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Developing Reliable Energy Statistics in the ESCWA Region

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Energy in the Arab Region

- In the Arab countries, the energy sector plays a vital role in achieving social and economic development through satisfying the energy needs of the different economic sectors,

- The sector's effective contribution, particularly the Oil and Gas sector, to the Gross Domestic Product "GDP" of many countries in the region is about 20 percent of the region's GDP.

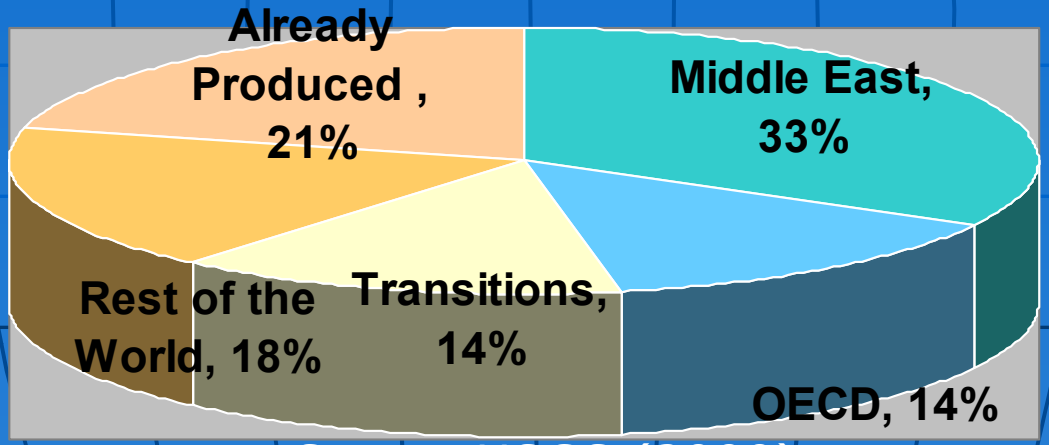
- In Saudi Arabia, oil and oil derivatives still account for 90-95 per cent of Saudi export earnings, 75 per cent of budget revenues and about 30-35 per cent of GDP.
- In Kuwait, Oil Sector contributed 40% of **Gross Domestic Product, 1997.**

Resources of Oil and NGL by Region

Ultimately Recoverable Resources of Oil and NGL by Region

Already produced:
717 billion barrels or or 21%
OECD 7%
Transition 4%
Middle East 5%

Remaining 2,628 billion barrels or 79 %



Source USGS (2000)

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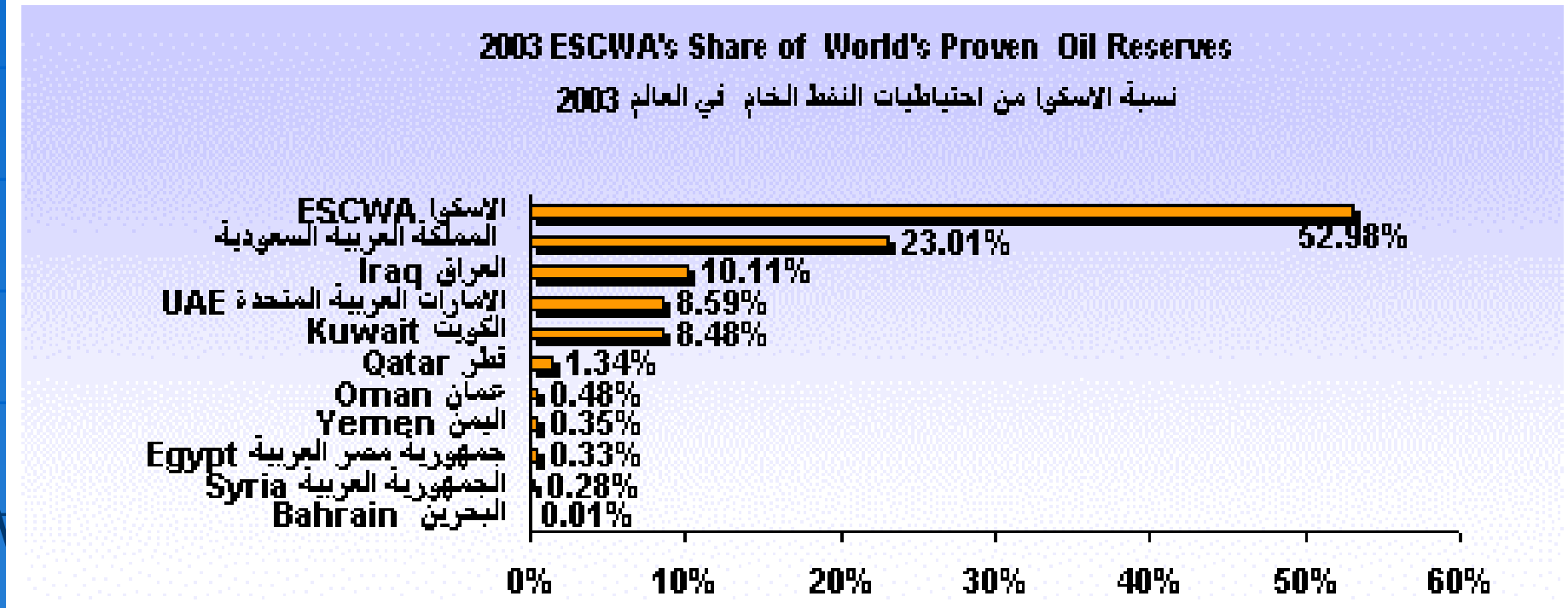
Proven Crude Oil Reserves in the ESCWA region 1999-2003 (million barrels)

منطقة الاسكوا في احتياطيات النفط الخام (مليون برميل)

	1999	2000	2001	2002	2003	2003 Share of World total النسبة	% change 2003/1999	
Bahrain	148	148	125	125	125	0.0%	-16%	مملكة البحرين
Egypt	2,948	2,948	2,948	3,700	3,700	0.3%	26%	جمهورية مصر العربية
Iraq	112,500	112,500	112,500	112,500	115,000	10.1%	2%	جمهورية العراق
Jordan	1	1	1	1	1		11%	المملكة الأردنية الهاشمية
Kuwait	96,500	96,500	96,500	96,500	96,500	8.5%	0%	دولة الكويت
Oman	5,506	5,506	5,506	5,506	5,506	0.5%	0%	سلطنة عمان
Qatar	3,700	13,157	15,207	15,207	15,207	1.3%	311%	دولة قطر
Saudi Arabia	262,800	261,700	261,750	261,800	261,900	23.0%	0%	المملكة العربية السعودية
Syria	2,500	2,500	2,500	2,500	3,150	0.3%	26%	الجمهورية العربية السورية
UAE	97,800	97,800	97,800	97,800	97,800	8.6%	0%	الإمارات العربية المتحدة
Yemen	4,000	4,000	4,000	4,000	4,000	0.4%	0%	الجمهورية اليمنية
Total ESCWA	588,402	596,759	598,836	599,639	602,889	53.0%	2%	مجموع دول الاسكوا
Total World	1,042,855	1,065,274	1,071,831	1,067,167	1,138,000	100.0%	9%	العالم
ESCWA share of world total %	56%	56%	56%	56%	53%	53%		%الاسكوا/العالم

2003 ESCWA's Share of World's Proven Oil Reserves



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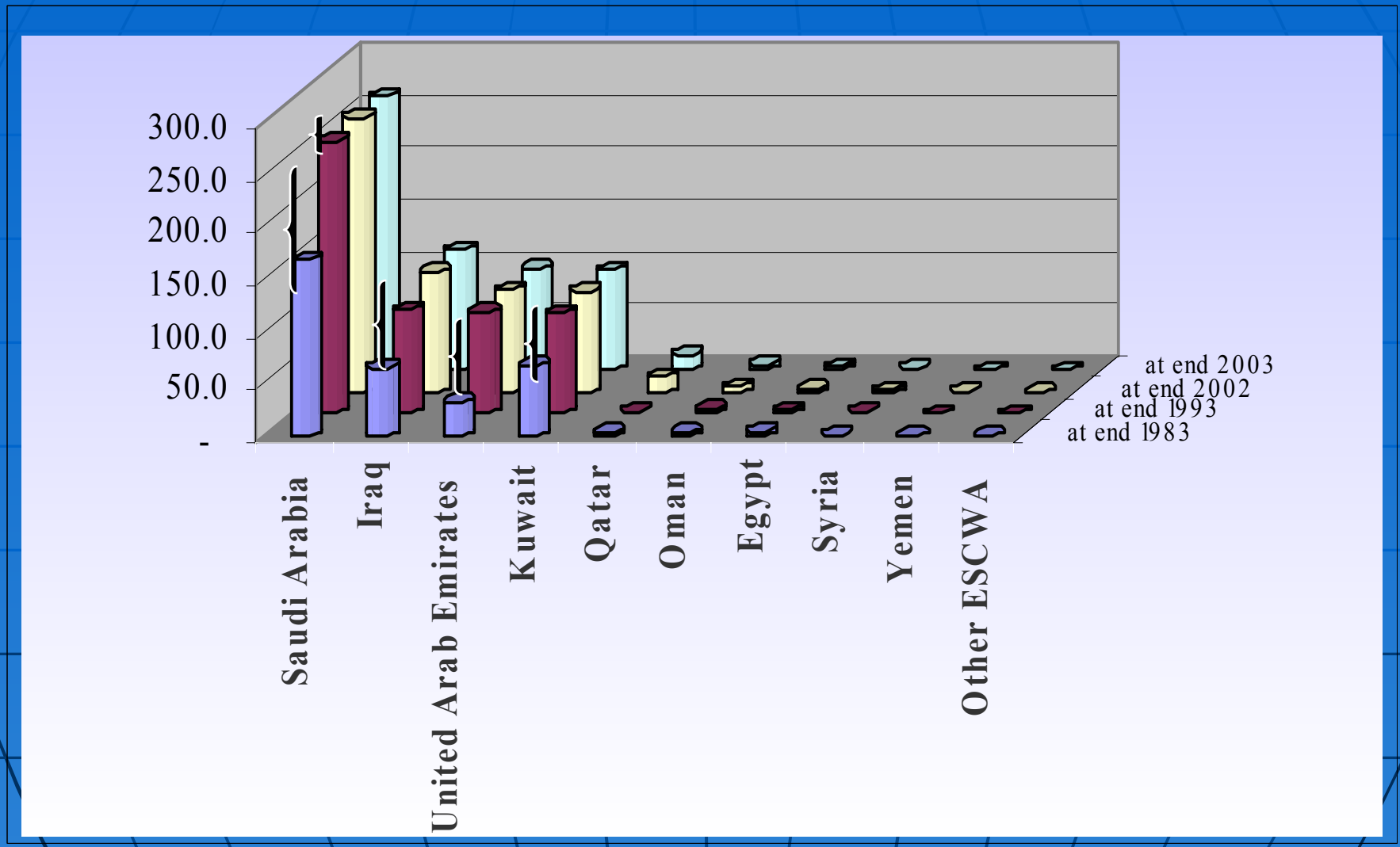
Trends in Proven Oil Reserves 1983-2003 (000Million Barrels) BP Energy Review 2004

	end 1983	end 1993	end 2002	end 2003	share of total	R/P ratio
Iraq	65.0	100.0	115.0	115.0	10.0%	*
Kuwait	67.0	96.5	96.5	96.5	8.4%	*
Oman	3.5	5.0	5.7	5.6	0.5%	18.5
Qatar	3.3	3.1	15.2	15.2	1.3%	45.5
Saudi Arabia	168.8	261.4	262.8	262.7	22.9%	73.3
Syria	1.5	3.0	2.3	2.3	0.2%	10.5
United Arab Emirates	32.3	98.1	97.8	97.8	8.5%	*
Yemen	-	0.1	0.7	0.7	0.1%	4.2
Egypt	4.0	3.4	3.5	3.6	0.3%	13.2
Other ESCWA	0.1	0.1	0.1	0.1	0.0%	6.1
Total ESCWA	345.5	570.6	599.6	599.5	52.2%	
Total Middle East	396.9	660.1	726.8	726.6	63.3%	88.1
TOTAL WORLD	723.0	1023.6	1146.3	1147.7	100.0%	41.0

Trends in Proven Oil Reserves 1983-2003 (000Million Barrels)



The jump in reserves in many OPEC countries in the late eighties is attributed to unconventional oil is being classified as Proven Reserves not to simultaneous discoveries of new oil reserves

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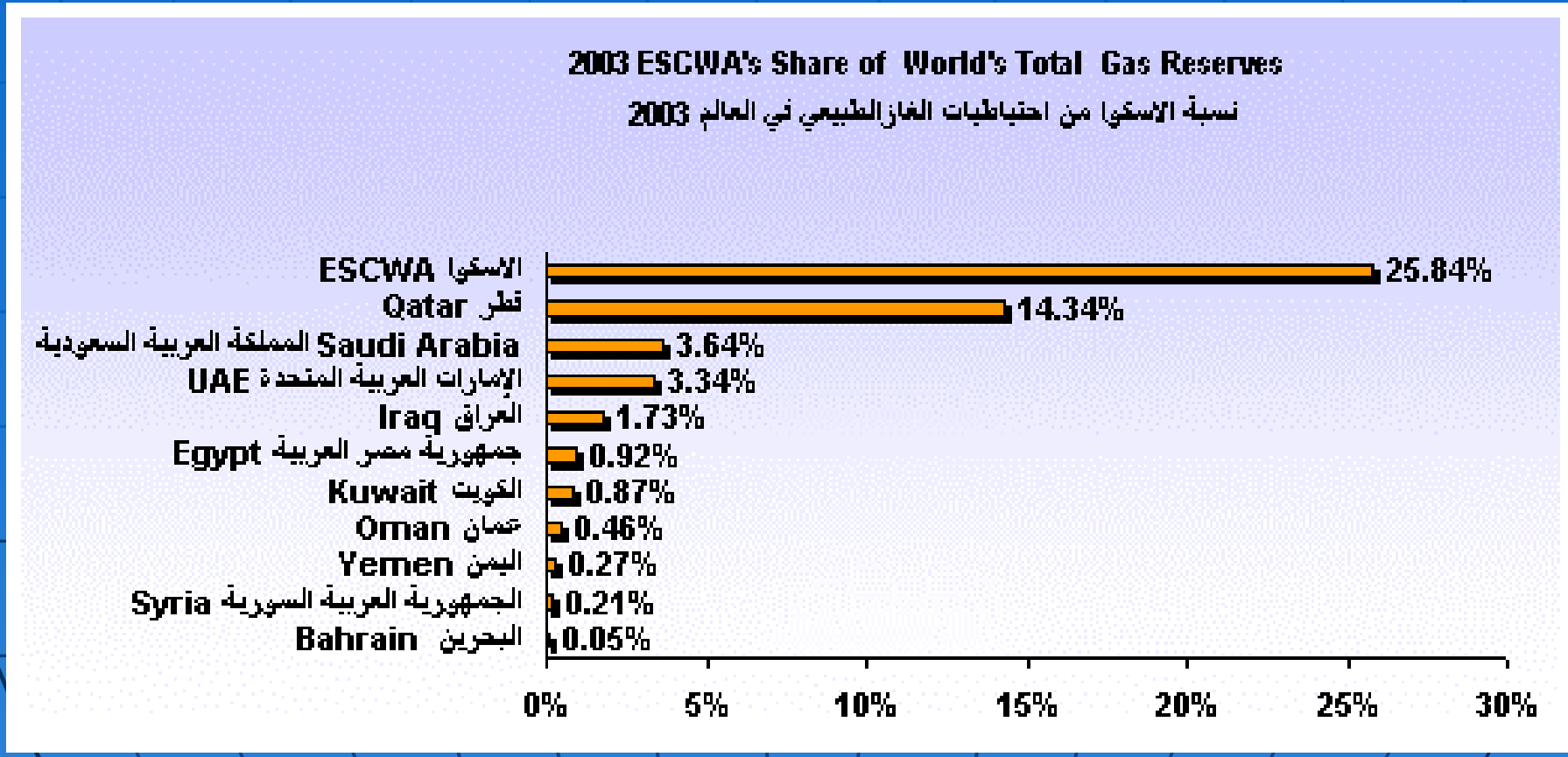
Natural Gas Reserves in ESCWA countries(billion cubic meters)

احتياطيات الغاز الطبيعي (بليون متر مكعب) في دول الاسكوا

	1999	2000	2001	2002	2003	2003 Share of World total	% change 2003/1999	
Bahrain	110	110	92	92	92	0.1%	-16.1%	مملكة البحرين
Egypt	996	996	996	1,657	1,657	0.9%	66.3%	جمهورية مصر العربية
Iraq	3,285	3,285	3,109	3,109	3,115	1.7%	-5.2%	جمهورية العراق
Jordan	7	7	7	7	6	0.0%	-8.3%	المملكة الأردنية الهاشمية
Kuwait	1,482	1,492	1,492	1,492	1,572	0.9%	6.0%	دولة الكويت
Oman	805	829	829	829	829	0.5%	3.0%	سلطنة عمان
Qatar	11,157	14,443	25,783	25,783	25,783	14.3%	131.1%	دولة قطر
Saudi Arabia	6,146	6,301	6,455	6,646	6754	3.6%	6.5%	المملكة العربية السعودية
Syria	241	241	241	241	371	0.2%	54.1%	الجمهورية العربية السورية
UAE	5,936	6,060	6,006	6,006	6,006	3.3%	1.2%	الإمارات العربية المتحدة
Yemen	479	479	479	479	479	0.3%	0.0%	الجمهورية اليمنية
Total ESCWA	30,643	34,242	45,489	46,641	46, 664	25.8%	51.6%	الاسكوا
Total World	155,081	164,094	177,296	178,660	179,789	100.0%	15.9%	العالم
ESCWA share of world total %	19%	20%	25%	26%	26%			%الاسكوا/العالم

2003 ESCWA's Share of World's Total Gas Reserves



Reserves Data Problems

- Estimates of reserves contain systematic errors: Probability assigned to reserve assessment: Definition of reserves based on P10, P50 or P90 estimation figures.
- Detailed Analysis in WEO 2004 on Oil And Gas Reserves showed lack of reliability and accuracy of reserves data reported by oil companies and a confusion in the overall reserves picture due to current practices and methods for calculation of "proven", "probable" and "possible" reserves
- Reserves-data problems jeopardize the long-term security of energy supplies

The Status of Energy Statistics in the ESCWA Region

- **The availability, accuracy and reliability of statistical energy production and sectoral consumption information is crucial for the development of national policies and programs**

Sources of Uncertainties in the Energy Reserves Statistics in ESCWA region

- **The increase in proven reserves in the Arab countries which doubled during the period 1980±1997 came mostly from reservoir re-evaluation (reassessment of resources in place and recovery rates) and the application of new technologies such as 3D seismic and horizontal drilling. (Some sources estimate the total newly discovered proven reserves for the period 1980±1997 at only about 30 billion barrels.) Lababidi 1999**

- **The time lag between the discovery and appraisal of oil reserves and because some fields considered too small are left undiscovered . Lababidi 1999.**

Role of ESCWA in Capacity Building in Sustainable Energy , Energy Statistics and International Classification in the ESCWA Region

- **2004-2005 Work Programme, ESCWA executed the following activities**
- **Expert Group Meeting on Statistics of Sectoral Energy Production, Consumption and Related Environmental Issues, and Workshop on Energy Data in ESCWA Member Countries with Special Focus on Oil Statistics, Beirut, 8-11 July 2003, in collaboration with UNSD and OPEC**
- **Workshop on Energy Statistics in ESCWA Member Countries, and Seminar on Application of the UNFC for Energy Reserves/Resources in ESCWA/OPEC Member Countries UN-House, Beirut, 31 May - 2 June 2004 in collaboration with UNSD, OPEC and ECE**
- **United Nations Workshop on International Economic and Social Classifications, UN-House, Beirut, 19-23 July 2004 in collaboration with UNSD**
- **Building a Database on Indicators for Energy in the ESCWA Region**
- **For the Biennium 2006-2007- Strategic Framework Subprogram 6. Objective 1. To improve the Production and Use of Harmonized and Comparable Stats (according to international standards) in MCs**
- **Project with OPEC on the dissemination of Renewable Energy Services for Poverty alleviation**
- **Continuous work on Clean Fuel**

Problems of Energy Statistics in the ESCWA Region

- **Problems**

- **Incomplete questionnaires and inconsistent data.**
- **Lack of timely data**
- **Non-unified units of measurements within the same country and across countries**
- **Need for training of human resources and deployment modern tools**

Recommendations to ESCWA Member countries to improve Energy Statistics in the region

- **Application of a unified system and clear methodology for energy statistics and data availability on the national, regional and international level.**
- **Training of concerned staff in energy statistics and their analyses and on classification**
- **Emphasizing the importance of providing data and information in a detailed and comprehensive way at all levels.**
- **Preparation of energy balance regularly and accurately**
- **Defining one official authority who would be responsible for data collection and dissemination of recurrent publications on energy for the accomplishment of sustainable development.**
- **Establishing energy databases at the national level to support planning and decision-making processes to promote optimization of energy sources utilization and production.**
- **Conducting periodical surveys to improve the quality of data related to end use of sectoral energy consumption.**

Need for Harmonization

- In the WEO 2004, IEA called on all parties to devise and implement a universally recognized, transparent, consistent and comprehensive methodology standard for reserve estimation

UNFC as a Classification System

- Harmonization of terminologies applied by the different 150 classification systems and to different commodities
- Agreement on common criteria for evaluating the different reserves/resources improves long-term forecasting
- Uniform, internationally accepted system will respond to the interests of public and private sector

UNFC and Arab Countries

1. **Delegates from ESCWA/OPEC member countries were introduced to the basic functioning principles of UNFC and its interrelation with the currently existing internationally recognized classifications including that of SPE/WPC/AAPG for Petroleum Reserves / Resources. It is flexible (can be adopted to specific needs**
2. **UNFC was shown to bring together the economic & commercial, the industrial process & the geological knowledge, and understanding into one system. It provides a system to harmonize and to compare different petroleum classification systems;**
3. **Delegations recognized that harmonizing the reserves/resources definitions, through UNFC, may have significant input to the collection and harmonization of statistical data related to energy commodities to promote optimization of energy production. It will enhance communication of data, strengthen consistency & quality of reported data and expected to be a good tool for resource management at company, national and international levels;**

Application of UNFC in ESCWA Countries

The delegates to the ESCWA Seminar on Energy Reserves/Resources Classification requested for the following in view of the application of UNFC in the region:

(1) Clarification of categorizations/definitions and gradual approach of application was considered desirable to ease understanding and provide confidence in further practical implementation of the UNFC.

(2) In order to get fast and reliable results, it was recommended to organize seminars to introduce UNFC principles, circulate guidelines to related bodies, adapt the guidelines including terms and definitions, select some deposits for implementations and provide extensive training program country-wide;

(3) Need to provide advisory assistance to countries in their endeavor to implement the UNFC such as the elaboration of a standard Plan of Implementation of the UNFC to ESCWA/OPEC member states

Future Directions

- **Taking UNFC to a larger Dimension: from ECE to other regional commissions, the role of UNSD Division on Classification**
- **National Expert Group**
- **National Seminars on UNFC**
- **Develop guidelines in view to facilitate the practical application of UNFC.**
- **Select a number of country deposits for testing the classification**
- **Introduce UNFC to technical Universities**

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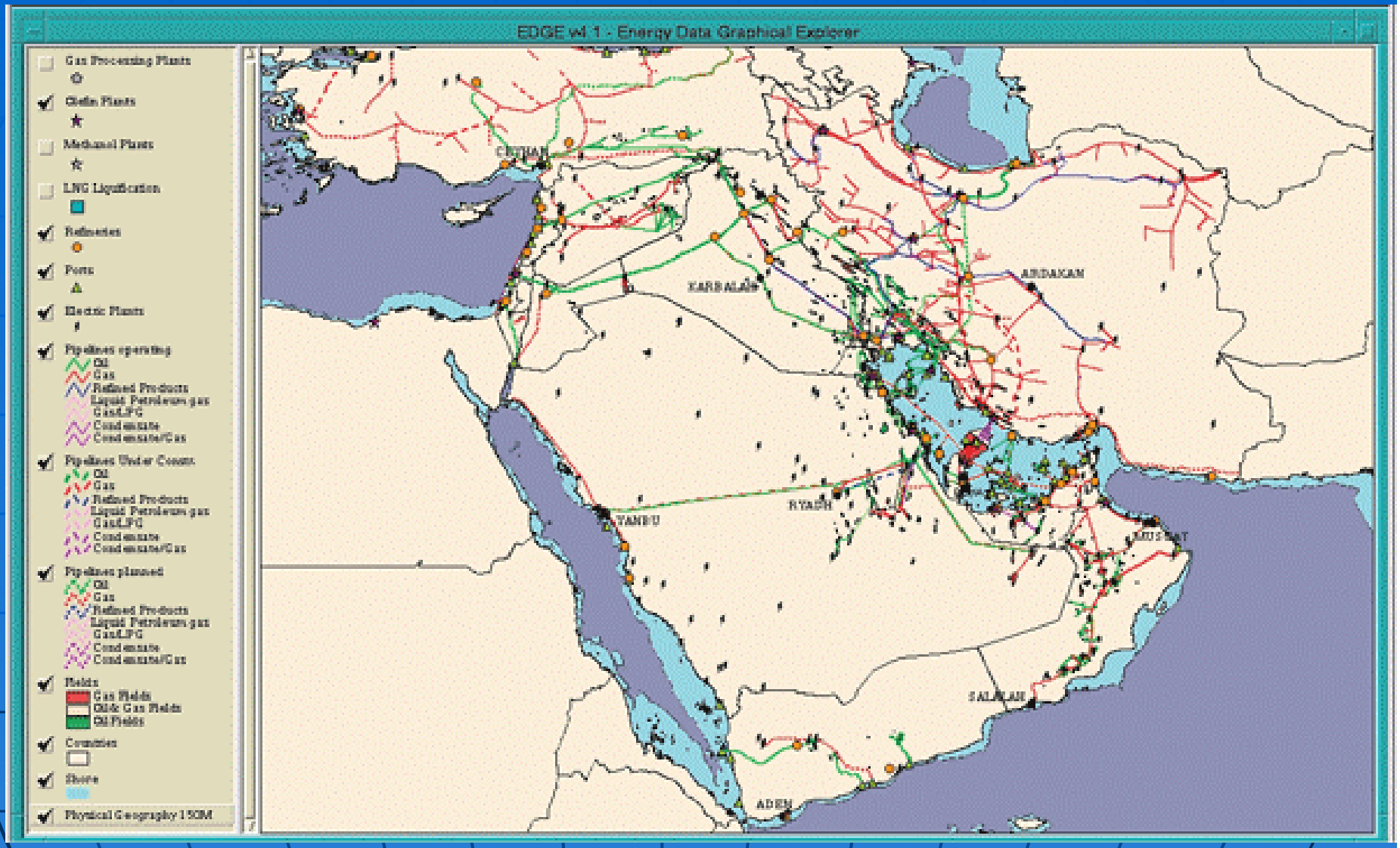

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