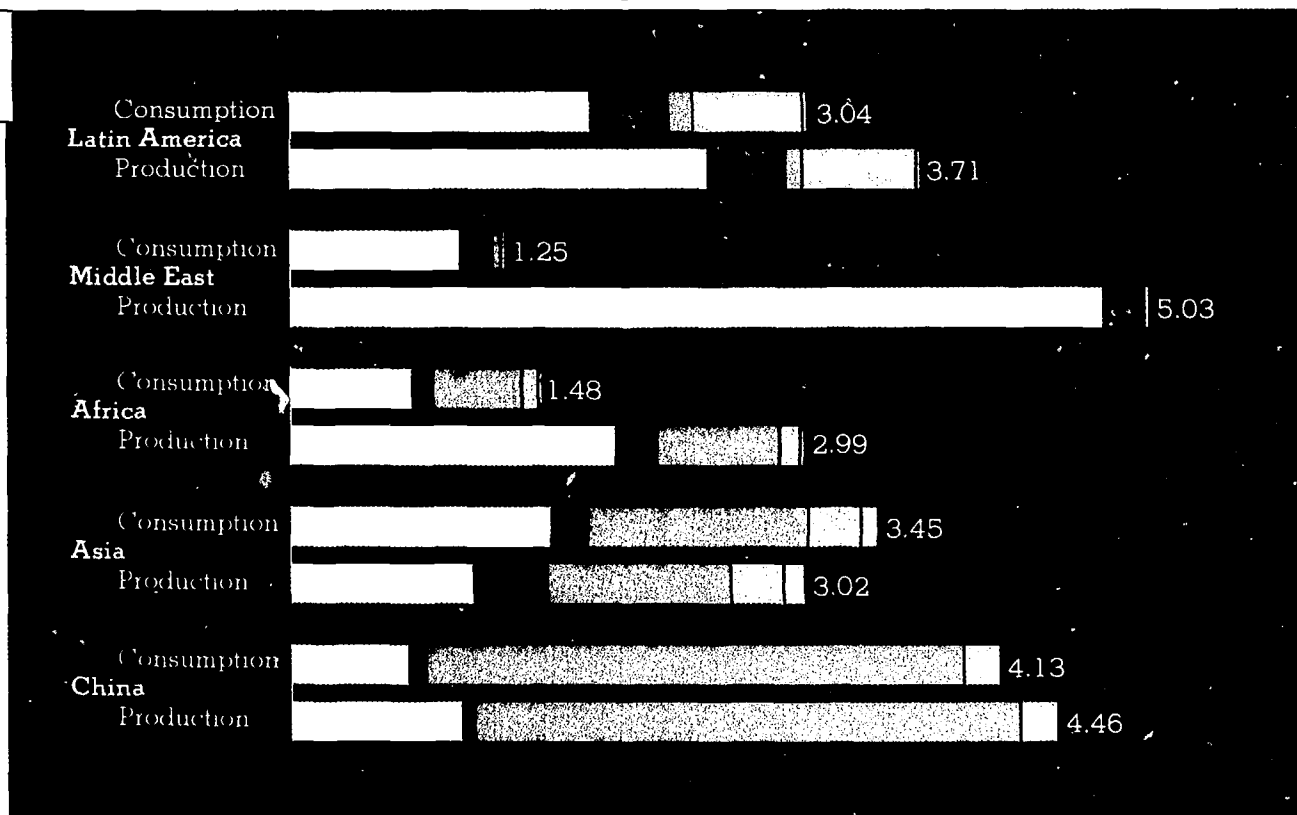
1986

Primary energy comparison between regions of the South

Billion barrels oil equivalent



5



■ The consumption figures include bunkers.
 ■ Asia excludes Japan and China.
 ■ Sources: 1, 2.

World oil and gas trends

**Crude oil production
1982-86**

6

**Per capita oil consumption
1986**

7

**Natural gas production
1986**

8

**Oil and gas comparison
1986**

9

**Refining capacity by group
1960-86 - flow chart**

10

**Refining capacity by group
1960-86 - selected years**

11

**Tanker fleet by flag
1981-86**

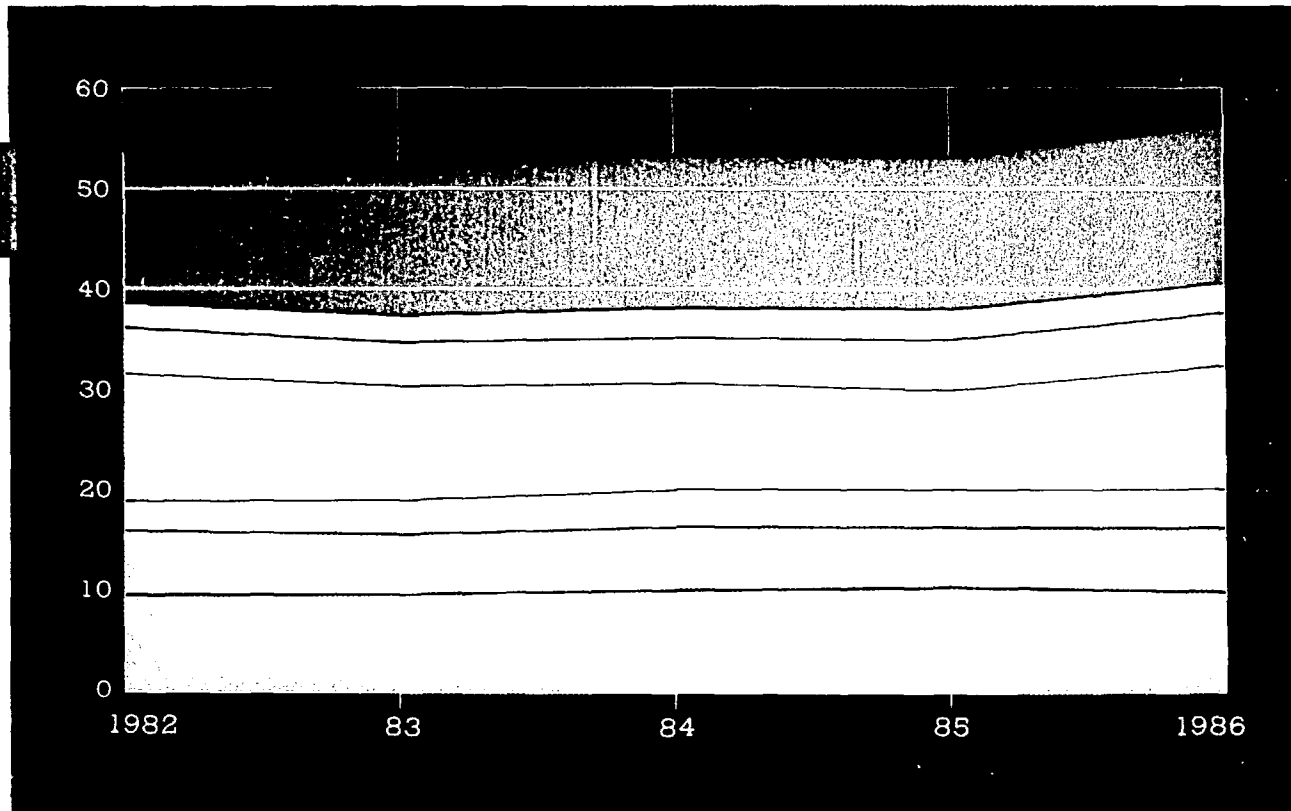
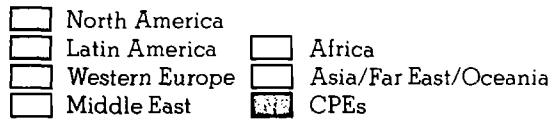
12

World oil and gas trends

1982 - 86

Crude oil production

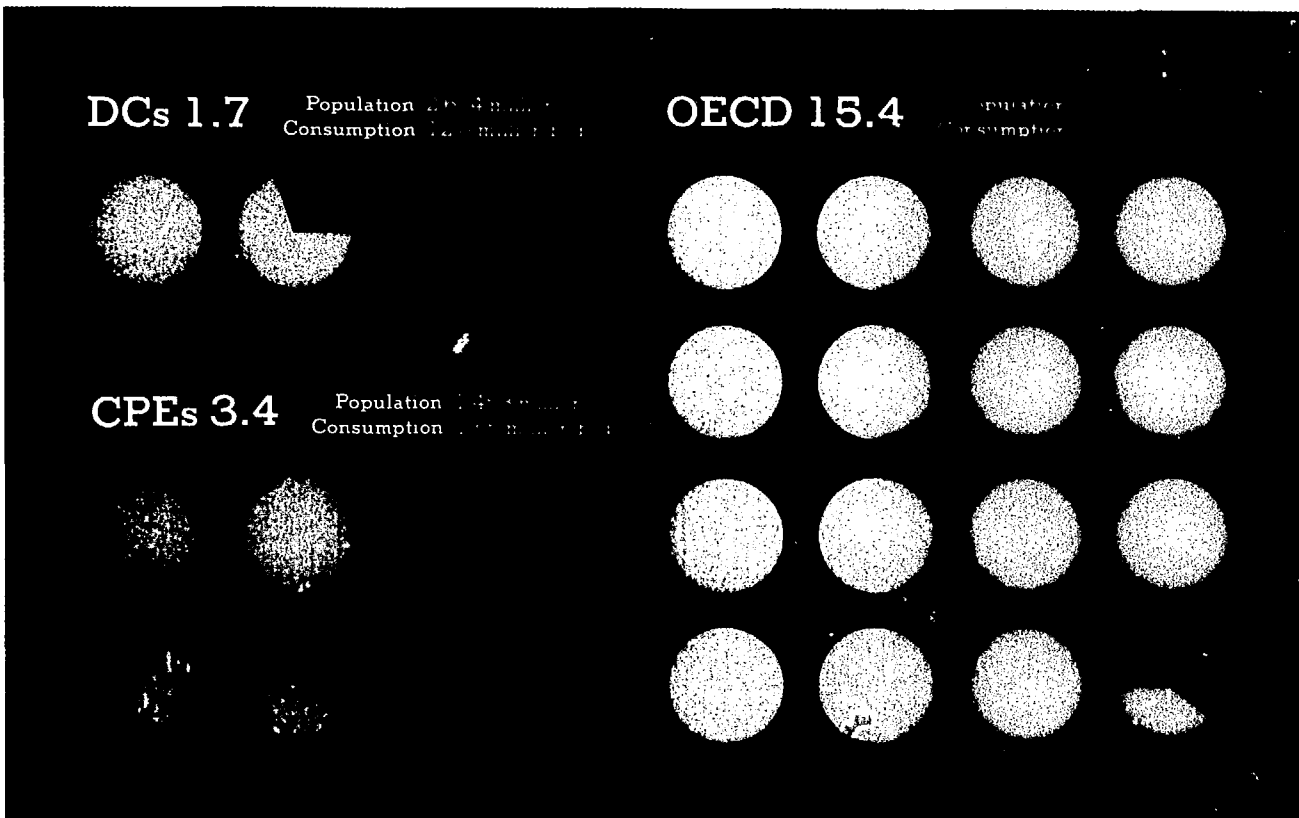
Million barrels per day



■ World totals (mb/d) — 1982, 53.7; 1983, 52.7; 1984, 53.5; 1985, 53.2; 1986, 56.2.
■ Sources: 3-5.

Per capita oil consumption

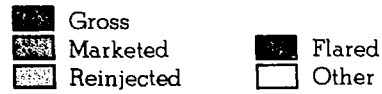
Barrels per person per year



■ The figures include bunkers.
■ Sources: 1, 6.

Natural gas production

Billion standard cubic metres



8

North America

Latin America

Western
Europe

Middle East

Africa

Asia/Far East/
Oceania

CPEs

122.0

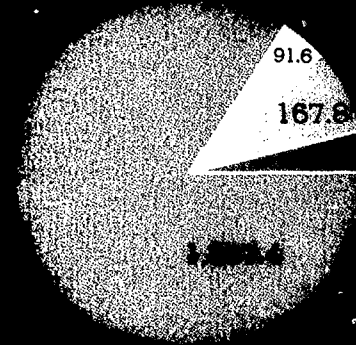
206.3

130.4

143.9

125.7

World

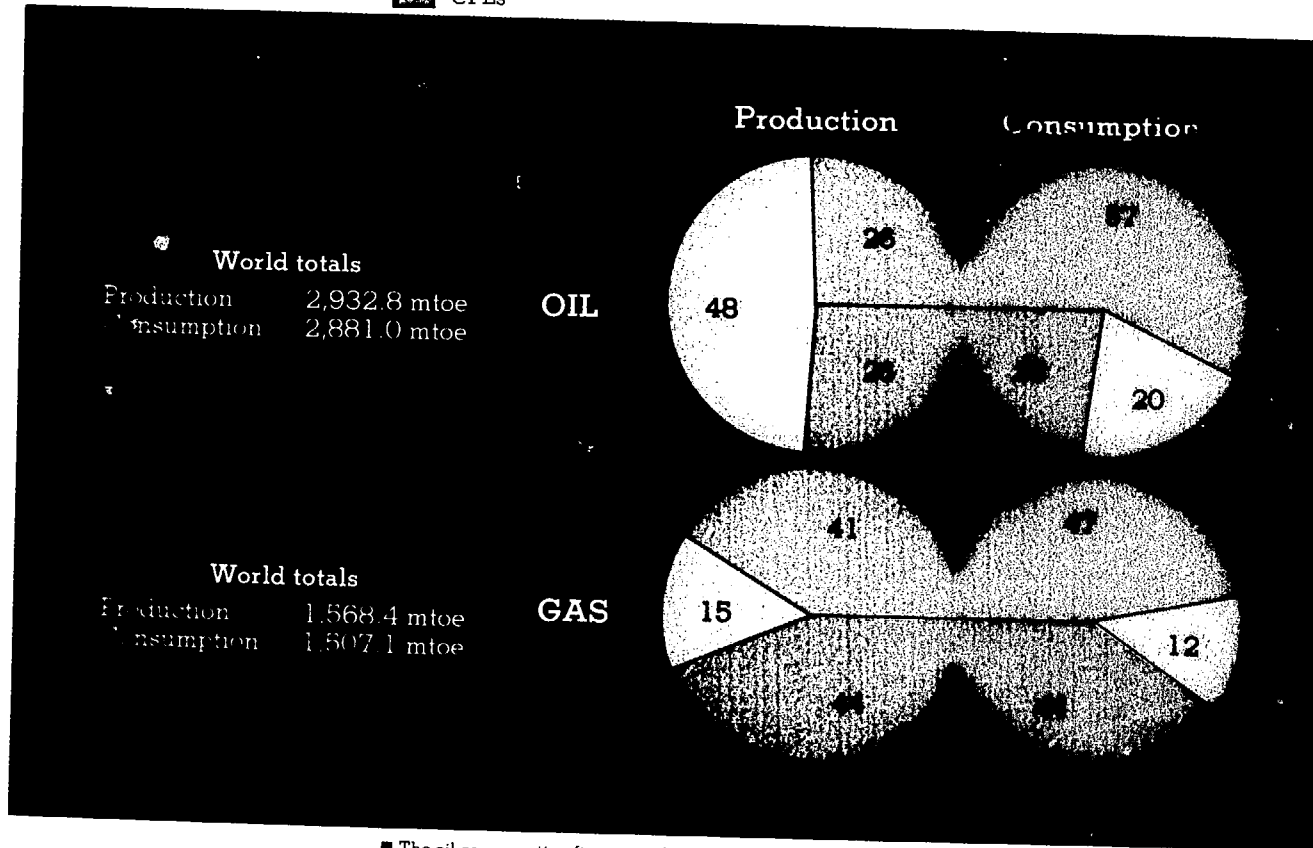


World oil and gas trends

1986

Oil and gas comparison

Percentage



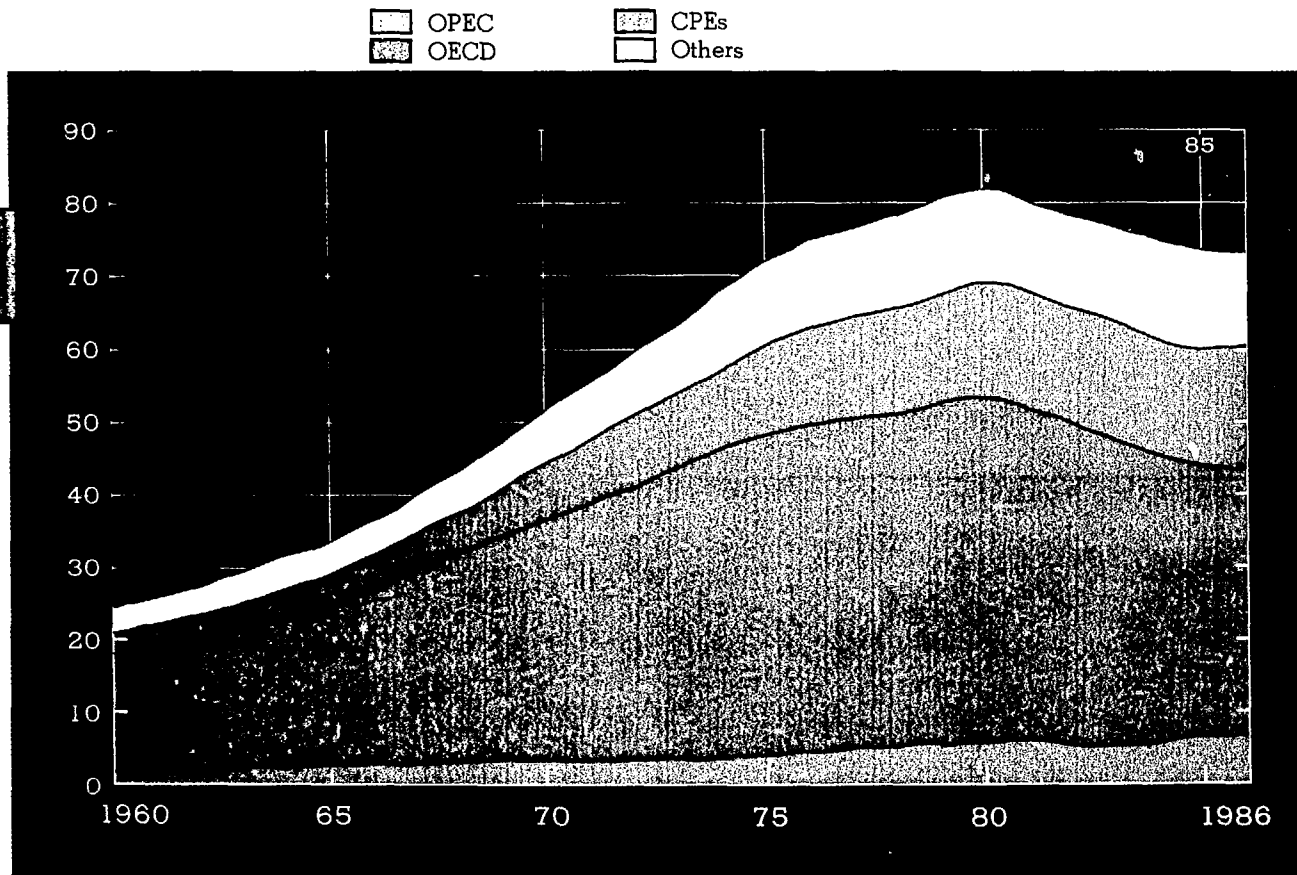
■ The oil consumption figures include bunkers.
 ■ Source: 1.

World oil and gas trends

1960-86

Refining capacity by group — flow chart

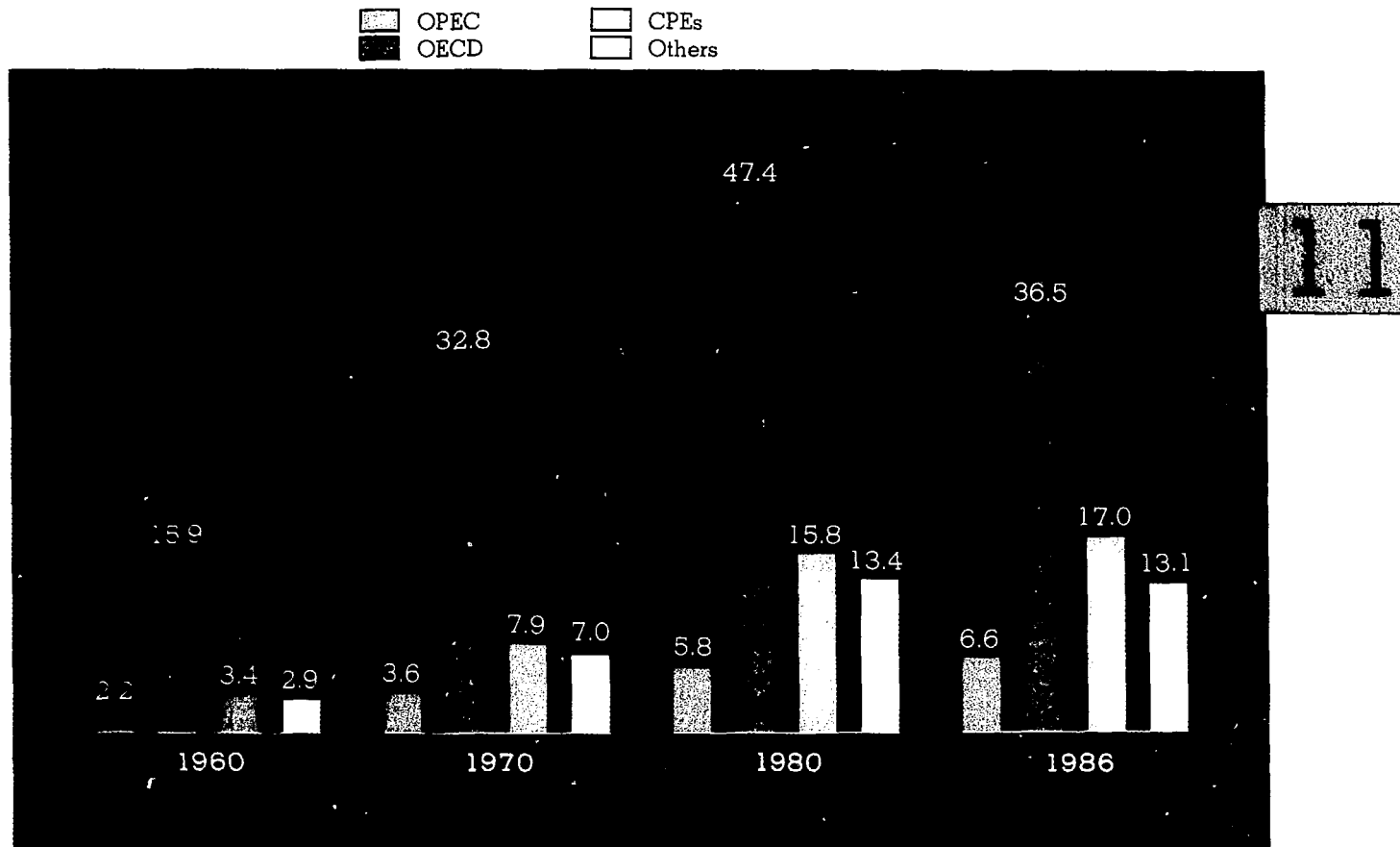
Million barrels per day



■ World totals (mb/d) — 1960, 24.4; 1970, 51.3; 1980, 82.4; 1986, 73.2.
■ Sources: 3, 5, 8-13.

Refining capacity by group — selected years

Million barrels per day



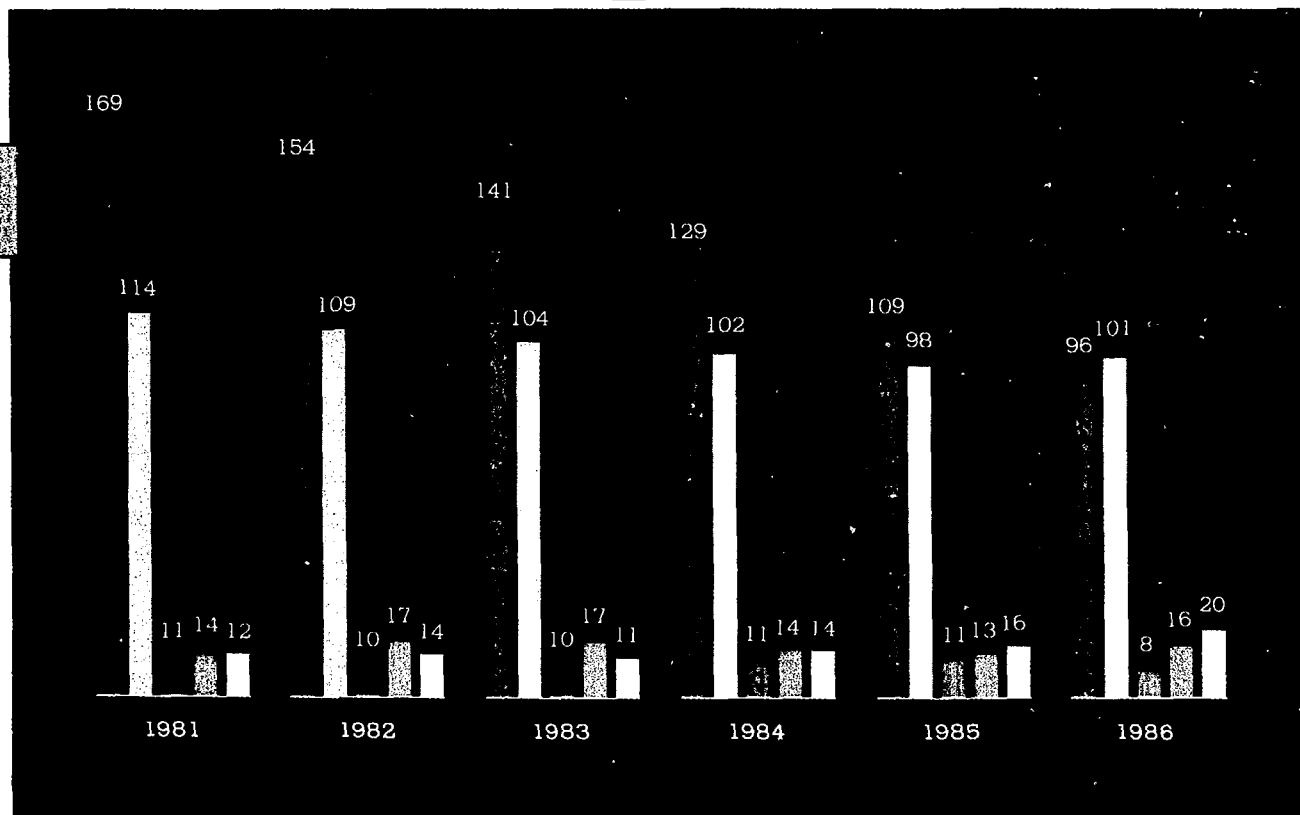
■ Sources: 3, 5, 8-13.

World oil and gas trends

1981 - 86

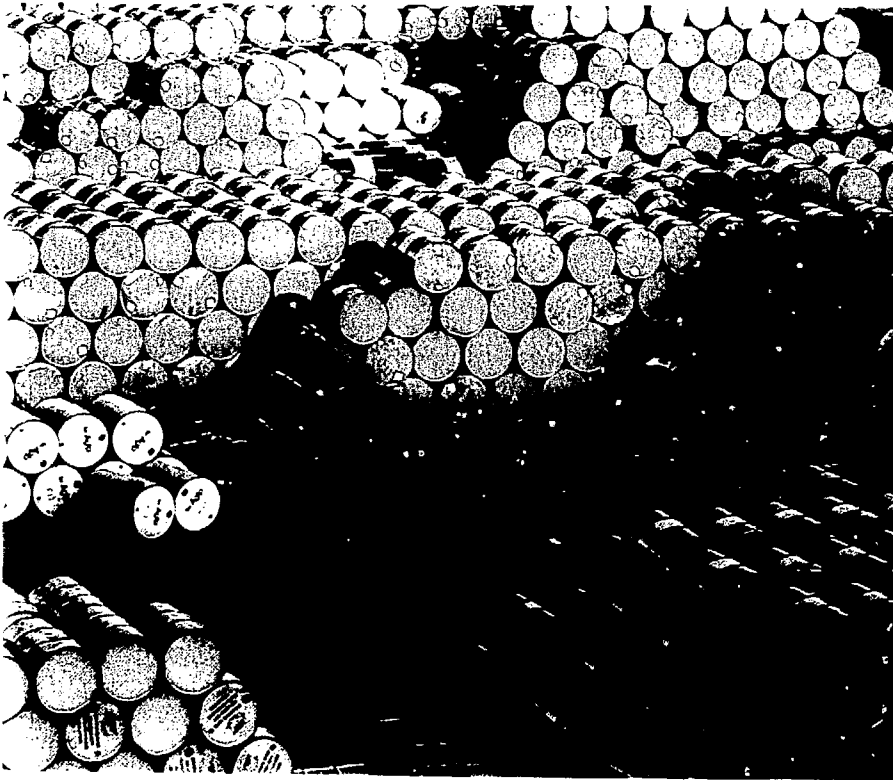
Tanker fleet by flag

Million deadweight tons



- World totals (million dwt) — 1981, 320; 1982, 304; 1983, 283; 1984, 270; 1985, 247; 1986, 241.
- Only crude and product tankers of 10,000 dwt and above are included in the figures.
- The figures are as at the end of each year.
- Source: 14.

12

World energy resources

**Proven recoverable conventional
energy resources 1986**

13

**Crude oil reserves
1986**

14

**Cumulative oil discoveries
1987-86**

15

**Number of active oil exploration rigs
1982-86**

16

**Proven natural gas reserves
1986**

17

**Nuclear power
1986**

18

**Proven recoverable coal reserves
1986**

19

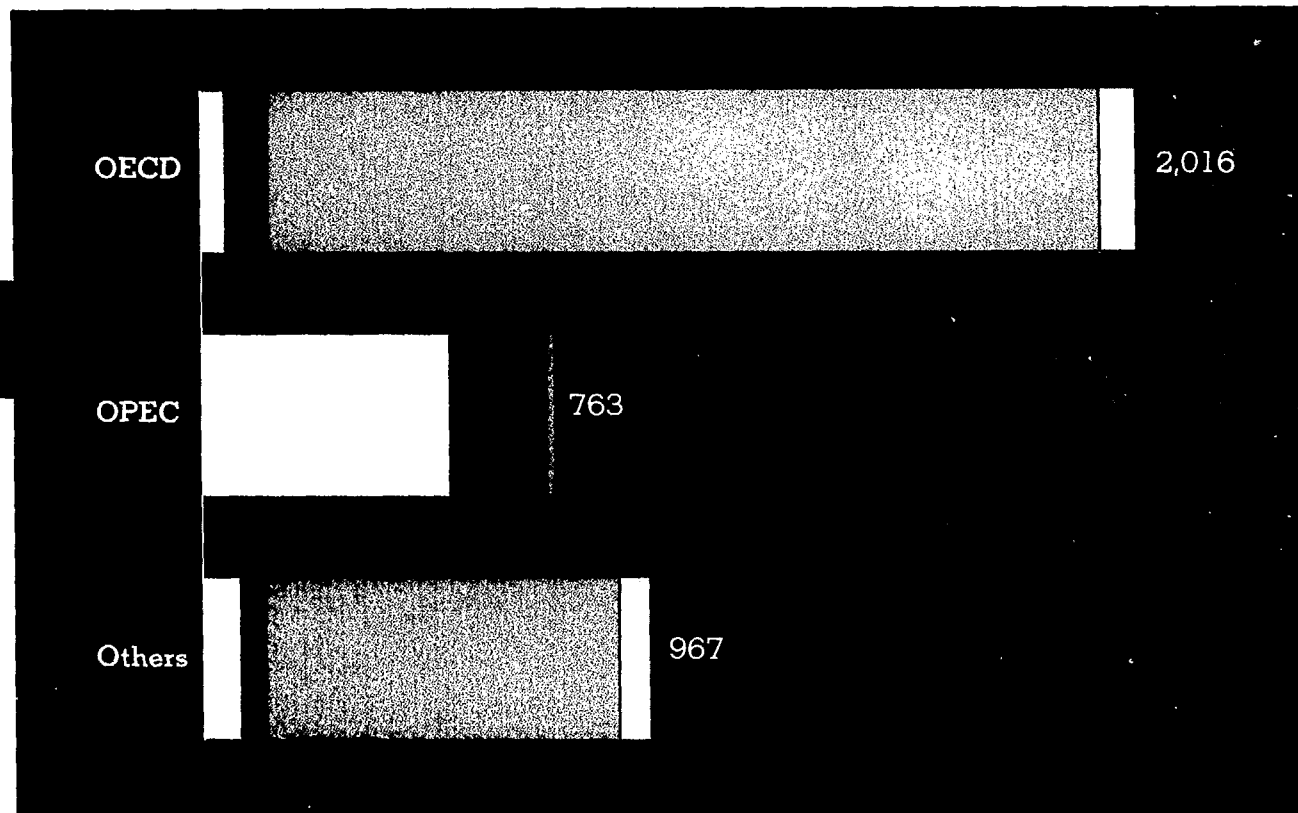
**World energy
resources**

1986

Proven recoverable conventional energy resources

Billion barrels oil equivalent

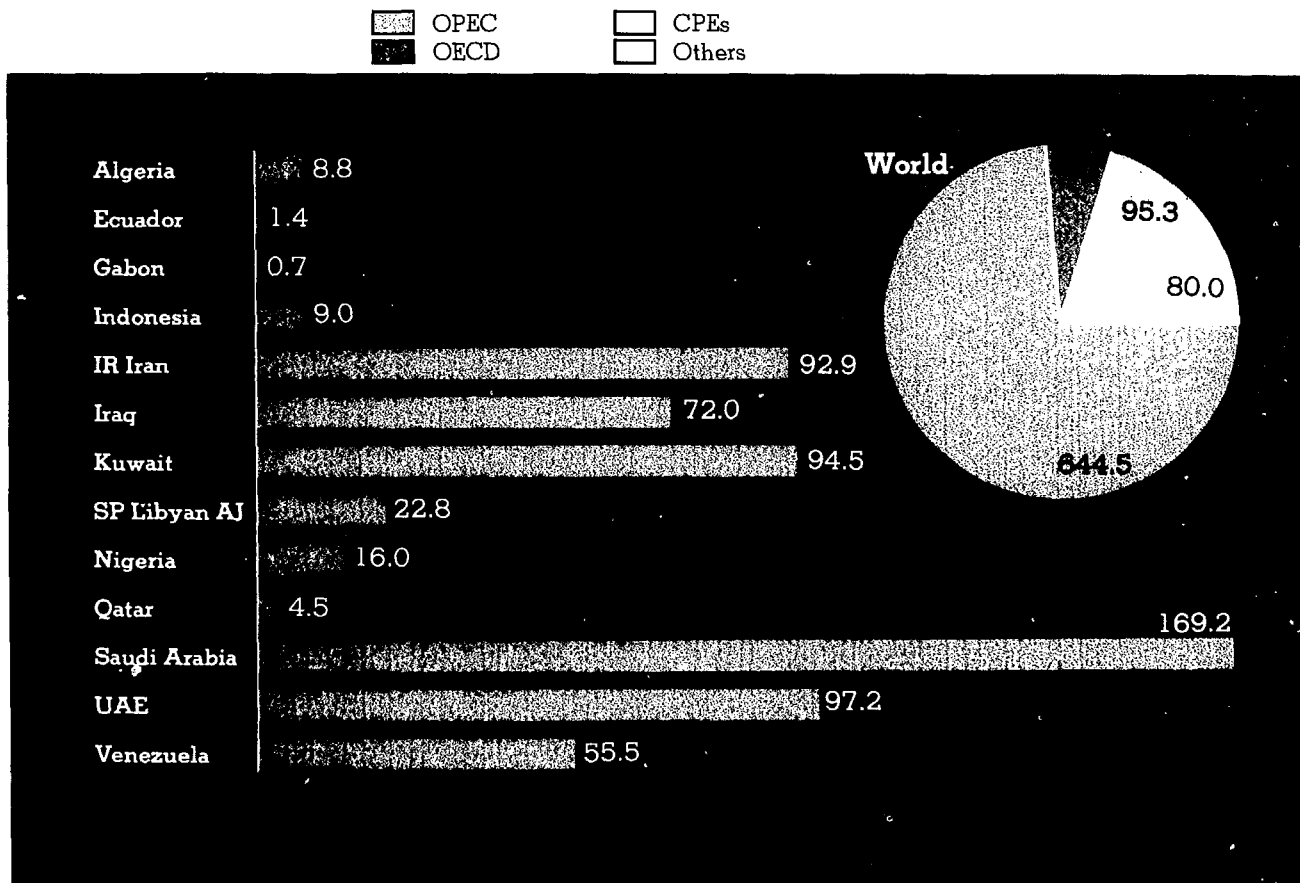
Oil Coal
Gas Uranium



■ The figures exclude CPEs.
■ Sources: 1, 15, 16.

Crude oil reserves

Billion barrels



■ The figures are as at the end of the year.
 ■ Sources: 3, 5, 8-10, 12, 13.

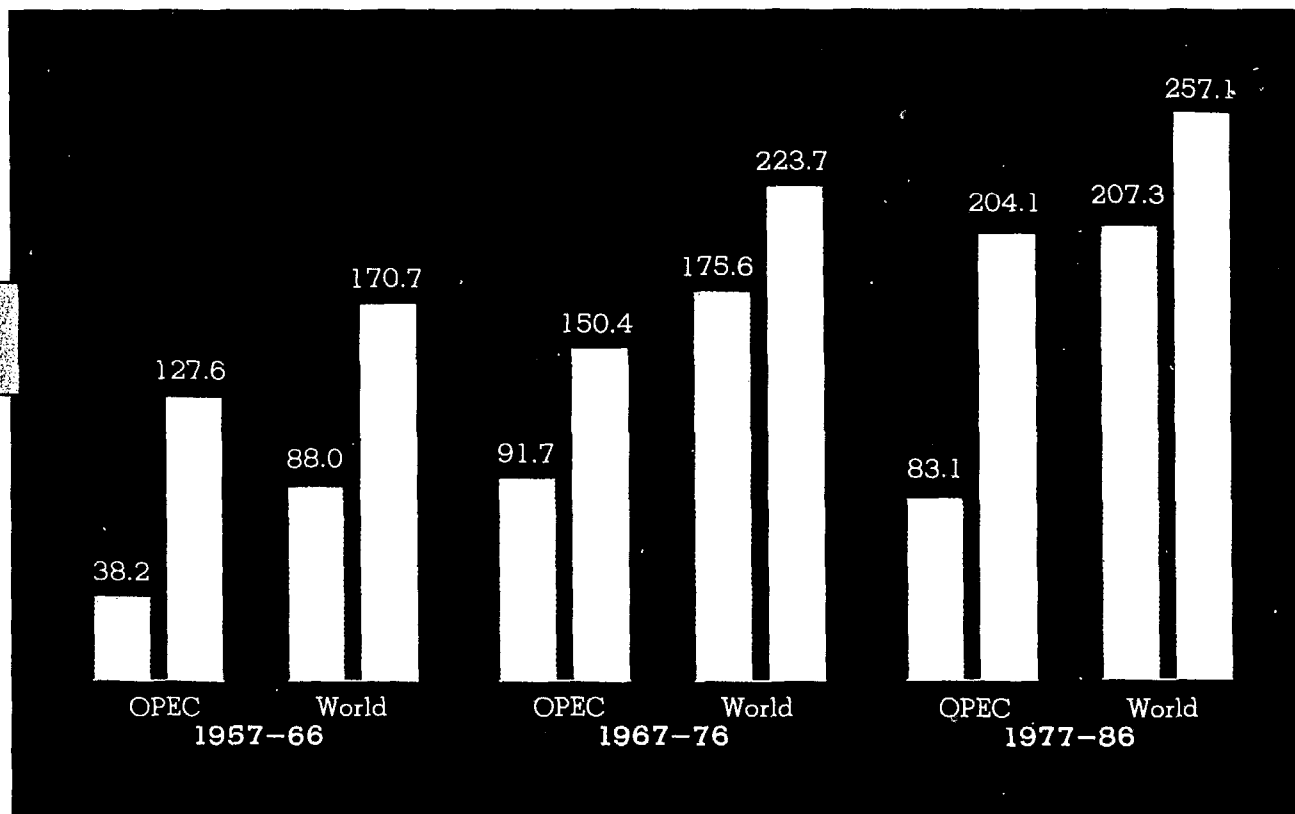
World energy
resources

1957-86

Cumulative oil discoveries

Billion barrels

■ Cumulative production
■ Net addition to reserves



■ Cumulative discoveries = cumulative production + net addition to reserves.
■ "World" includes OPEC Member Countries.
■ Sources: 3-5, 8-10, 12, 13, 17.

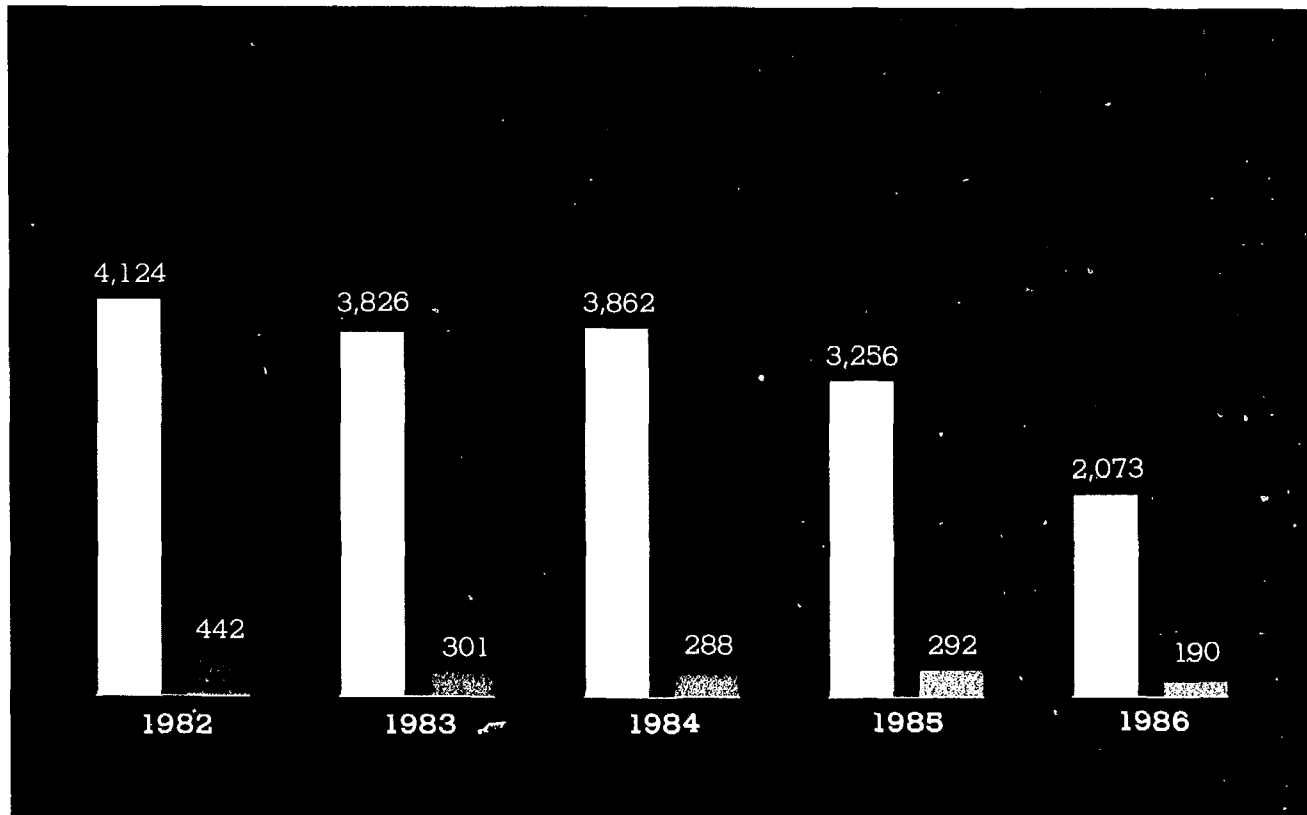
15

**World energy
resources**

1982 - 86

Number of active oil exploration rigs

■ OPEC
□ Non-OPEC



16

■ The figures exclude CPEs.
■ The figures are as at the end of each year.
■ Source: 18.

**World energy
resources**

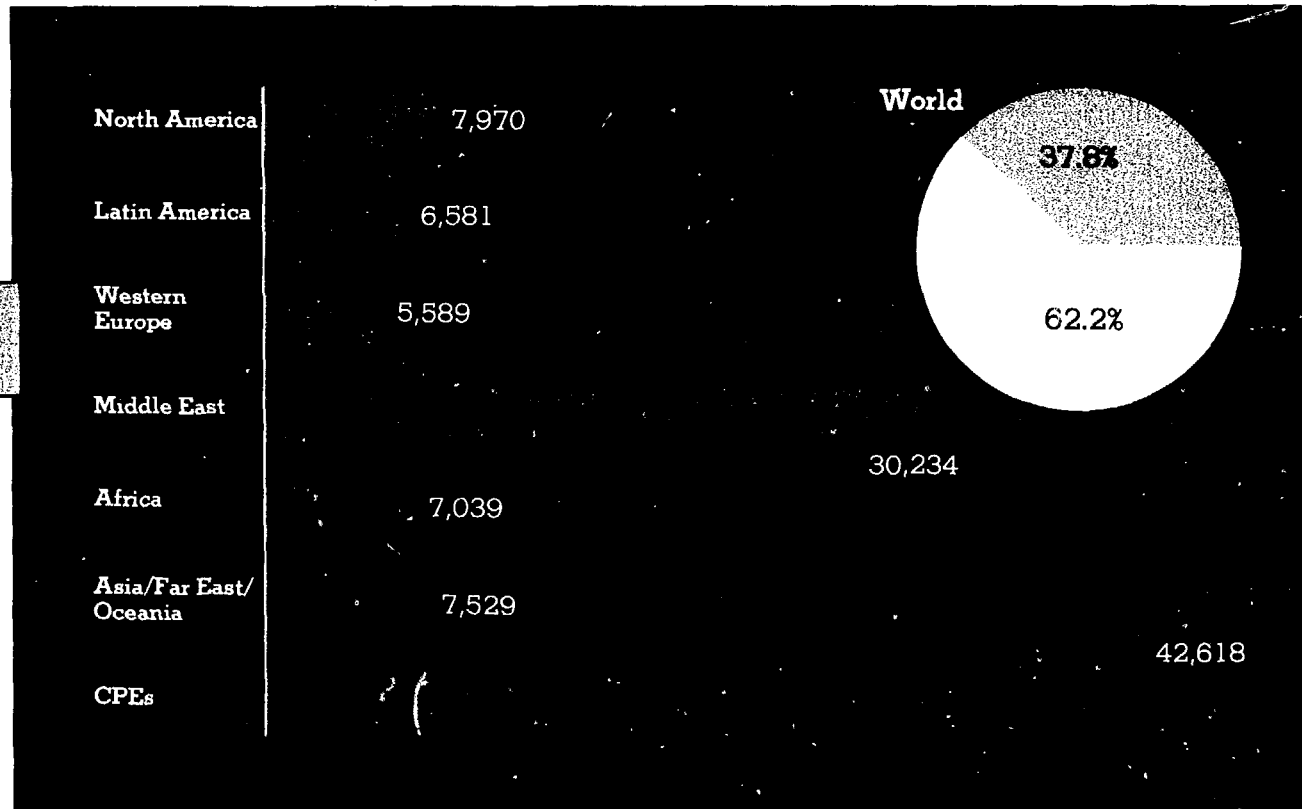
1986

Proven natural gas reserves

Billion standard cubic metres

■ Regional total
 ■ OPEC
 ■ Non-OPEC

17



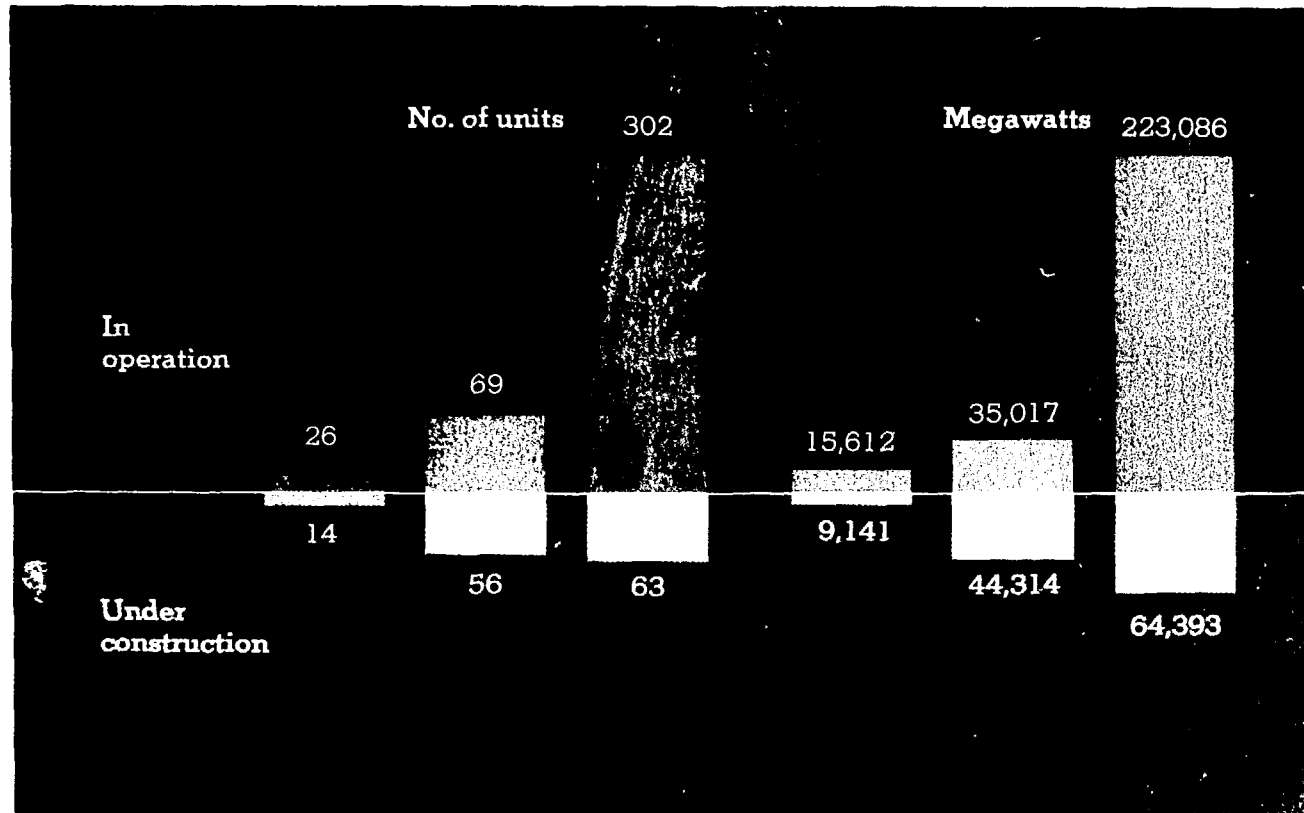
■ The figures are as at the end of the year.
 ■ Sources: 3-5, 7-10, 13.

World energy resources

1986

Nuclear power

DCs
 CPEs
 Industrialized countries



18

■ The figures are as at the end of the year.
 ■ Source: 19.

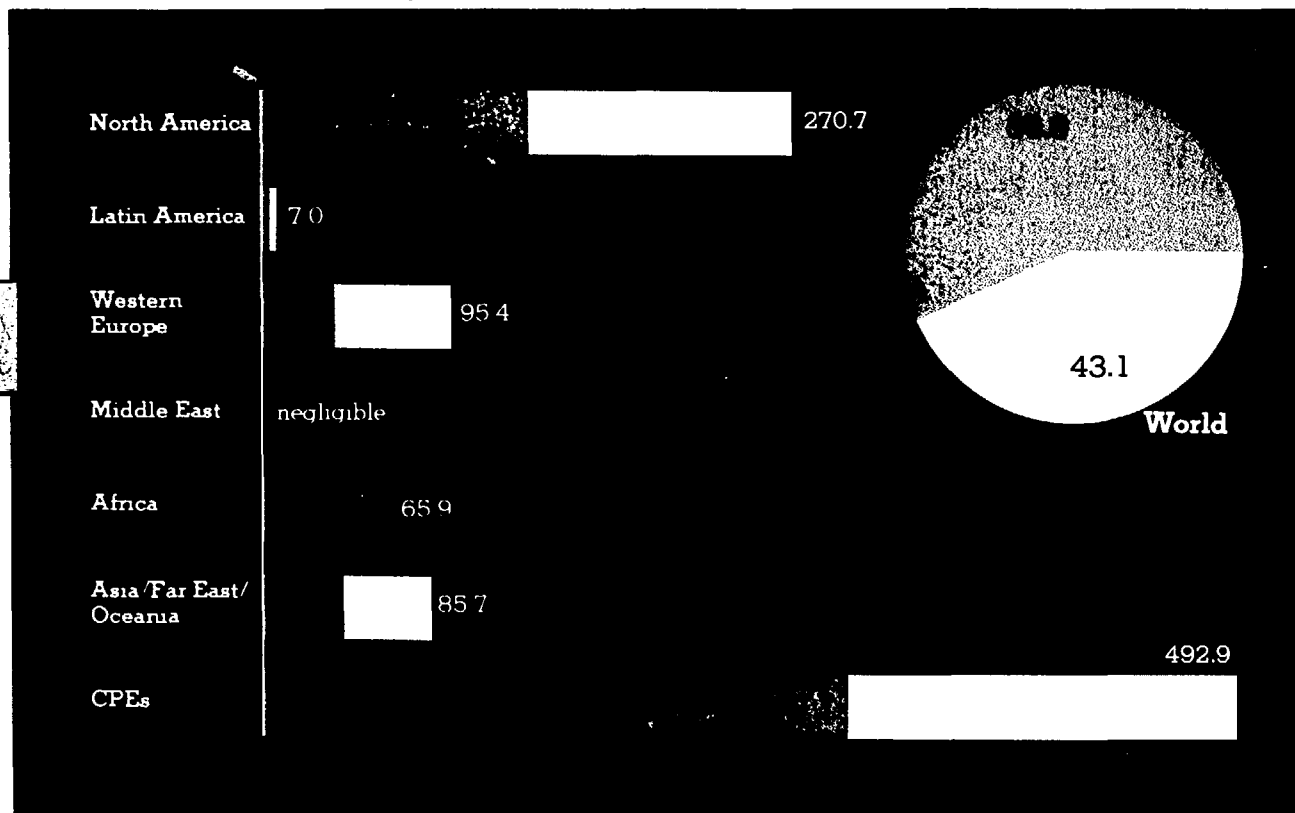
World energy
resources

1986

Proven recoverable coal reserves

Billion tons coal

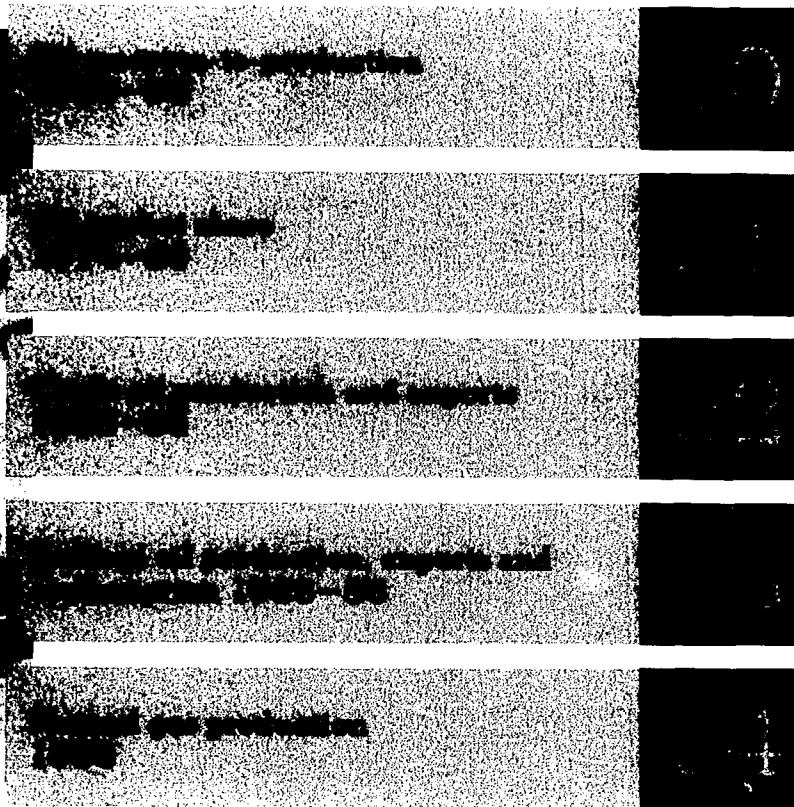
■ Bituminous coal and anthracite
□ Sub-bituminous coal and lignite



■ Source: 1.

19

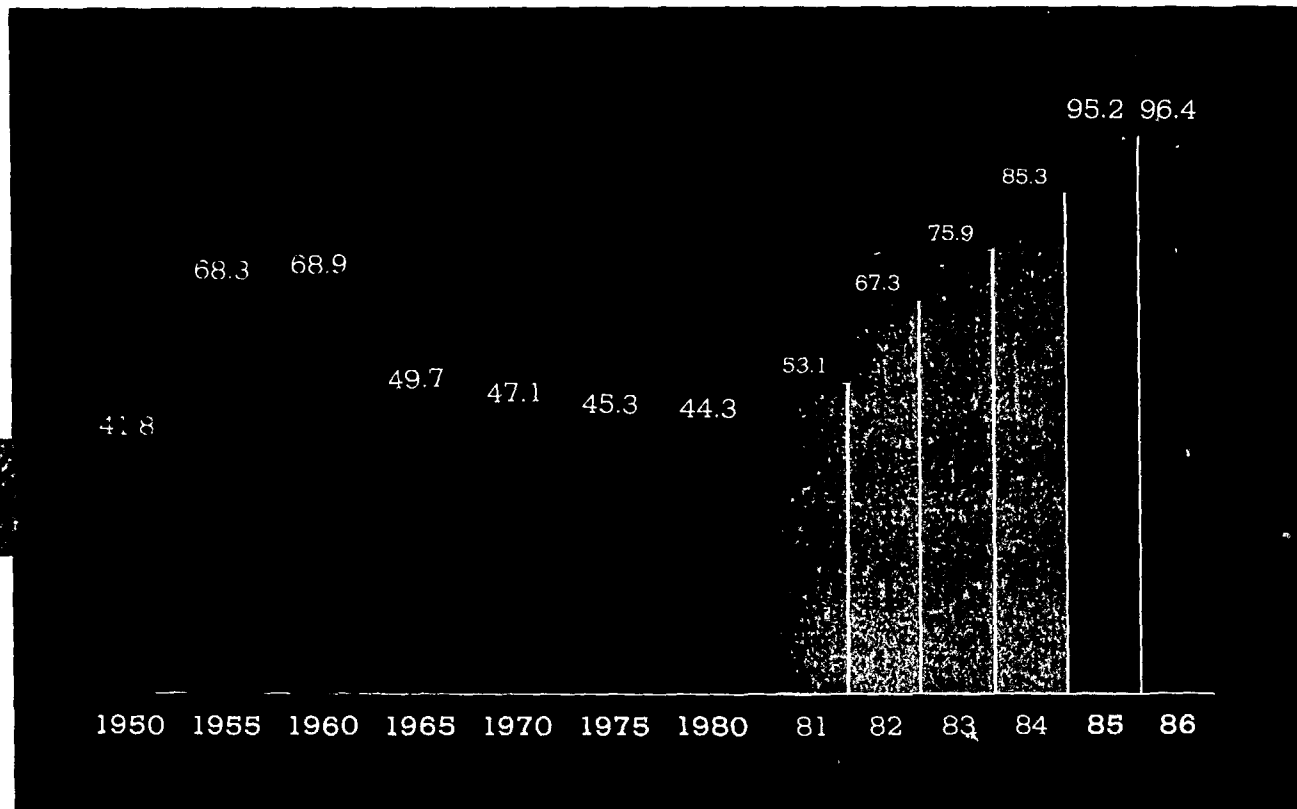
OPEC flows and volumes



OPEC flows
and volumes

Oil reserves-to-production

Life in years

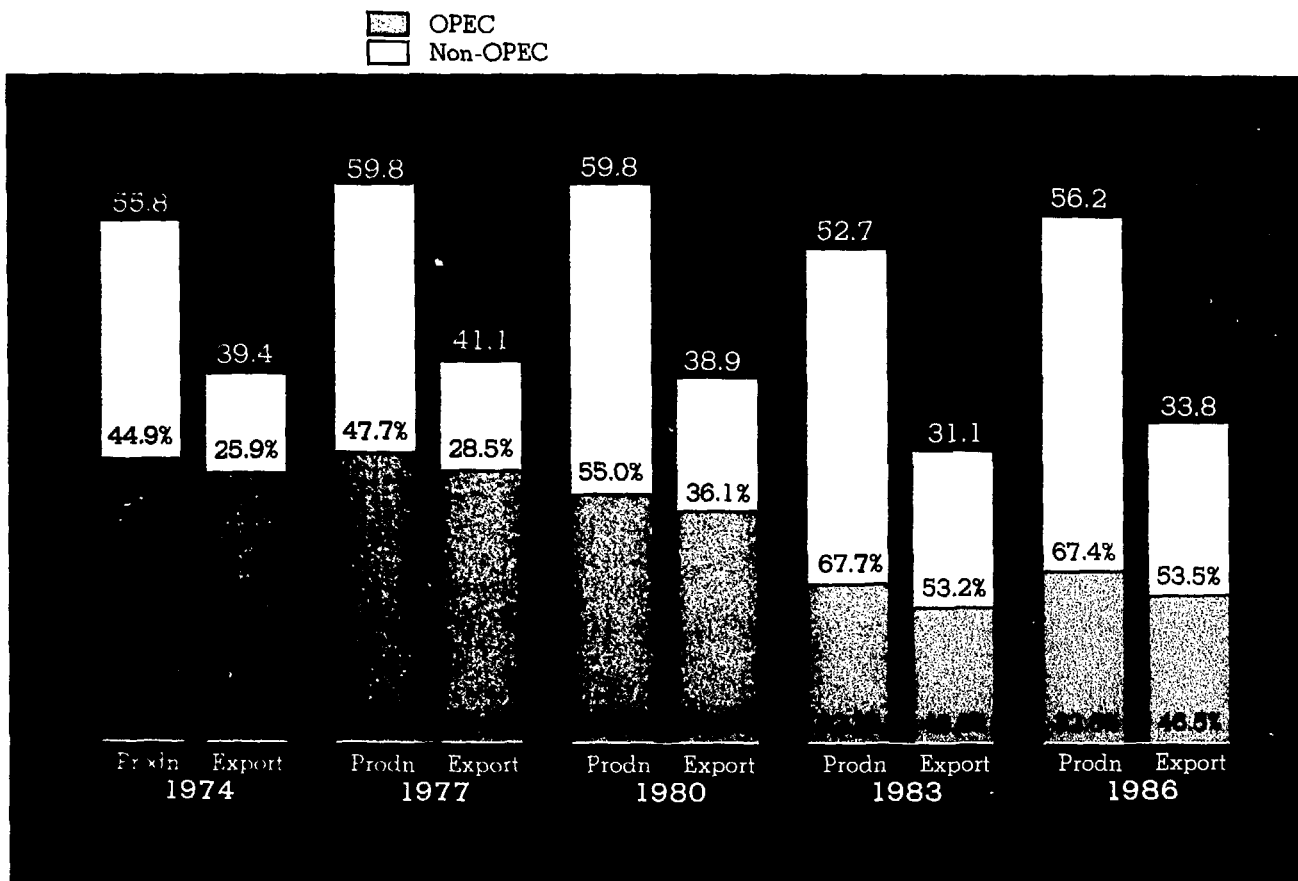


■ This table indicates the expected life of known oil reserves during a given year, at that year's average depletion rate.
■ Sources: 3-5, 8-10, 12, 13.

**OPEC flows
and volumes**

Oil market share

Million barrels per day



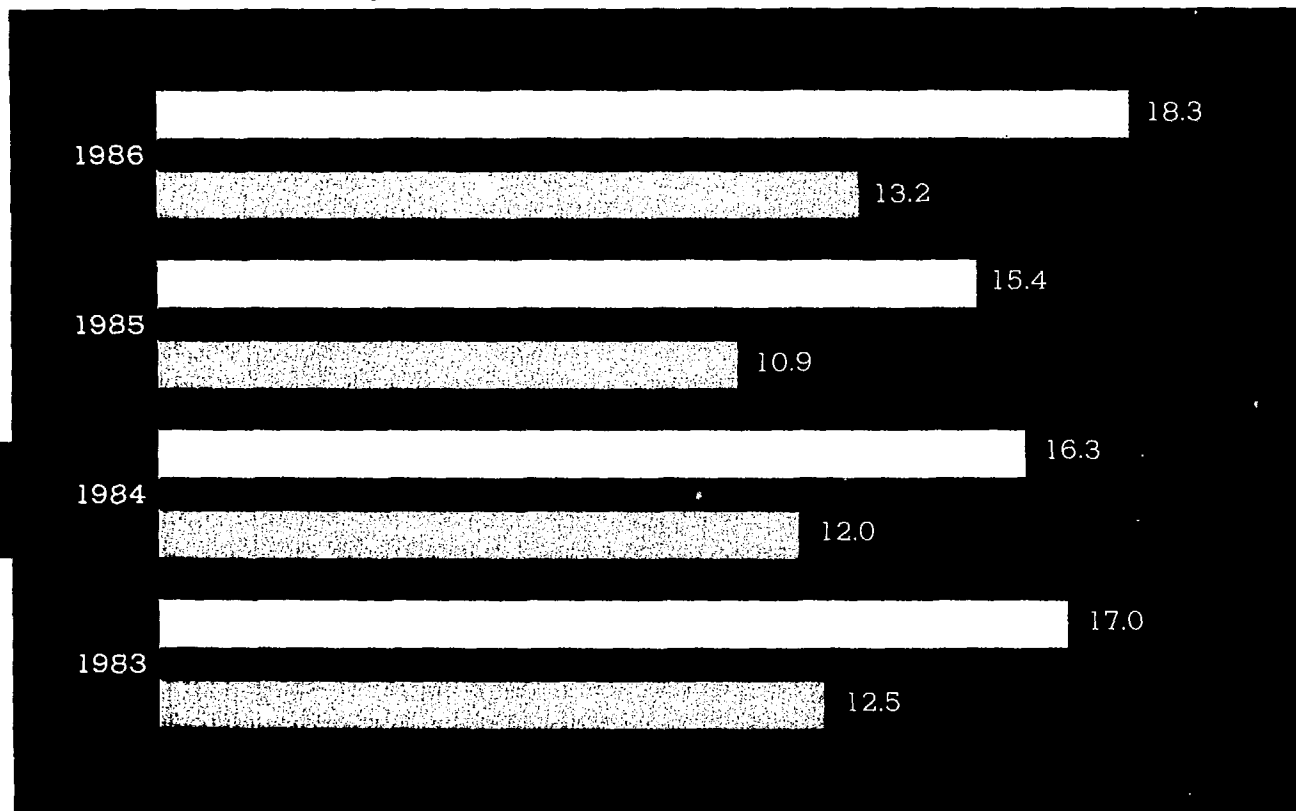
■ Prodn = crude oil production.
 ■ Export = exports of crude oil and oil products.
 ■ Sources: 2-5, 8, 20.

OPEC flows and volumes

Crude oil production and exports

Million barrels per day

□ Production
▨ Exports

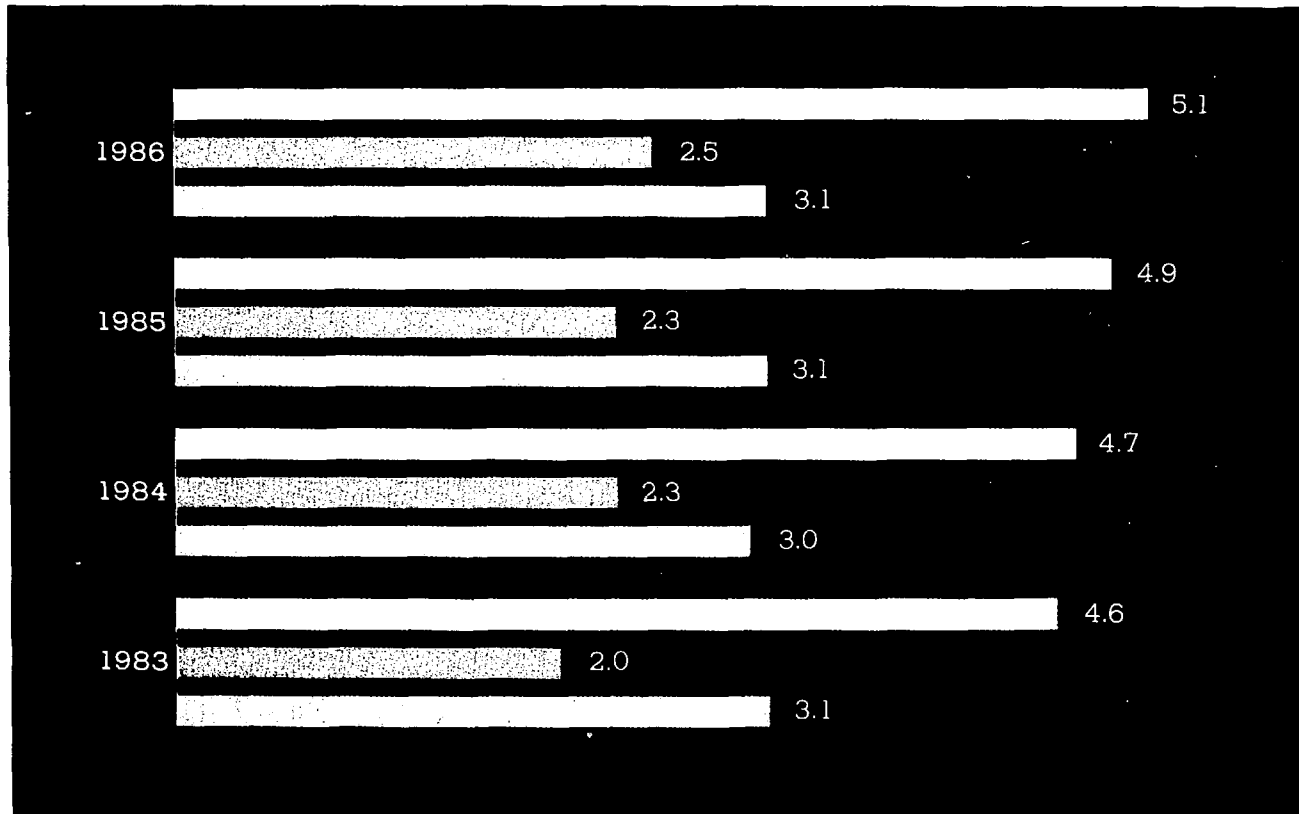


■ Sources: 2, 3, 8, 20.

Refined oil production, exports and consumption

Million barrels per day

Production
 Exports
 Consumption

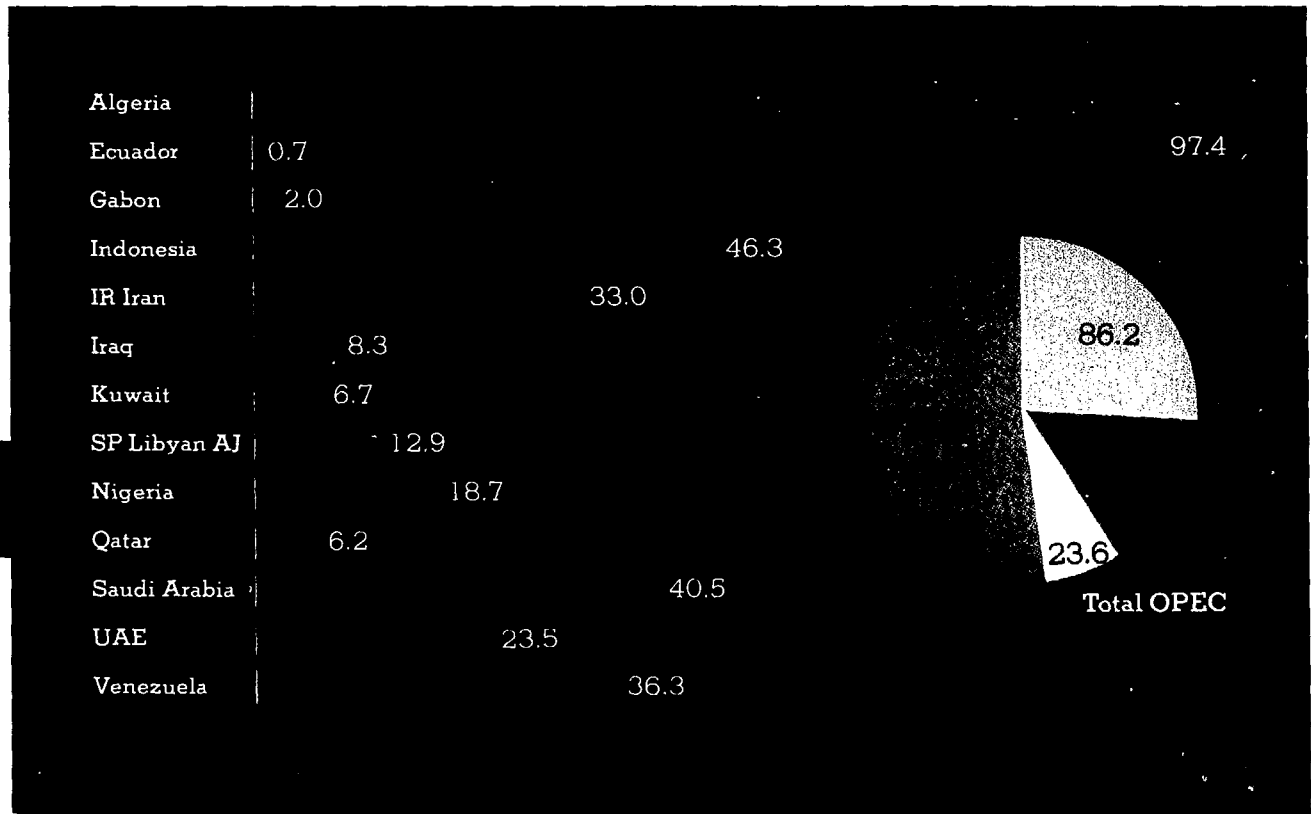


■ Production data exclude output from gas plants.
 ■ Exports and consumption exclude bunkers.
 ■ Sources: 2, 3, 8, 20, 21.

**OPEC flows
and volumes**

Natural gas production

Billion standard cubic metres

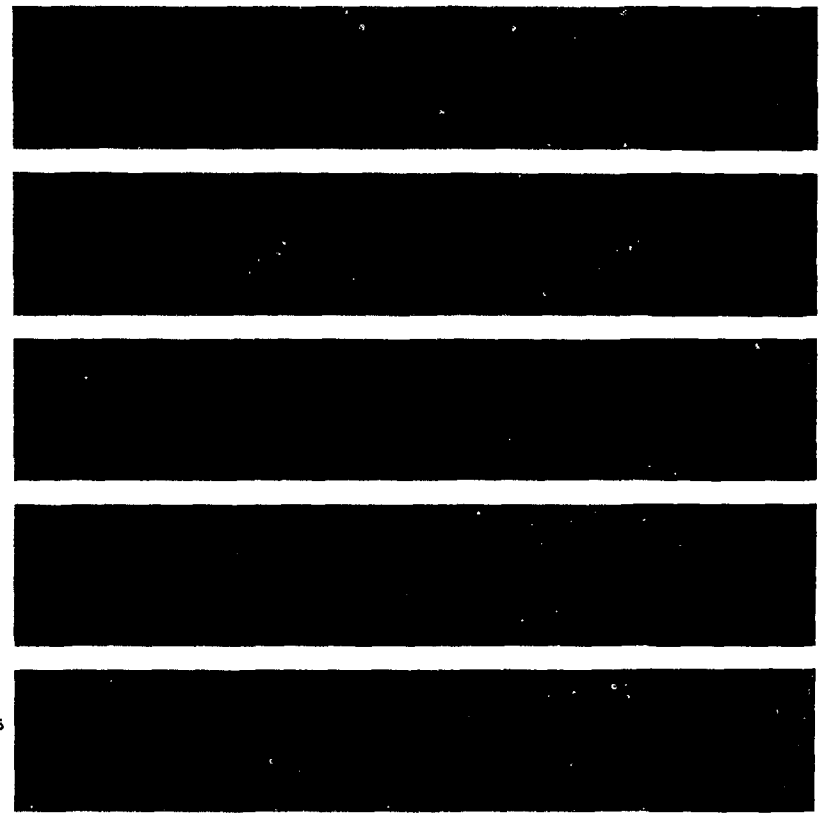
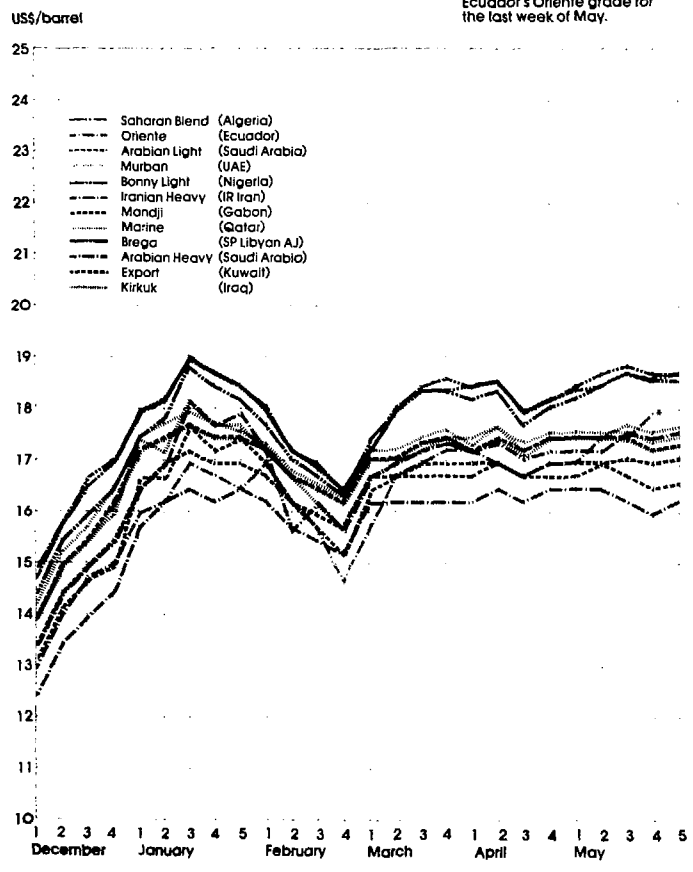


■ Sources: 3, 5, 7-9.

OPEC prices and values

Selected OPEC crude spot prices, December 1986 – May 1987

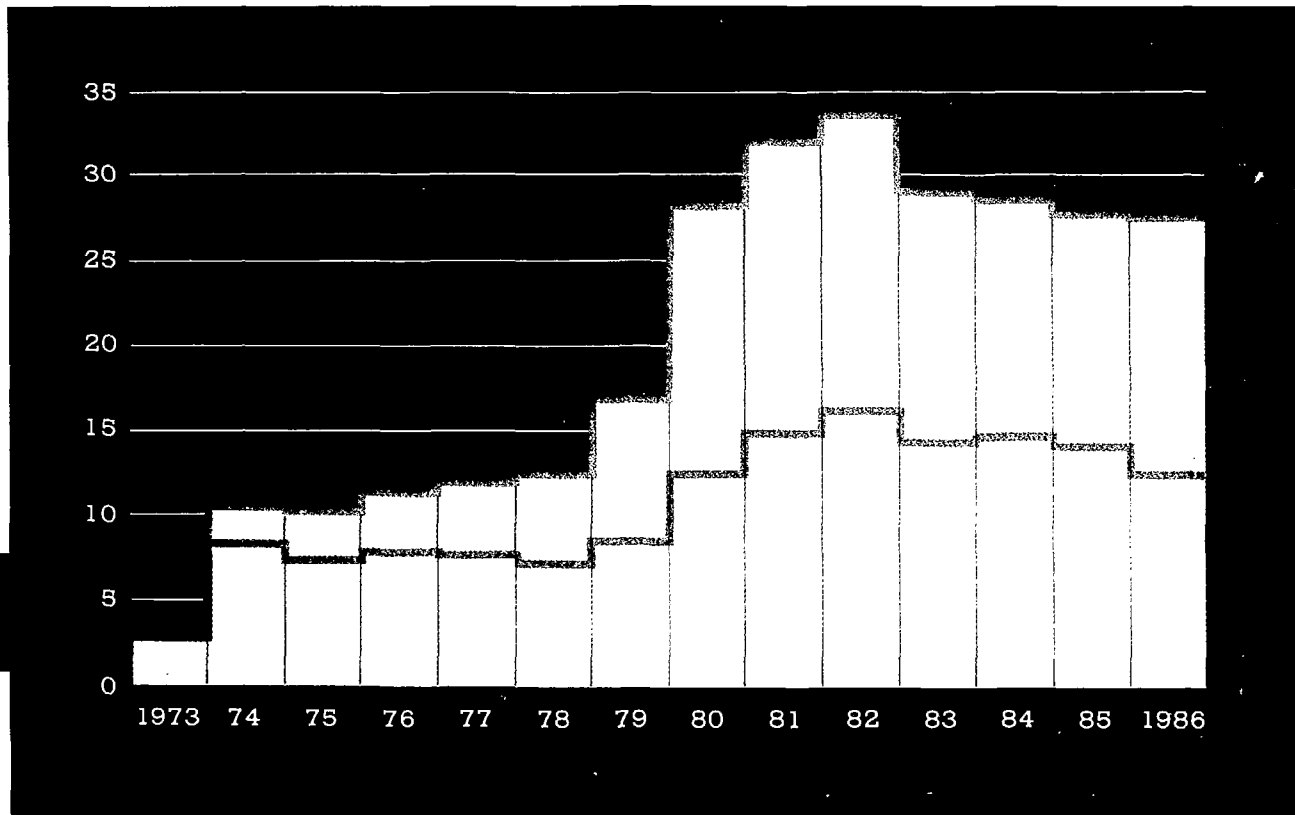
* No quotation is available for Ecuador's Oriente grade for the last week of May.



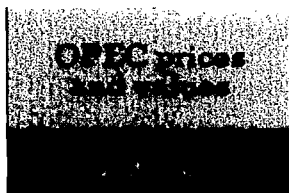
Crude oil prices in nominal and real terms

Dollars per barrel

■ Nominal price — Arabian Light price (yearly average)
■ Arabian Light price deflated by OECD export price index



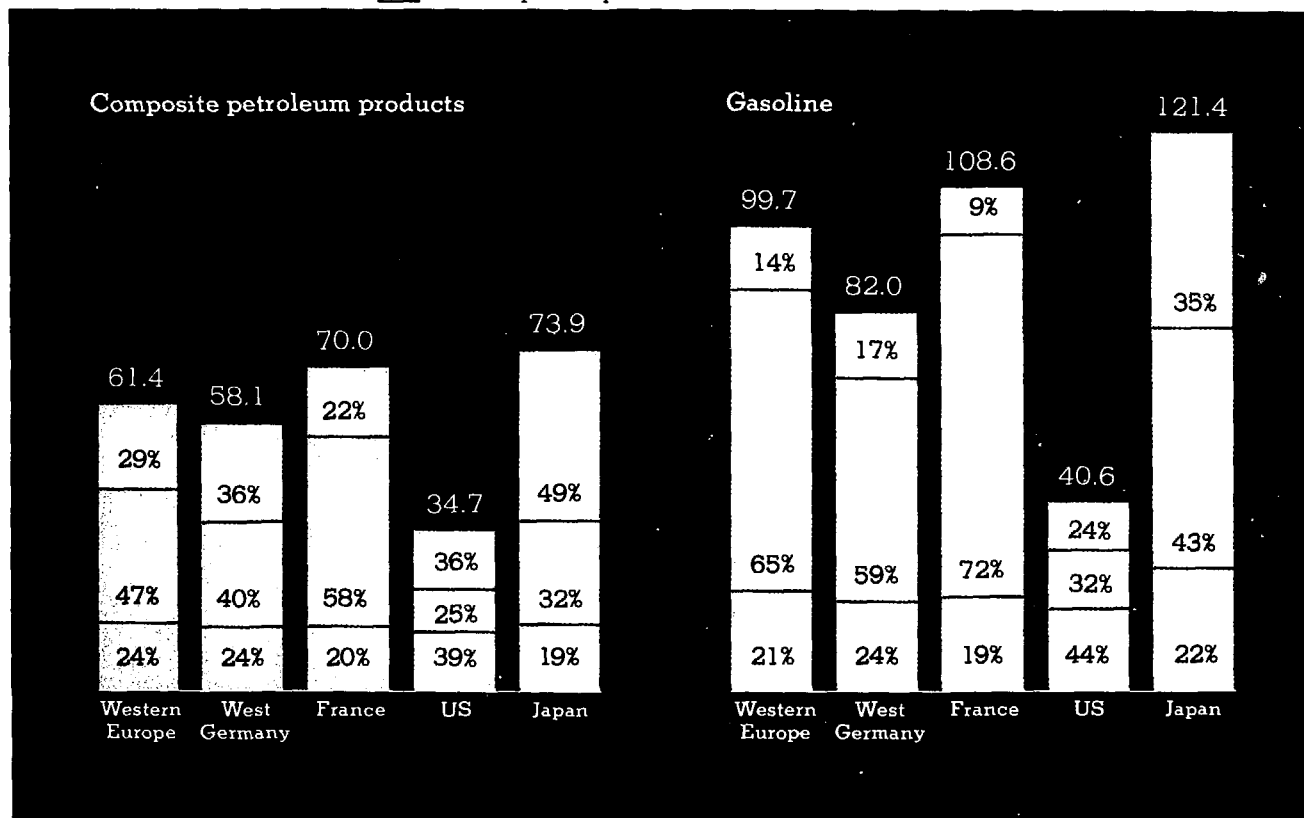
■ Sources: 3, 22.



Price breakdown of refined barrels

Dollars per barrel

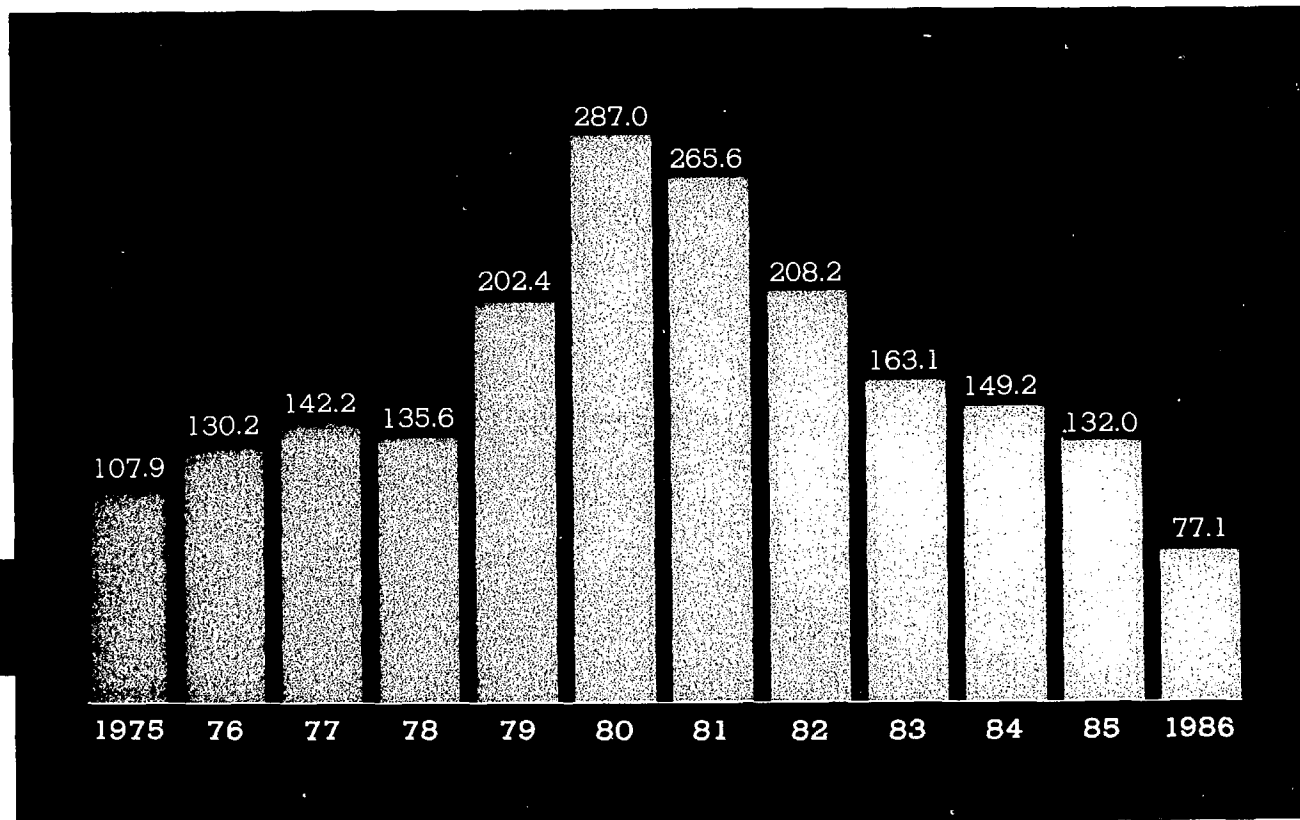
- OPEC's share, including production costs
- Consuming government's tax
- Oil companies' profits and costs



■ A barrel of composite petroleum products = a fictitious barrel containing a mixture of all petroleum products, calculated on a weighted basis.
 ■ Sources: 6, 8, 23.

Petroleum export values

Billion dollars

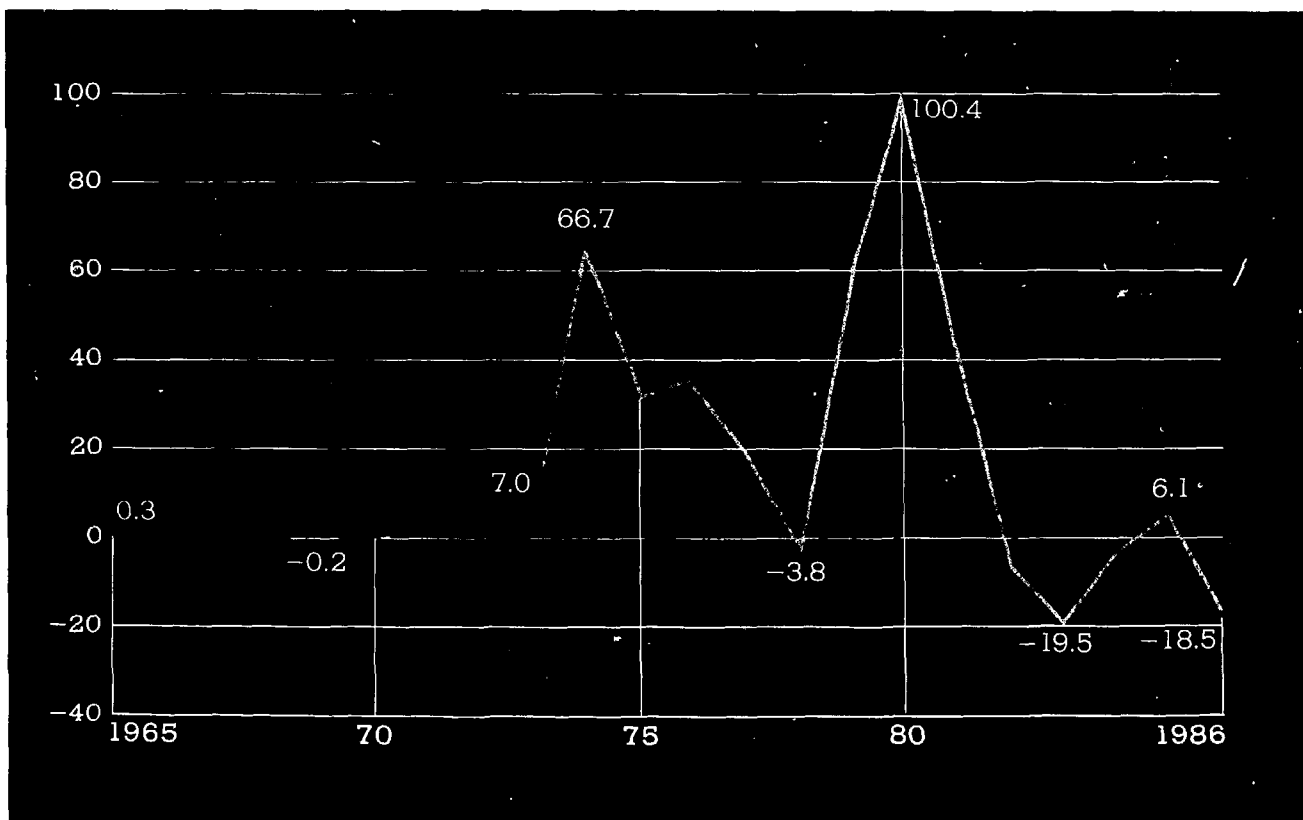


■ Sources: 6, 8, 24, 25.



Balance of payments on current account

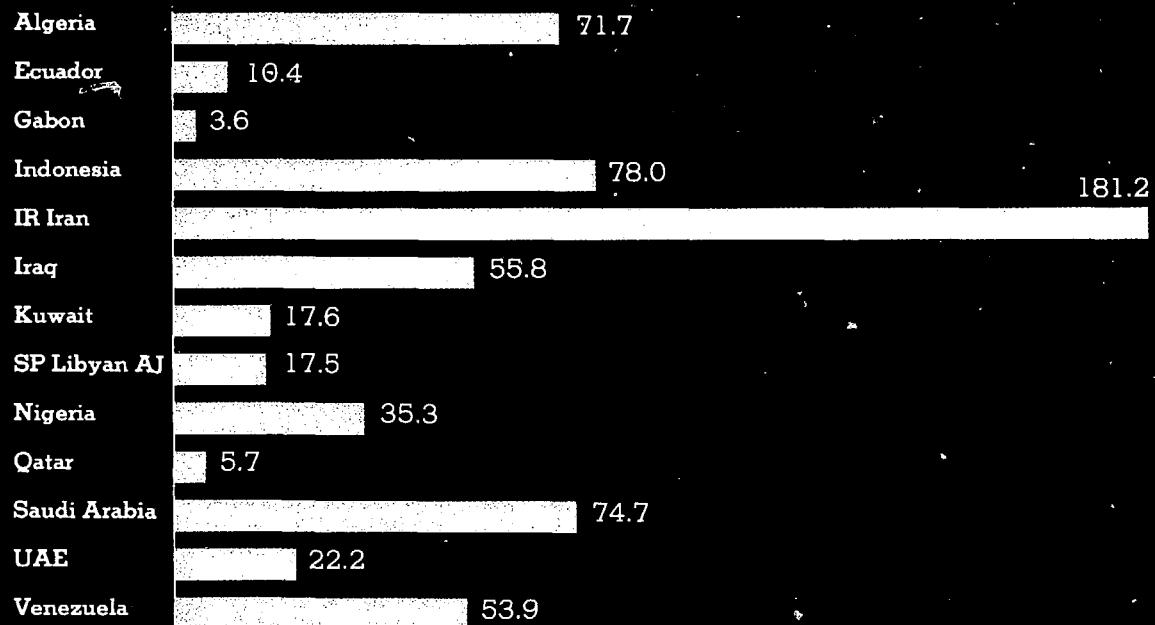
Billion dollars



■ The figures are as at the end of each year.

Gross national product

Billion dollars



6

SECTION

Economic comparisons



30

How far have industrialized to developing countries 1985

31

How far have developing to industrialized countries 1985

32

How far have industrialized to developing countries 1985

33

How far have industrialized to developing countries 1985

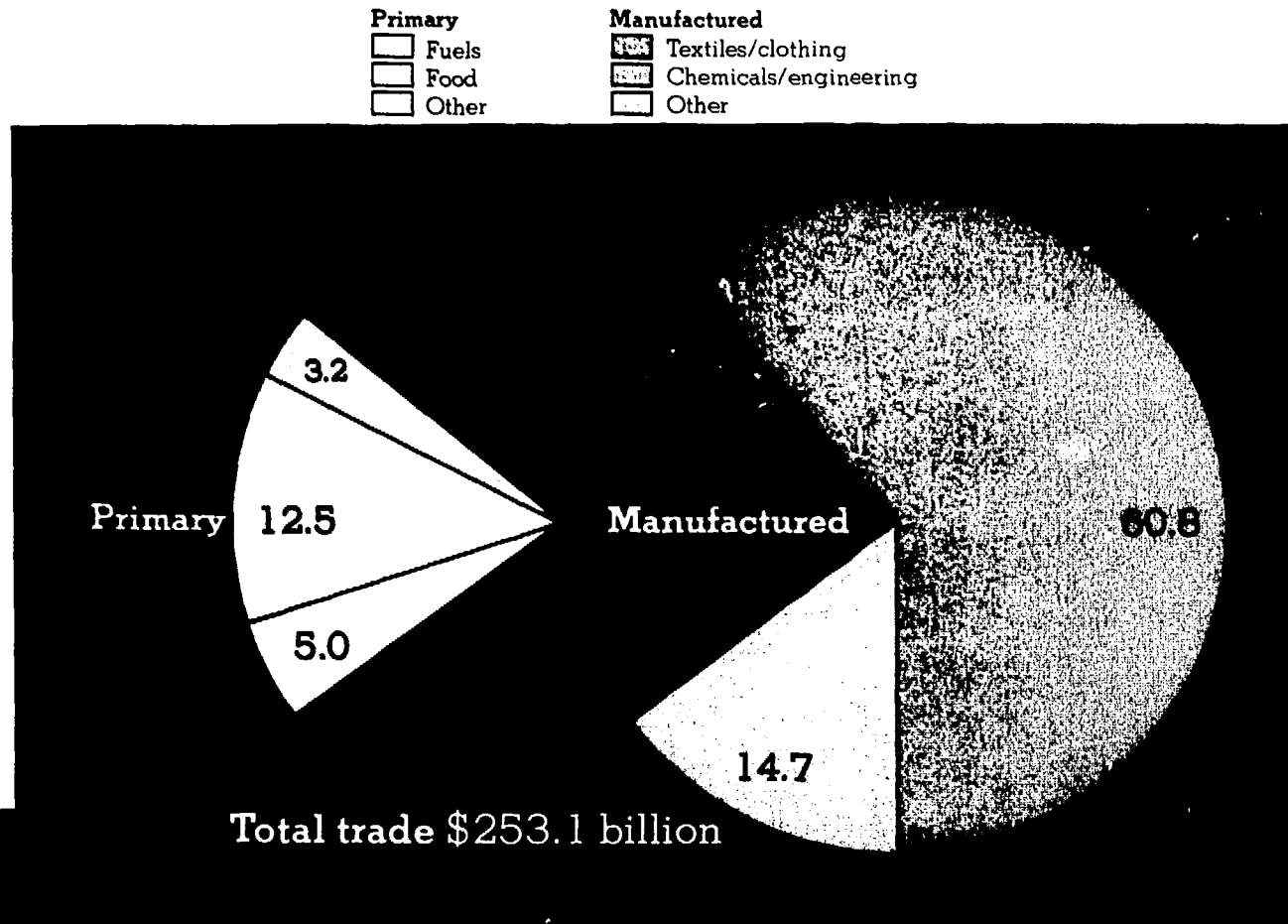
34

How far have industrialized to developing countries 1985



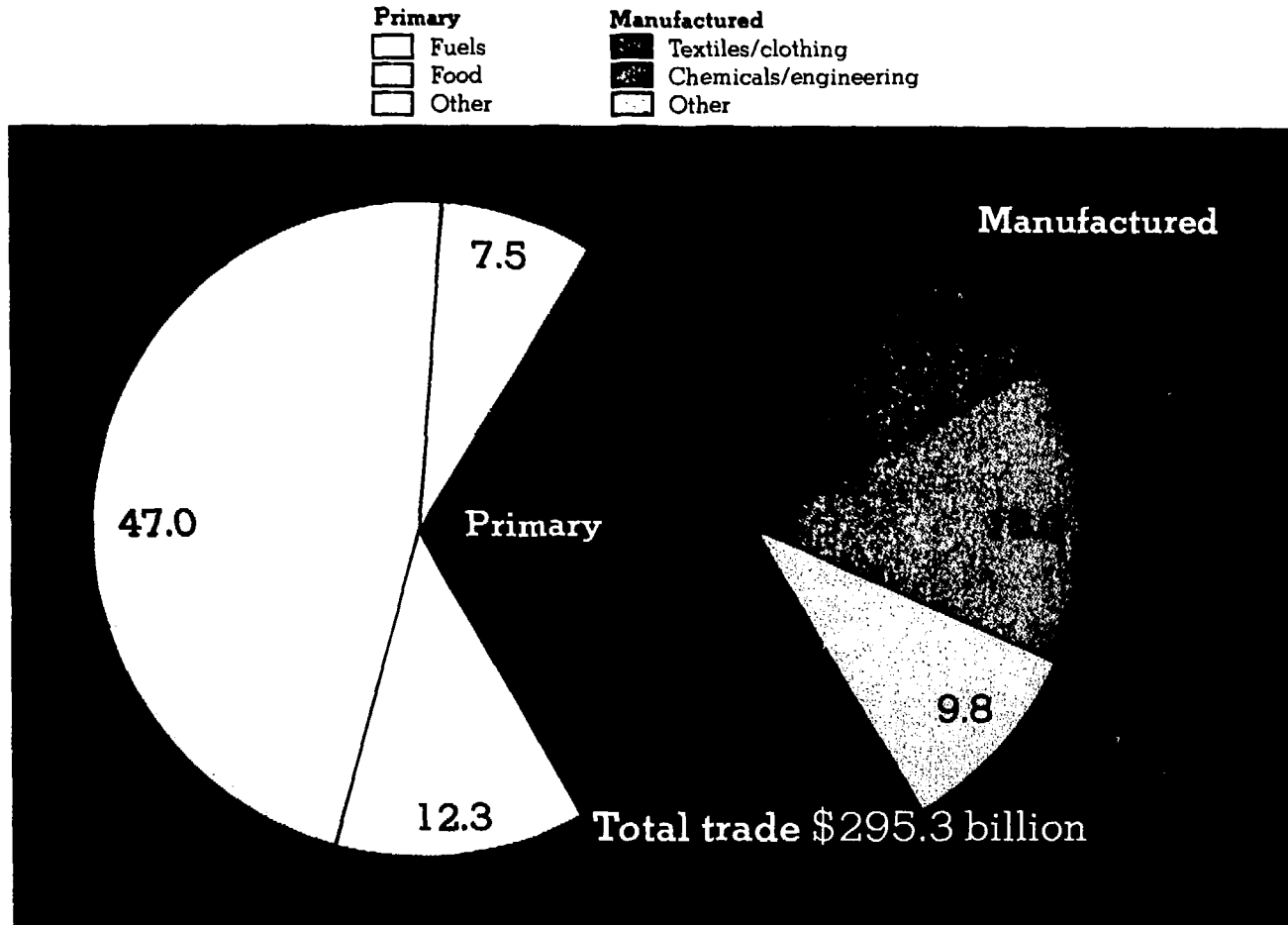
Trade flow from industrialized to developing countries

Percentage of value of total exports



Trade flow from developing to industrialized countries

Percentage of value of total exports

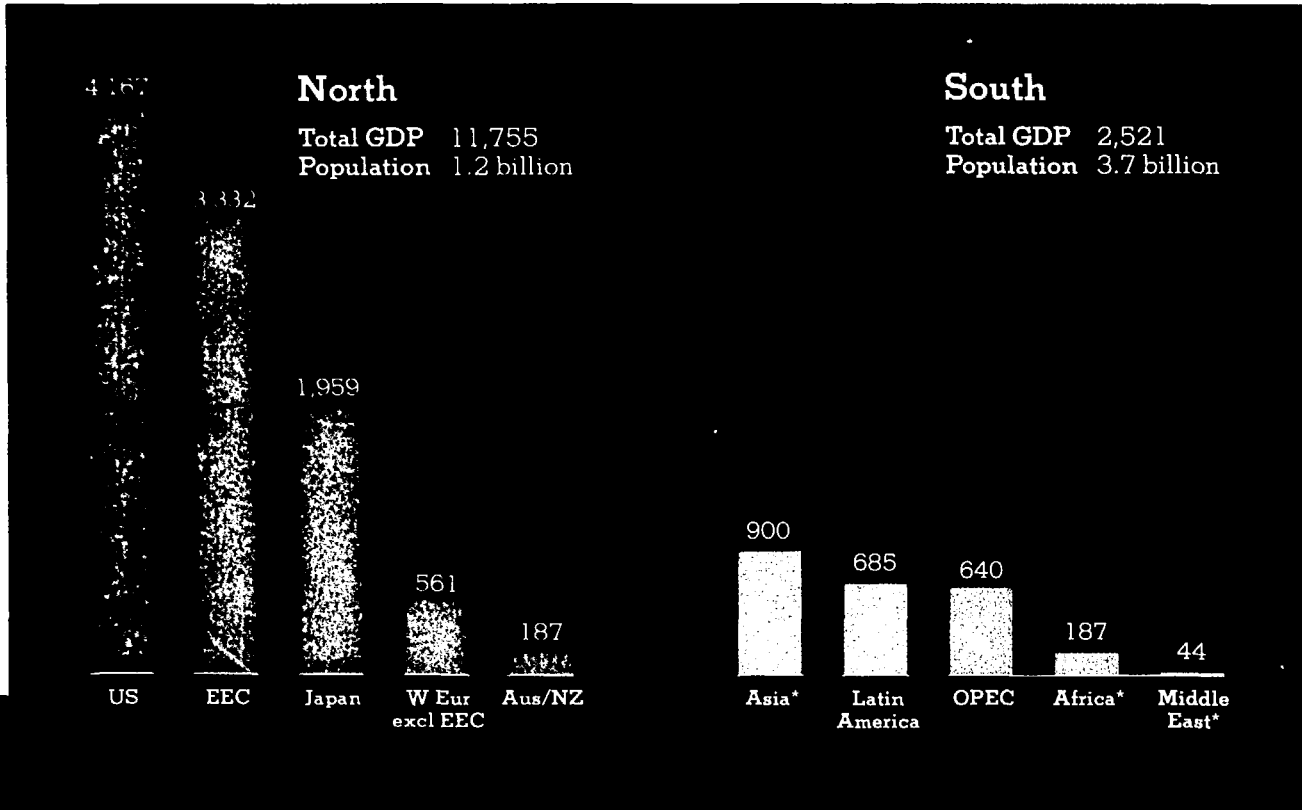


■ Source: 26.



World GDP comparisons

Billion dollars

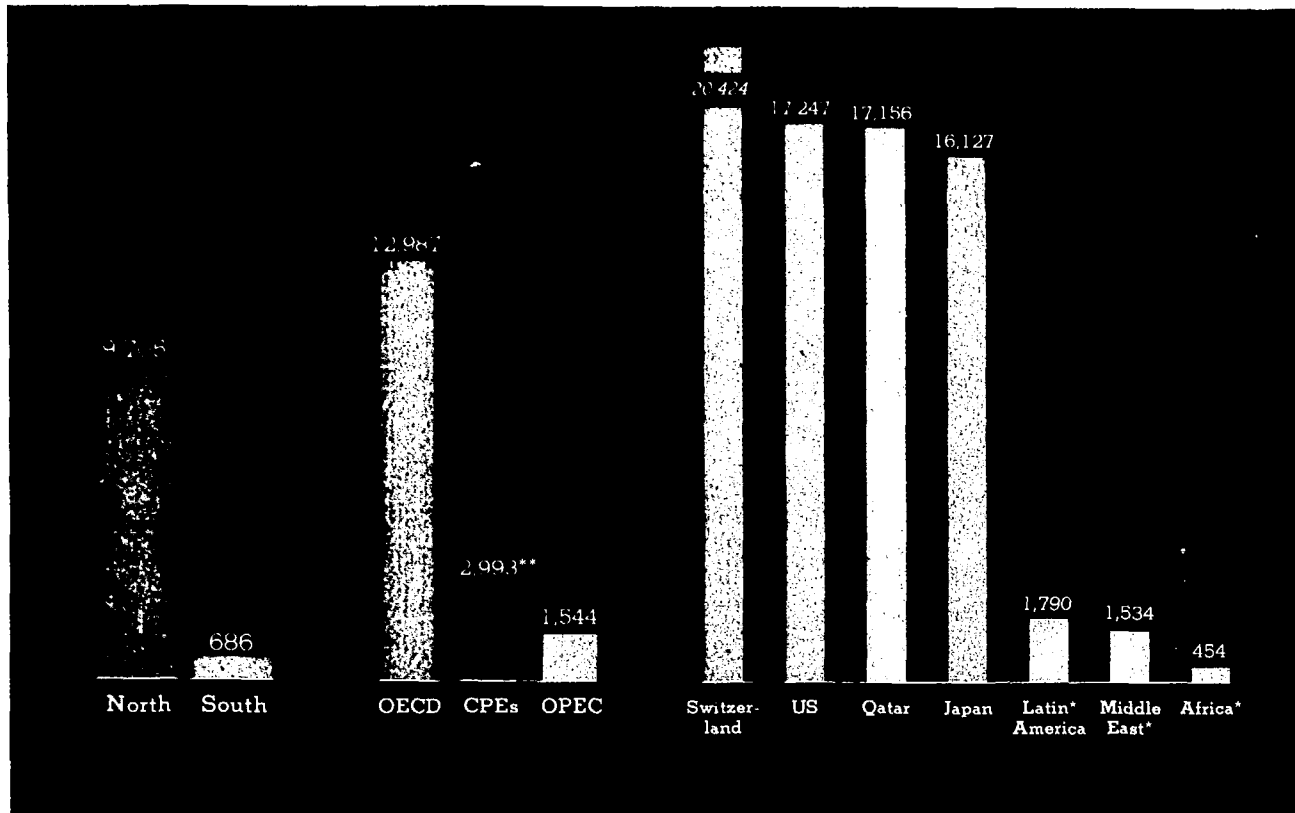


■ The areas marked with an asterisk exclude OPEC Member Countries.
■ Sources: 3, 6, 8, 24, 27.



World GDP per capita comparisons

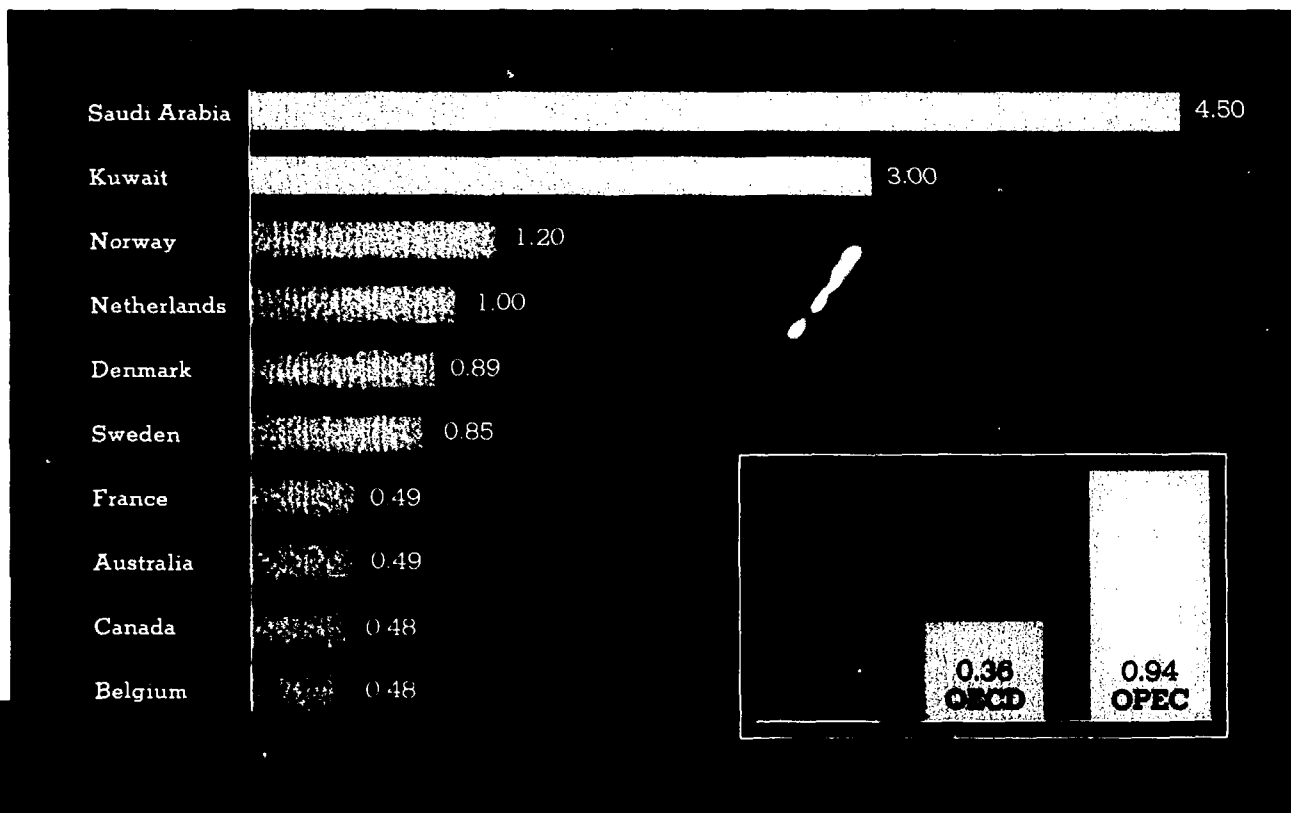
Dollars



- Switzerland has the highest GDP per capita in the world, and Qatar has the highest figure in OPEC.
- The areas marked with a single asterisk exclude OPEC Member Countries.
- The double asterisk denotes the use of net material product calculations.
- The CPEs on this page are confined to the USSR and Eastern Europe.
- Sources: 3, 6, 8, 24, 27.

Official development aid: the top ten donors

Net disbursements as percentage of GNP





Organization of the Petroleum Exporting Countries
Obere Donaustrasse 93, 1020 Vienna, Austria
Tel: 26 55 11. Telex: 134474.