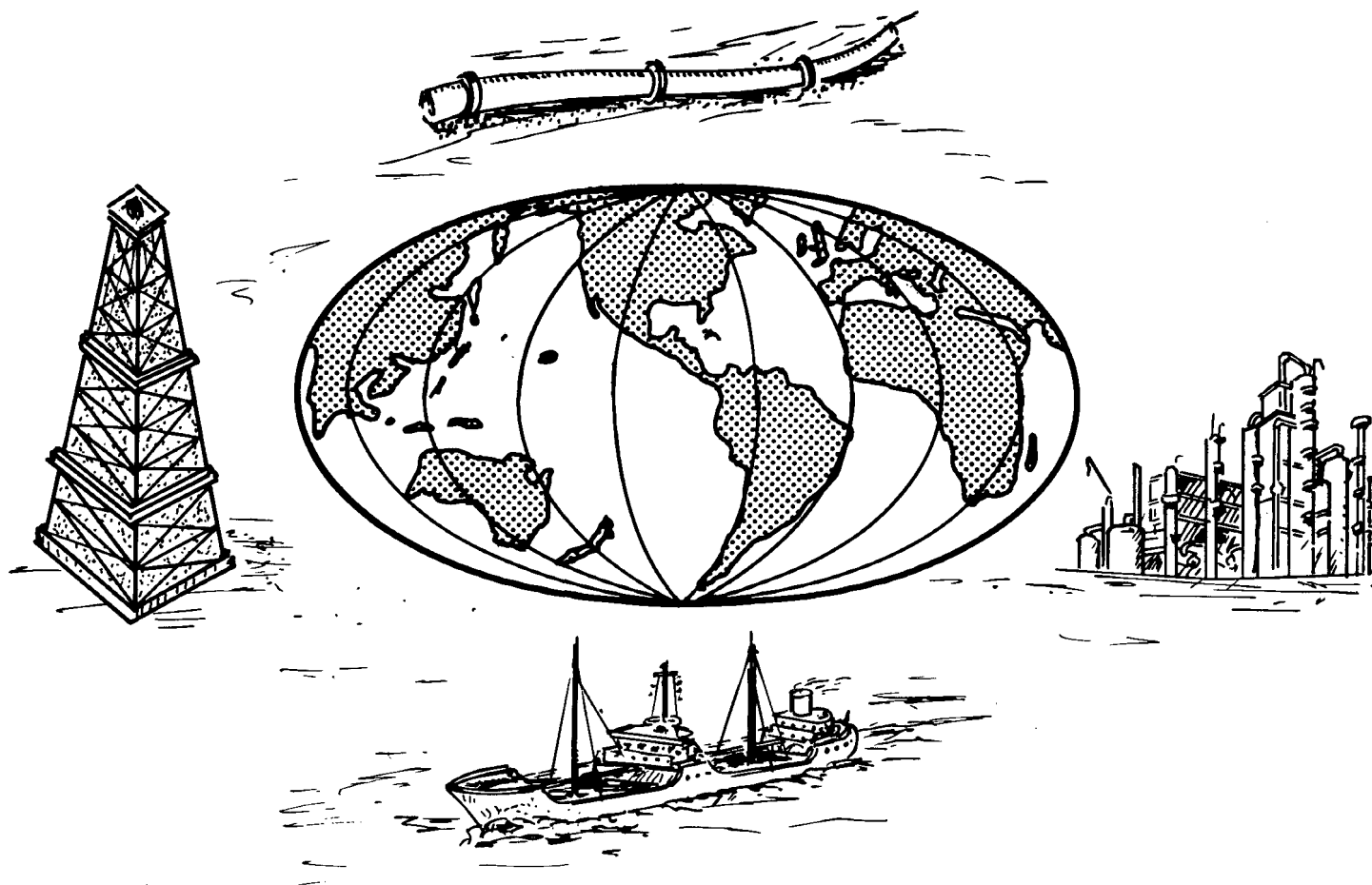




FEASIBILITY STUDY OF THE AVAILABILITY OF INTERNATIONAL PETROLEUM SUPPLY DATA



DEPARTMENT OF THE INTERIOR

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

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INTRODUCTION

The Bureau of Mines under a project for the Air Pollution Control Office, Environmental Protection Agency, performed a library research and telephone survey to determine the availability of source materials which provide supply-demand statistics for foreign countries. Special effort was made to determine the availability of sources which report the sulfur content of crude oil and residual fuel oil. The study was directed toward the development of an information system which would provide data on a current and continuing basis covering the production, refining, trading, and consumption of petroleum in foreign areas.

The work program included an investigation of published information and conversations with persons knowledgeable in both domestic and foreign operations. Efforts were made to identify gaps in information, reporting periods, and intervals between reporting periods and publication availability in Washington, D. C.

Although the project was directed to recommending procedures for maintaining a data system, it became obvious that essentially no foreign sulfur-content information has been published. Many petroleum companies operating abroad as well as foreign government agencies are not required to report such information.

The report recommends possible means for improving the timeliness of the Bureau of Mines' publication, International Petroleum Annual and identifies two methods for collecting sulfur content data of select petroleum commodities.

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DEFINITIONS OF TERMS

Proved crude oil reserves - Crude oil in known reservoirs that could be recovered under current economic and technological conditions.

Residual fuel oil - For the purposes of this report, residual fuel oil is a refined product with a viscosity of more than 45 Saybolt seconds Universal at 100° F. It includes Nos. 4, 5, and 6 fuel oils.

Residual fuel oil desulfurization - The process whereby the sulfur content of residual fuel oil is reduced. It may be accomplished either directly by processing the residual fuel oil in reactors and separators or indirectly by processing gas-oil in reactors and separators and blending the low-sulfur effluent with residual fuel oil.

SUMMARY

A complete inventory of available source material has revealed that approximately 500 publications must be perused for extractive data in order to obtain annual foreign petroleum supply and demand statistics. These publications, reports, dispatches, letters, etc., are available in Washington three months to three years after December 31 each year. About 98 percent of these data are available after a 14-month lag. An estimated three-fourths of the statistics are available only on an annual basis. There is a dearth of information on the Soviet bloc countries and on petroleum consumption, for all but developed and several other countries. However, apparent consumption can be computed for most of the remaining countries. The only supply and demand statistics that classify foreign crude oil or refined petroleum products by sulfur content are those for United States residual fuel oil imports by country of origin and Japanese crude oil imports.

International Petroleum Annual (IPA), a Bureau of Mines report compiled from the sources mentioned above is the most comprehensive worldwide petroleum supply and disposal publication available. This annual reports for each of the 116 free-world countries the production, trade, consumption and bunkering of crude oil and each major refined product but does not include

statistics relating to sulfur content. IPA is published about 14 months after the year reported and about 2 percent of the figures are estimates. It is believed that with the funding of \$25,000 for the purchase of United Nations machine tabulation runs and the procurement of preprint data of the Organization for Economic Cooperation and Development (OECD) together with an increase in estimations to about 15 percent, IPA could be published three to four months earlier.

Prospects for having sulfur content data incorporated into the present reporting system are not encouraging. It is doubtful that many foreign governments could supply the sulfur level of refined products since companies are not required to report this information. Generally the only sources of sulfur content information are the files of refining companies. All refineries have laboratories for analyzing product characteristics. U.S. companies own 28 percent of the foreign capacity including their share in refineries owned in part by other foreign nationals. The capacity of all refineries in which U.S. companies have ownership is 37 percent of the foreign total. At best, it appears that with full cooperation of the U.S. companies about one-third of world refining and shipment operations and statistics, including sulfur content data, could be made available.

EVALUATION OF AVAILABLE SOURCE MATERIAL

Crude Oil Reserves

Currently three major U.S. petroleum periodicals publish annual estimates of world proved crude oil reserves by country. None of these annual figures provide the sulfur content of the reserves. Often, when a new field is discovered the sulfur of the crude oil is reported; however, new field reserves are rarely made available except for broad "estimates" for major world finds.

Piecemeal data on proved reserves by field or company are occasionally published in a variety of miscellaneous sources some of which have been received on a company confidential basis. In total, reporting by oilfield is too sparse to accurately classify world reserves by sulfur content categories. Based on a Bureau of Mines 1968 order-of-magnitude estimate, 80 billion barrels or 17 percent of foreign proved reserves have a sulfur content of 0.5 percent or less.

Crude Oil Production

Production of crude oil in foreign areas is reasonably well reported. Annual data are published in many petroleum journals, both domestic and foreign. These data, however, reflect the poor reliability of secondary and tertiary sources. As a rule, the lag in reporting by these sources varies from two to four months.

The most reliable sources are the responses to the Bureau of Mines Annual Minerals Production Questionnaire which is sent to each Department of State Foreign Service post responsible for minerals reporting. The lag time in receiving these responses varies from six to eight months. Foreign Service Officers usually obtain their data from government sources; however, some solicit statistics from U.S. and British oil company officials when necessary. The most reliable sources for certain countries are oil company annual reports, some of which provide production by field. Production statistics for countries not having U.S. Foreign Service representatives are obtained by correspondence or estimations. Normally sulfur levels are not included with crude oil production data.

Other than piecemeal reporting from a variety of sources, the only readily available source of monthly production statistics by country is the magazine "World Petroleum." The reliability of individual country data in this publication varies, however, world totals are reasonably accurate. The information has a two-month lag.

Crude Oil and Refined Product Trade

There are no uniform coordinated published sources of foreign crude oil and refined product imports and exports by country. The United Nations provides tabulation machine runs for approximately 50 countries, however, the Bureau of Mines

does not subscribe to this service. Principal secondary sources are the quarterly and annual publications of the Organization for Economic Cooperation and Development (OECD). This organization includes all eighteen West European countries plus Turkey, Japan, Canada, and the United States. Only the annual petroleum report of OECD gives imports and exports of crude oil and of each major refined product by countries of origin and destination. This report has a lag time of about 11 to 13 months and is reliable.

Another comprehensive source of petroleum trade, as well as other items of supply and demand, is the United National Annual World Energy Supplies (Series J). Although this report gives a wealth of data, it is historical in nature, usually being published 22 months after the year reported. Furthermore, product classifications in this publication are too generalized to disclose specific residual fuel oil statistics. Even though belated, this U.N. report is the only source for a matrix of world crude oil movements by major importing and exporting countries.

Most countries publish official foreign trade statistics. Those of the industrialized nations are delivered in Washington about four to ten months after the reporting period. Those of the developing countries may be up to three years late. Nearly all foreign trade books identify crude oil and each refined product.

Except for the industrialized countries, a few Latin American nations, and the British Commonwealth countries (present and former), there are few official trade publications which list quantities by country of origin and destination.

No trade book gives the sulfur content of petroleum trade. The only known sources are the Oils Import Administration's figures on U.S. residual fuel oil imports and the Japanese Government's data on the imports of their crude oil.

Refining Capacity and Production

Three U.S. and one British magazine publish annual issues which give the primary (atmospheric) distillation capacity and the major secondary processing capacities of each foreign refinery. Although there are discrepancies, many of which reflect differences in publication data, they generally agree and are of equal reliability regarding primary distillation capacities. Concerning secondary processing facilities, "World Petroleum" magazine is the most detailed and probably the most reliable. None of the magazines adequately or reliably provides the residual fuel oil desulfurization capacity of foreign refineries.

Foreign refinery output statistics are also available from a variety of miscellaneous sources. Perhaps the most complete is the collective responses to the Bureau of Mines Annual Minerals Production Questionnaire. Respondents to the questionnaires are

foreign service employees who receive their data from foreign government personnel or reports. Most reporters have no petroleum industry experience and are not qualified to detect obvious errors. Consequently, some questionnaire responses on refined products output are unreliable and inadequate. Neither these reports nor any other published material provide the sulfur level of any refined product, including residual fuel oil. Other collection sources are oil companies, foreign governments, and international organizations. These, however, are either too few or too old to be of much value in computing world totals.

Refined Products Consumption and International Bunkering

Data on the consumption and bunkering of petroleum products by type of product is the most difficult item of supply and demand to secure as most nations do not publish petroleum sales data. U.N. Series J information lags by nearly two years and product categories are too general for specific residual fuel oil information. The OECD Oil Supplies report gives excellent coverage for the developed countries, but it is approximately one year late and does not provide any sulfur information. Only a few developing countries compile petroleum consumption figures. Consumption by end-use is available for only the OECD countries and a few British Commonwealth and Latin American countries. No sources present the sulfur level of products consumed.

ANALYSIS OF FOREIGN REFINERIES

At the end of 1970 there were an estimated 540 foreign refineries with a throughput capacity of 38,130,435 barrels per day. The following tabulates capacities by major geographic areas:

Area	Number of Refineries	Capacity barrels per day
Canada	42	1,491,670
Central America	21	1,860,800
South America	61	3,601,460
Western Europe	169	15,114,985
Africa	27	644,800
Middle East	31	2,490,360
Asia and the Far East	95	6,128,060
Total Foreign Free World	446	31,332,135
Sino-Soviet Area	est. 100	6,798,300
Total Foreign Area	546	38,130,435

United States companies own all or part of 188 of these plants with an aggregate capacity of 14,229,900 barrels per day. The latest data on total foreign refinery operations is for 1969. During that year, foreign refinery capacity was about 33,922,000 barrels per day and refinery throughput totaled 11,320,903,000 barrels or 31,016,172 barrels per day. Output of world refineries (excluding the Sino-Soviet area), which totaled 13,172,175,000 barrels in 1969, is given by individual refining country and type of product in Table 1. No data are available on the output of residual and distillate fuel oils by sulfur content.

Facilities for desulfurizing residual fuel oil at foreign refineries are concentrated in three areas; Japan, the Caribbean area, and the Persian Gulf area. The first foreign residual fuel oil desulfurization unit was built in Japan in 1967. It was built to process residual products from high-sulfur Middle East crude oil. With the passage of air quality legislation in Japan that year, plans for other desulfurization facilities proliferated. Because of the increasing difficulty in marketing high-sulfur Kuwait and Neutral Zone crude, two plants were built in Kuwait, one an all-hydrogen refinery. Since the establishment of air quality standards in metropolitan areas of the United States, four plants have been built in the Caribbean to process products from high-sulfur Venezuelan crude. At the end of 1970 the capacity of all foreign facilities built to lower the sulfur content of residual fuel oil was 720,260 barrels per day. Known plants under construction at that time totaled 326,500 barrels per day. Data on each plant is given in Table 2.

Over half (54%) of the foreign capacity in operation is at Japanese refineries. All of the output from these units is marketed in Japan and presumably not readily available for exportation. Although specific data are not available, most of the output from the Persian Gulf facilities is believed to be shipped to Japan, whereas that from the Caribbean plants is exported to the United States.

Expansion plans include the construction of four plants in the Caribbean area by 1972 having a combined capacity of 215,500 barrels per day. When completed, Caribbean desulfurization plants will have a total capacity of 483,500 barrels per day.

For the most part capacity of direct residual fuel oil desulfurization units means the maximum rate at which high-sulfur residual fuel oil (as high as 6.3% sulfur) can be desulfurized to 1% S. No foreign scheme reduces the sulfur content level to less than 1% S using the direct method.

Indirect processing capacities are maximum rate at which vacuum gas-oil may be sulfurized prior to blending with high-sulfur residual fuel oil. The sulfur level of the vacuum gas-oil desulfurized varies from 0.1% to 0.3%. Output sulfur levels vary according to the sulfur content of the charge.

ANALYSIS OF FOREIGN TRANSPORT PATTERNS

Petroleum is the principal commodity of international transport. In 1969 world exports and reexports of petroleum were an estimated 10.3 billion barrels. These shipments were valued at \$25 billion or 8 percent of the world's total. By weight, petroleum accounted for more than one-third of the world's ocean shipments. Crude oil accounts for three-fourths of the petroleum shipments and refined products, the remainder. Table 3 gives exports and reexports of crude oil by countries and imports of crude by countries. Table 4 gives exports and reexports of refined products by countries and Table 5 gives imports of refined products by countries. A matrix of crude oil flow by origins and destinations is given for 1965 through 1968 in Table 6, these are the latest available. A similar matrix of refined products is not available.

Major petroleum trading consists of crude oil shipments from the Persian Gulf area to both Western Europe and Japan and from North Africa to Western Europe. Less important petroleum routes are those carrying crude oil and refined products from the Caribbean area to North America, Western Europe, and South America; from the U.S.S.R., to Western Europe; and from Canada to the United States.

Table 7 graphically illustrates the estimated flow of free-world petroleum trade in 1970. Based on these data, which excludes most intra-area trade, over one-half of world petroleum shipments originate in the Persian Gulf area as shown below:

	<u>Percent</u>
Persian Gulf area	54
North Africa	17
Caribbean	15
West Africa	4
U.S.S.R. *	4
Canada	3
Indonesia	2
Other areas	<u>1</u>
World total	100

* To free-world only.

Western Europe receives most of these shipments as seen by the following tabulation:

	<u>Percent</u>
Western Europe	52
Japan	20
United States	14
South America (Excluding Venezuela)	6
Canada	3
Other areas	<u>5</u>
World total	100

Other than imports of residual fuel oil (including No. 4 distillate fuel oil) into the United States, no data on the transport of petroleum by sulfur content is available except for crude oil imports into Japan. These are listed for 1969 in Table 8.

CONCLUSIONS AND RECOMMENDATIONS

Efforts to improve the present collection system now being used by both the Bureau of Mines and the United Nations will be difficult and complex because of the disinterest of foreign political entities and the confidentiality of company statistics. The placement of additional statistical collection requirements on the Department of State would be hindered by budgetary limitations. The magnitude of the task may be illustrated as follows. Of the world's political entities (nations, dependencies, protectorates, etc.) there are 177 which import refined petroleum products, 90 which export products, and 60 that produce crude oil. Furthermore, 93 have at least one of the 540 foreign refineries.

Except for a few foreign countries there is a lack of published information on the sulfur level of either crude oil or refined products. It is doubtful that any foreign country except Japan could provide the sulfur level of petroleum commodities. In general, foreign governments do not require reporting on the sulfur level of petroleum.

Because of proprietary reasons, few foreign government companies have cooperated with either the Bureau of Mines or the Foreign Service in the collection of petroleum statistics. They believe the exchange of information not to be in their best interest. The amount of statistical information received by the Bureau of Mines has been sparse and in response to specific ad hoc

requests. The large international foreign oil companies such as British Petroleum, Royal Dutch Shell, Ente Nazionale Indrocarburi (Italian), and Compagnie Francaise des Petroles do not give detailed supply and demand data to the Bureau of Mines or the Foreign Service concerning their foreign holdings.

In only a very few cases does the Bureau of Mines receive company confidential data from foreign subsidiaries of U.S. oil companies. These data are limited to production statistics from 12 refineries. None of these reports include figures on the sulfur level of residual fuel oil produced or shipped. According to Bureau of Mines investigations, U.S. companies own all or part of the 188 foreign refineries which account for 37 percent of foreign refining capacity. U.S. companies are the majority owners (50 percent or more) of 140 of these refineries. With full cooperation, these U.S. companies can, at best, supply about one-third of total foreign refining and shipment statistics. Studies of these data, if obtained, would be required to determine the value of such statistics for purposes of estimating world totals. According to oil company officials in New York, detailed refinery production data including the sulfur level of refinery production and shipments are maintained at subsidiary level and not at headquarters' offices.

During the past five years economic and statistical reporting by the Foreign Service (Department of State) has been reduced

because of budget restrictions. A larger portion of Foreign Service reporting now covers political developments, a condition which conforms to what the State Department considers their primary mission. State now collects and reports annual crude oil and refinery production statistics only, excluding sulfur level data. In general, most of the information now being reported by foreign posts is obtained from foreign government publications. In a few cases Foreign Service officers have privately obtained information from friendly officials, both foreign government and company. Based on previous confrontations with economic reporting coordinators in the State Department it is believed that any request for additional reporting on a continuing or repetative basis would be very closely examined. Essentially, all ad hoc requests are honored. The success of State Department Foreign Service efforts to collect ad hoc sulfur content data hinges on their entree to U.S. and foreign oil company statistics.

The study revealed no sources which give for foreign areas the sulfur content of distillate fuel oils produced, consumed, or traded internationally. Two principal sources available in Washington give foreign petroleum price information. The first, Platt's Oilgram Price Service which gives daily price changes and annual quotations for nine major refined product trading countries. The second, The Petroleum Times, a British fortnightly magazine gives

the latest refined product prices for eighteen foreign countries, most of which are European. Both publications are reliable but do not contain fuel quality data.

In conclusion, the Bureau of Mines recommends three avenues of approach toward improving the Bureau of Mines present reporting system and for expanding present collection programs.

1. Improve the timeliness of Bureau of Mines publication, International Petroleum Annual, by the acquisition of data from United Nations and possibly from the Organization of Economic Cooperation and Development. This will not provide additional information on the sulfur content of fuel oils.
2. Request State Department foreign service posts for repetitive reporting on the sulfur content of crude oil, residual fuel oil, and distillate fuel oil produced, imported, and exported. This is essential for development of a complete system.
3. Request U.S. companies having foreign affiliates to report the sulfur content of distillate and residual fuel oil produced, consumed, and traded. This is only a partial solution.

The degree of success in accomplishing the above will determine the feasibility of developing a data system. If all of the above areas of improvement can be successfully implemented, a second study should be initiated to delineate, design and plan for the maintenance of a data system. Without the above, a data system is not possible. An essential prerequisite for computerized data system is reliable, timely high quality data.

TABLE 1 - Output of refined products, 1969 1/

(Thousands of barrels)

Country or area	Gasoline		Kerosine and Jet fuel		Distillate fuel oil	Residual fuel oil	Lubricants (including grease)	Other 2/	Refinery fuel and loss	Total output of refined products
	Aviation (as reported)	Total (incl. motor and aviation)	Jet fuel (as reported)	Total (incl. kerosine and jet fuel)						
North America:										
Bermuda-----	0	0	0	0	0	0	0	0	0	0
Canada-----	1,416	156,655	11,312	31,619	118,208	64,044	1,964	33,906	27,565	433,961
Mexico-----	551	46,629	2,681	14,256	27,591	43,135	1,423	23,829	12,072	168,925
United States-----	26,460	2,022,407	321,700	423,438	846,863	265,906	65,080	347,092	211,966	4,182,752
Total-----		2,225,601		469,313	992,652	373,085	68,467	404,827	251,603	4,785,638
Central America and Caribbean:										
Costa Rica-----	0	510	0	144	894	570	0	4	274	2,396
Cuba-----	0	8,845	1,518	2,467	7,212	16,513	0	1,329	1,594	37,960
Dominican Republic-----	0	0	0	0	0	0	0	0	0	0
El Salvador-----	0	575	69	298	549	743	0	74	159	2,398
Guatemala-----	0	1,281	218	580	1,586	1,759	0	96	227	5,529
Haiti-----	0	0	0	0	0	0	0	0	0	0
Honduras, British-----	0	0	0	0	0	0	0	0	0	0
Honduras, Republic-----	0	678	21	203	1,013	1,587	0	36	209	3,726
Jamaica-----	0	1,988	*834	1,335	2,204	5,103	0	301	281	11,212
Nicaragua-----	0	660	0	228	673	614	0	67	353	2,595
Panama, Canal Zone-----	0	0	0	0	0	0	0	0	0	0
Panama, Republic-----	0	3,108	1,898	2,497	5,581	12,239	0	1,878	894	26,189
Puerto Rico-----	0	30,607	1,302	2,049	8,998	15,627	0	14,698	6,233	78,212
Virgin Islands-----	0	*5,371	*295	*1,787	*9,548	*27,645	0	*12,940	*2,387	59,678
Total-----		53,615		11,588	38,258	82,400	0	31,423	12,611	229,893
South America:										
Argentina-----	381	32,134	1,974	8,465	34,248	47,015	1,598	12,491	9,192	145,143
Barbados-----	0	246	0	105	281	169	0	35	42	878
Bolivia-----	0	1,846	66	808	612	958	51	30	128	4,433
Brazil-----	0	53,591	4,420	9,397	40,026	54,967	64	6,820	7,556	172,421
Chile-----	225	9,953	0	2,759	4,651	7,473	0	2,534	*1,350	28,720
Colombia-----	619	14,402	1,085	4,232	6,568	15,633	467	5,721	2,226	49,249
Ecuador-----	0	2,584	435	1,066	1,527	2,329	4	28	189	7,727
Guyana-----	0	0	0	0	0	0	0	0	0	0
Netherlands Antilles-----	6,159	41,655	21,590	41,325	27,532	170,716	6,774	6,940	16,292	311,234
Paraguay-----	0	385	44	165	460	203	0	41	110	1,364
Peru-----	30	9,774	1,420	5,212	6,823	7,766	65	823	337	30,800
Surinam-----	0	0	0	0	0	0	0	0	0	0
Trinidad-----	2,099	22,180	15,181	17,490	17,116	88,271	1,471	2,353	5,196	154,077
Uruguay-----	0	2,333	158	1,474	2,315	4,971	2	507	349	11,951
Venezuela-----	278	23,086	23,773	29,386	55,250	257,702	3,583	43,559	9,228	421,794
Total-----		214,169		121,884	197,409	658,173	14,079	81,882	52,195	1,339,791
Western Europe:										
Austria-----	0	7,851	728	754	8,174	16,168	1,884	3,488	567	38,886
Belgium and Luxembourg-----	18	26,113	8,384	9,306	67,588	68,711	378	22,924	16,539	211,559
Denmark-----	0	11,229	608	1,523	19,172	26,114	0	3,707	4,753	66,498
Finland-----	0	8,747	560	645	14,801	19,081	0	4,305	4,324	51,903
France-----	506	104,772	22,742	23,092	257,697	157,864	7,208	83,646	38,185	672,464
Germany, West-----	0	99,396	10,281	10,920	252,006	173,304	7,196	146,224	33,731	722,777
Greece-----	0	4,420	2,624	3,345	10,698	10,643	126	2,707	1,731	33,670
Iceland-----	0	0	0	0	0	0	0	0	0	0
Ireland-----	0	4,344	616	616	4,692	6,307	0	910	750	17,619
Italy-----	1,622	107,184	13,144	38,659	148,373	328,457	3,674	88,953	67,617	782,917
Malta-----	0	0	0	0	0	0	0	0	0	0
Netherlands-----	1,682	36,515	14,104	22,552	101,366	142,178	314	49,638	32,596	385,159
Norway-----	0	4,512	993	1,772	11,420	16,053	167	2,983	1,938	38,845
Portugal-----	0	1,853	488	2,092	3,245	4,116	0	2,463	1,735	15,504
Spain (including Canary Islands)-----	71	26,003	6,675	9,754	49,245	93,881	1,391	19,394	10,882	210,550
Sweden-----	0	10,659	1,296	1,637	20,329	32,741	483	7,840	7,208	80,897
Switzerland-----	0	6,860	704	743	15,336	10,336	0	1,980	2,162	37,740
United Kingdom-----	334	87,296	25,414	45,207	145,309	254,965	8,411	86,589	44,059	671,836
Yugoslavia-----	0	8,526	492	1,093	12,854	13,107	619	2,060	1,148	39,407
Total-----		556,280		173,710	1,142,628	1,374,026	31,851	529,811	269,925	4,078,231
Middle East:										
Bahrain-----	0	8,037	13,752	14,854	17,101	35,651	0	7,670	4,063	87,376
Cyprus-----	0	0	0	0	0	0	0	0	0	0
Iran-----	6,475	28,407	13,428	33,110	29,831	76,842	560	14,792	7,085	190,627
Iraq-----	0	3,272	651	4,825	5,701	9,669	246	855	*1,236	*25,804
Israel-----	0	6,279	0	5,460	8,268	12,870	0	3,588	2,536	39,001
Jordan-----	0	738	0	534	921	759	0	563	197	3,712
Kuwait-----	0	7,053	635	4,309	46,930	50,627	0	4,843	1,379	115,141
Lebanon-----	0	2,957	1,379	1,649	2,375	5,888	0	445	608	13,922
Neutral Zone-----	0	0	0	0	151	11,758	0	2,203	383	14,495
Oman-----	0	0	0	0	0	0	0	0	0	0
Qatar-----	0	63	0	33	50	80	0	0	21	247
Saudi Arabia-----	176	25,584	13,962	17,152	18,265	80,665	0	14,142	5,635	161,443
Southern Yemen 1/-----	0	2,410	4,878	7,012	5,006	29,399	0	311	2,865	47,003
Syria-----	0	*1,696	0	*1,588	*2,179	*3,629	0	*414	*355	9,861
Trucial States-----	0	0	0	0	0	0	0	0	0	0
Turkey-----	10	7,900	1,287	4,564	10,625	19,714	0	3,237	1,122	47,162
Total-----		94,396		95,090	147,403	337,551	806	53,063	27,485	755,794

See footnotes at end of table.

TABLE 1 - Output of refined products, 1969 1/ - Continued

(Thousands of barrels)

Country or area	Gasoline		Kerosine and jet fuel		Distillate fuel oil	Residual fuel oil	Lubricants (including grease)	Other 2/	Refinery fuel and loss	Total output of refined products
	Aviation (as reported)	Total (incl. motor and aviation)	Jet fuel (as reported)	Total (incl. kerosine and jet fuel)						
Africa:										
Algeria-----	0	4,313	0	1,620	5,877	2,943	1	1,243	342	16,339
Angola-----	0	524	375	433	734	2,324	0	144	320	4,479
Cameroon, Federal Republic of-----	0	0	0	0	0	0	0	0	0	0
Cape Verde Islands-----	0	0	0	0	0	0	0	0	0	0
Congo, Republic of the (Kinshasa)-----	0	884	573	573	1,180	1,898	0	9	354	4,898
Egypt-----	0	3,868	24	3,318	3,633	9,850	0	404	1,264	22,337
Ethiopia-----	0	585	200	219	1,011	1,365	0	69	439	3,688
Former Equatorial Africa 4/-----	0	0	0	0	0	0	0	0	0	0
Former West Africa 5/-----	0	2,160	847	1,267	2,538	3,484	0	202	498	10,149
Gabon-----	0	1,036	0	738	1,333	1,938	0	39	169	5,253
Ghana-----	0	1,353	0	474	1,613	2,305	0	37	300	6,082
Kenya-----	0	2,508	1,192	2,138	3,230	6,760	0	419	805	15,860
Liberia-----	0	383	76	167	639	638	0	4	203	2,034
Libya-----	0	762	0	364	861	1,160	0	0	166	3,313
Malagasy Republic-----	93	727	94	272	731	*1,553	47	69	*233	3,632
Morocco-----	0	2,669	269	900	3,493	3,047	0	601	344	11,054
Mozambique-----	0	1,214	0	0	1,634	2,349	0	271	758	6,226
Nigeria-----	0	0	0	0	0	0	0	0	0	0
Rhodesia-----	0	0	0	0	0	0	0	0	0	0
Sierra Leone-----	0	320	0	163	376	813	0	242	133	2,047
Somali Republic-----	0	0	0	0	0	0	0	0	0	0
Somaliland, French-----	0	0	0	0	0	0	0	0	0	0
South Africa, Republic of-----	0	17,265	584	1,698	13,177	13,992	662	2,208	4,667	53,669
Sudan-----	0	747	465	616	1,786	1,803	0	26	619	5,397
Tanzania-----	0	926	291	547	972	2,076	0	37	358	4,916
Tunisia-----	0	1,014	0	428	2,276	2,761	0	1,008	1,287	8,774
Uganda-----	0	0	0	0	0	0	0	0	0	0
Zambia-----	0	0	0	0	0	0	0	0	0	0
Total-----	93	43,258		15,935	47,094	63,059	710	7,032	13,259	190,347
Asiatic area:										
Afghanistan-----	0	0	0	0	0	0	0	0	0	0
Australia-----	219	58,940	6,764	8,474	31,831	38,913	2,258	10,181	15,320	165,917
Brunei-----	0	108	0	0	184	5	0	7	0	304
Burma-----	29	1,486	200	2,057	1,706	1,014	0	192	402	6,857
Ceylon-----	0	385	0	476	873	1,381	0	332	390	3,837
Fiji-----	0	0	0	0	0	0	0	0	0	0
Hong Kong-----	0	0	0	0	0	0	0	0	0	0
India-----	205	14,060	3,316	23,821	35,678	21,087	584	29,343	6,794	131,367
Indonesia-----	207	10,927	1,776	15,943	8,371	12,926	21	26,446	3,464	76,098
Japan-----	532	116,241	21,061	102,277	115,714	515,072	12,881	159,467	42,311	1,063,963
Korea, South-----	0	4,774	3,126	5,346	9,605	26,739	0	5,422	3,126	55,012
Laos-----	0	0	0	0	0	0	0	0	0	0
Malaysia-----	110	5,950	5,475	8,760	6,096	20,002	0	1,096	2,117	44,021
New Caledonia-----	0	0	0	0	0	0	0	0	0	0
New Zealand-----	0	9,472	0	0	4,824	4,458	0	1,349	1,453	21,556
Pakistan-----	318	2,868	2,911	7,560	7,492	11,014	524	2,698	1,990	34,146
Philippines-----	0	14,561	2,416	5,744	12,853	21,337	0	1,744	4,271	60,510
Singapore-----	0	8,554	11,387	15,224	11,675	8,374	355	20,684	2,457	67,323
Taiwan-----	300	3,764	3,735	3,843	5,496	14,880	576	2,409	1,805	32,773
Thailand-----	0	3,523	1,591	2,593	6,471	6,375	1	2,690	4,111	25,764
Vietnam, South, and Cambodia-----	0	292	110	293	1,059	657	0	511	219	3,031
Total-----		255,905		202,411	259,928	704,234	17,200	262,571	90,230	1,792,479
World total (excluding Sino-Soviet area)-----		3,443,314		1,089,931	2,825,372	3,592,528	133,113	1,370,609	717,308	13,172,175

* Estimates based on latest available data.

1/ Excludes liquefied petroleum gases sold directly for fuel and chemical uses from natural gasoline plants.

2/ Includes other finished products and unfinished oils requiring further processing, including topped crude.

3/ Formerly listed as Aden.

4/ Includes Central African Republic, Congo Republic, and Tchad.

5/ Includes Dahomey, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, Togo, and Upper Volta.

TABLE 2

Foreign Residual Fuel Oil Desulfurization Facilities, Yearend 1970
Capacities in Barrels Per Day

Country Company	Refinery Location	Year Completed	Capacity ^{1/} Completed	Process	Company	Comments
Japan						
Idemitsu Kosan	Chiba	1967	40,000	Direct	RCD-UOP	Lowers 4.0% S resid. to 1.0% S resid.
Fuji Sekiyu	Sodegaura	1968	23,000	Indirect	Isomax	For the most part, the capacities of these units reflect their ability to produce a desulfurized gas-oil with about 0.3 to 0.5% S content which is blended with a variety of vacuum resid. to meet the Japanese average of 1.7% S.
Toa Nenryo Kogyo	Wakayama	1968	25,000	do	ER & E	
Nihan Sekiyu Seisei	Negishi	1969	40,000	do	CRC Isomax	
Daikyo Sekiyu	Umaokoshi	1969	35,000	do	Gulfining	
Kyushu Sekiyu	Oita	1969	14,000	do	UOP Isomax	
Showa Sekiyu	Kawasaki	1969	14,000	do	Shell HDS	
Mitsubishi Sekiyu	Mizushima	1969	30,000	do	UOP Isomax	
Maruzen Sekiyu	Chiba	1969	35,000	do	Unicracking	
Seibu Sekiyu	Yamaguchi	1969	4,000	do	Shell HDS	
General Sekiyu Seisei	Sakai	1970	31,000	do	ER & E	
Koa Sekiyu Seisei	Marifu	1970	8,000	do	CRC Isomax	
Nihan Kogyo	Mizushima	1970	27,760	Direct	Gulf HDS	Lowers Feedstock from 4% S to 1% S resid.
Kashima Sekiyu	Kashima	1970	45,000	Direct	RCD-UOP Isomax	NA
Daikyo Sekiyu	Umaokoshi	1970	17,500	NA	NA	NA
Subtotal			389,260			

TABLE 2 (Cont'd)

Kuwait						
Kuwait National Oil Co.	Shwaiba	1968	28,000	Direct	H-Oil-Hydro Carb. Res.	Feed is heavy oils from vacuum unit. Output is a wide range of products. Resid. output is 11,810 b/d of 2% which can be mixed with heavy gas-oil from other units. Called all hydrogen refinery. Lowers crude buttons (Resid.) of as high as 6.3% S to less than 1% S.
American Independent Oil Co.	Mena Abdulla	1969	35,000	Direct	Isomax	
Subtotal			<u>63,000</u>			
Venezuela						
Crucible Petroleum Corp.	Amuay	1970	143,000	Indirect	ERE	Two units each 71,500 b/d. Not sufficient VGO to operate at capacity. In 1970 was operating at 80%. This will continue until other units are completed. Present output is 0.2% S gas-oil which is blended with 3.1% S resid from the vacuum gas-oil unit. Resid output could (in 1970) reach 160,000 b/d of 1% S or 100,000 b/d of 1% S and 50,000 b/d of 0.3% S.
Cie. Shell deVenezuela, Ltd.	Cardon	1969	35,000	Indirect	Shell-HDS	Can remove up to 80% of the sulfur in the VGO. Feed is VGO, atmosphere distillate or furfural extr. with a S content of 2.1 by weight. Can produce desulfurized distillate of 0.3% S @ 35,000 b/d.
Subtotal			<u>178,000</u>			

TABLE 2 (Cont'd)

Netherlands West Indies Shell Curacao, N. V.	Curacao	1967	30,000	Indirect	Shell-HDS	Feed is VGO of about 2.0% S produces 30,000 b/d of 0.3% S gas-oil.
Virgin Islands Hess Oil Co.	St. Croix	1969	60,000	Indirect	<u>NA</u>	Feed is vacuum gas-oil VGO of 1.2% S. Output is 0.1% S gas- oil which is mixed with vacuum resid or atmospheric resid. Blending schedules are not available.
Total Completed			<u>720,260</u>			

TABLE 2 (Cont'd)

Under Construction

Trinidad							
Texaco Trinidad, Inc.	Pointe-a-Pierre	1972	77,000	Indirect	<u>NA</u>	<u>NA</u>	
Netherlands West Indies							
Lago Oil and Transport Co.	Aruba	1971	80,000	Indirect	<u>NA</u>		Product to be charged is 2.0% S VGO. Resid output is reported at 75,000 b/d or 1.0% S and 13,000 b/d or 0.3% S.
Bahamas							
Bahama Oil Refining Co.	Freeport	1972	40,000	Indirect	<u>NA</u>	<u>NA</u>	
Mexico							
Petroleos Mexicanos (Pemex)	Salamanca	1972	18,500	Direct	HRI	<u>NA</u>	
Japan							
Idemitsu Kosan	Himeji	1971	40,000	Direct	UOP	<u>NA</u>	
Kansai Sekiyu	Sakai	1971	20,000	Indirect	<u>NA</u>	<u>NA</u>	
Koa Sekiyu	Osaka	1971	12,000	Indirect	<u>NA</u>	<u>NA</u>	
Toa Nenryo Kogyo	Kawasaki	1971	35,000	Indirect	<u>NA</u>	<u>NA</u>	
Kyckuto Sekiyu Kogyo	Chiba	1972	40,000	Direct	<u>NA</u>	<u>NA</u>	
Subtotal			<u>147,000</u>				
Total Under Construction			<u>362,500</u>				

1/ For the most part, capacities are believed to be the throughput capacity of the process unit.

TABLE 3 - Supply of and demand for crude petroleum and refined products, 1969

(Thousands of barrels)

Country or area	Crude petroleum					Refined products			
	Production	Imports crude and unfinished oils	Exports and reexports	Stock change, other demand and loss	Total refinery throughput 1/ or output 2/	Imports	Exports and reexports	Domestic demand (including bunkers) 3/	Bunkers - all flags 4/
North America:									
Bermuda	0	0	0	0	0	1,539	0	2,629	1,090
Canada	410,814	193,125	197,341	0	433,961	73,417	4,121	5/ 517,555	-
Mexico	168,379	1	0	+4,676	168,925	17,272	14,823	5/ 165,129	-
United States	6/ 3,371,751	514,114	1,435	+4,824	4,182,752	641,437	83,449	5/ 5,159,930	86,331
Total	3,950,944	707,260	198,777	+9,500	4,785,638	733,665	102,393	5,845,243	87,421
Central America and Caribbean:									
Costa Rica	0	2,413	0	+ 17	2,396	578	117	2,857	-
Cuba	*821	41,610	0	+4,471	*37,960	*5,667	0	*43,627	-
Dominican Republic	0	0	0	0	0	5,719	0	5,719	2,472
El Salvador	0	2,445	0	+ 47	2,398	154	722	1,830	-
Guatemala	0	5,568	0	+ 19	5,529	419	0	5,860	394
Haiti	0	0	0	0	0	883	0	883	-
Honduras, British	0	0	0	0	0	373	0	373	-
Honduras, Republic	0	3,903	0	+ 177	3,726	858	1,907	2,677	-
Jamaica	0	11,287	0	+ 75	11,212	2,008	833	5/ 10,762	1,939
Nicaragua	0	2,359	0	+ 38	2,595	557	0	3,152	-
Panama, Canal Zone	0	0	0	0	0	28,228	983	27,245	26,129
Panama, Republic	0	25,785	0	- 404	26,189	276	7	26,458	-
Puerto Rico	0	78,632	0	+ 420	78,212	5,427	29,592	54,047	498
Virgin Islands	0	61,365	0	+1,687	59,678	1,791	48,161	13,308	-
Total	821	235,347	0	+6,547	229,895	52,938	82,322	198,798	31,432
South America:									
Argentina	130,086	16,757	289	+1,411	145,143	14,730	1,542	5/ 145,143	2,625
Barbados	0	574	0	- 179	878	1,774	73	2,579	1,602
Bolivia	14,759	0	10,068	+ 258	4,433	140	0	4,573	-
Brazil	63,969	110,203	0	+1,751	172,421	8,724	1,509	5/ 174,712	-
Chile	13,350	16,044	0	+ 674	28,720	3,289	223	31,786	565
Colombia	76,776	0	29,853	+ 358	49,249	729	11,767	5/ 34,231	2,602
Ecuador	1,567	5,322	0	- 838	7,727	340	0	8,067	-
Guyana	0	0	0	0	0	5,213	0	5,213	-
Netherlands Antilles	0	285,450	0	+6,983	311,234	28,907	254,668	5/ 32,149	*12,707
Paraguay	0	1,364	0	0	1,364	0	0	1,364	-
Peru	26,330	5,512	1,644	+ 914	30,800	3,474	4	5/ 31,872	228
Surinam	0	0	0	0	0	*3,339	0	*3,339	-
Trinidad	57,418	103,762	6,230	+ 873	154,077	1,661	137,950	5/ 18,301	9,927
Uruguay	0	11,685	0	- 266	11,951	911	0	12,862	422
Venezuela	1,311,832	0	7/ 903,728	8/ -1,020	421,794	161	341,208	5/ 70,303	18,910
Total	1,696,087	556,673	951,812	+10,919	1,339,791	73,582	748,924	576,684	49,588
Western Europe:									
Austria	19,236	18,219	0	- 1,431	38,886	22,084	1,107	59,863	-
Belgium and Luxembourg	0	210,551	240	- 1,248	211,559	49,860	75,730	5/ 187,644	19,358
Denmark	0	68,841	67	+ 1,276	66,498	65,974	11,506	5/ 120,516	4,101
Finland	0	53,657	0	+ 1,754	51,903	22,470	3,471	5/ 70,191	280
France	18,207	648,981	0	- 5,276	672,464	40,264	89,418	5/ 607,351	26,158
Germany, West	56,886	669,217	874	+ 5,676	722,777	189,108	56,856	5/ 850,681	27,779
Greece	0	33,752	0	+ 82	33,670	13,594	1,803	5/ 44,783	4,191
Iceland	0	0	0	0	0	3,742	0	3,742	-
Ireland	0	16,206	0	0	17,619	14,886	4,829	5/ 25,637	833
Italy	9,309	765,342	0	- 8,266	782,917	26,540	206,293	5/ 616,886	58,175
Malta	0	0	0	0	0	2,018	0	2,018	-
Netherlands	13,792	365,935	3,374	+ 2,626	385,159	46,426	183,499	5/ 253,800	60,581
Norway	0	37,758	316	- 1,403	38,845	25,956	11,889	5/ 54,146	3,064
Portugal	0	16,672	0	+ 1,168	15,504	14,715	1,406	5/ 29,058	4,182
Spain (including Canary Islands)	1,386	214,682	0	+ 5,851	210,550	8,512	40,074	5/ 178,988	14,168
Sweden	0	75,434	0	0	80,897	137,400	11,802	5/ 196,034	7,991
Switzerland	0	37,715	0	+ 69	37,740	47,499	1,862	5/ 84,502	-
United Kingdom	562	699,663	3,224	+25,165	671,836	160,455	103,980	5/ 723,954	37,837
Yugoslavia	19,991	23,780	1,755	+ 2,609	39,407	5,605	1,817	43,195	-
Total	139,369	3,956,385	9,850	+29,662	4,078,231	897,308	807,342	4,153,039	266,678
Middle East:									
Bahrain	27,774	58,230	0	+ 17	87,376	1,773	76,774	5/ 12,871	6,519
Cyprus	0	0	0	0	0	3,723	0	3,723	10
Iran	1,232,155	0	1,039,308	+ 2,220	190,627	112	88,216	102,523	30,820
Iraq	555,241	0	527,571	+ 1,866	*25,804	1,669	1,772	25,701	571
Israel	10/ 18,042	*40,535	*16,750	+ 2,826	*39,001	*3,732	*9,619	5/ 32,905	-
Jordan	0	3,712	0	0	3,712	289	0	4,001	-
Kuwait	940,041	12,940	835,575	+ 2,265	115,141	198	78,723	5/ 36,251	30,549
Lebanon	0	14,042	0	+ 384	13,922	714	3,007	11,629	3,180
Neutral Zone	163,149	0	149,987	- 1,333	14,495	11/ 0	9,053	5,442	3,007
Oman	119,710	0	119,710	0	0	*3,342	0	*3,342	-
Qatar	129,746	0	128,845	+ 654	247	632	0	879	-
Saudi Arabia	1,092,322	0	938,547	- 7,668	161,443	553	111,132	5/ 50,150	34,994
Southern Yemen 12/	0	47,168	0	+ 165	47,003	28	38,228	8,803	3,388
Syria	16,771	9,861	16,771	0	9,861	*3,697	56	13,502	-
Turcial States	222,598	0	217,723	+ 4,875	705	0	0	705	-
Turkey	25,774	21,931	0	+ 543	47,162	5,509	707	5/ 49,154	548
Total	4,543,323	208,419	3,990,787	+ 6,814	755,794	26,676	417,287	361,581	113,586

See footnotes at end of table

TABLE 3 - Supply of and demand for crude petroleum and refined products, 1969 -- Continued

(Thousands of barrels)

Country or area	Crude petroleum					Refined products			
	Production	Imports crude and unfinished oils	Exports and reexports	Stock change, other demand and loss	Total refinery throughput 1/ or output 2/	Imports	Exports and reexports	Domestic demand (including bunkers) 3/	Bunkers - all flags 4/
Africa:									
Algeria -----	345,436	0	327,015	+ 2,082	16,339	1,321	3,485	5/ 15,939	-
Angola -----	17,456	0	10,840	+ 2,137	4,479	1,511	1,674	4,316	991
Cameroon, Federal Republic of -----	0	0	0	0	0	1,974	0	1,974	405
Cape Verde Islands -----	0	0	0	0	0	3,639	0	3,639	-
Congo, Republic of the (Kinshasa) -----	0	4,895	0	- 3	4,898	385	1,785	3,498	-
Egypt -----	89,601	6,868	70,912	+ 3,220	22,337	11,529	2,180	31,686	-
Ethiopia -----	0	3,662	0	- 26	3,688	453	810	3,331	-
Former Equatorial Africa 13/ -----	173	0	*173	0	0	1,295	0	1,295	-
Former West Africa 14/ -----	0	10,311	0	+ 162	10,149	8,895	1,378	17,666	7,302
Gabon -----	36,421	0	31,819	- 651	5,253	76	0	5,329	-
Ghana -----	0	5,462	0	- 620	6,082	764	1,820	5,026	-
Kenya -----	0	15,204	0	- 656	15,860	1,317	5,972	10,170	4,173
Liberia -----	0	2,221	0	+ 221	2,034	184	99	1,988	151
Libya -----	1,134,452	0	1,120,630	+10,509	3,313	6,113	528	8,898	-
Madagascar Republic -----	0	3,632	0	0	3,632	435	1,414	2,653	213
Morocco -----	438	10,588	0	- 28	11,054	1,134	126	12,062	-
Mozambique -----	0	6,226	0	0	6,226	791	2,575	4,442	721
Nigeria -----	197,204	0	198,806	- 1,602	0	9,930	22	9,908	13
Rhodesia -----	0	0	0	0	0	0	0	0	-
Sierra Leone -----	0	1,939	0	0	2,067	490	304	2,233	-
Somali, Republic -----	0	0	0	0	0	419	0	419	*7
Somali, French -----	0	0	0	0	0	*4,794	0	4,794	*2,763
South Africa, Republic of -----	0	57,348	0	+ 7,655	53,669	26,266	13,421	66,514	*10,923
Sudan -----	0	6,008	0	+ 411	5,597	6,010	751	10,856	288
Tanzania -----	0	4,662	0	- 254	4,916	2,480	3,942	3,995	72
Tunisia -----	27,942	3,459	22,082	+ 545	8,774	362	1,129	8,007	642
Uganda -----	0	0	0	0	0	2,833	33	2,331	-
Zambia -----	0	0	0	0	0	3,335	0	3,335	-
Total -----	1,849,123	142,485	1,782,277	+23,102	190,347	98,735	43,448	246,304	28,664
Asiatic area:									
Afghanistan -----	0	0	0	0	0	*376	0	376	-
Australia -----	15,805	143,105	0	- 124	165,917	15,973	5,574	178,959	15,409
Brunei -----	45,624	0	46,936	- 1,616	304	37	0	341	-
Burma -----	6,433	731	0	+ 307	6,857	162	79	6,940	-
Ceylon -----	0	4,381	0	+ 544	3,837	10,907	4	14,740	3,877
Fiji -----	0	0	0	0	0	1,966	122	1,844	766
Hong Kong -----	0	0	0	0	0	25,421	563	24,858	4,964
India -----	51,724	81,979	0	+ 2,336	131,367	7,814	6,135	124,294	1,930
Indonesia -----	271,001	217	191,124	+ 3,996	76,098	3,074	34,058	41,068	929
Japan -----	5,338	15/1,049,647	3	+14,487	1,063,963	128,237	85,727	1,186,173	104,780
Korea, South -----	0	55,300	36	+ 252	55,012	1,120	776	54,010	-
Laos -----	0	0	0	0	0	872	0	872	-
Malaysia -----	3,278	41,146	0	+ 403	44,021	5,792	22,513	27,300	-
New Caledonia -----	0	0	0	0	0	2,037	0	2,037	-
New Zealand -----	3	21,996	0	+ 440	21,556	5,311	735	26,132	4,027
Pakistan -----	3,460	31,323	0	+ 637	34,146	1,957	3,664	34,074	3,316
Philippines -----	0	60,589	0	+ 79	60,510	1,218	3,442	58,286	4,290
Singapore -----	0	67,672	0	+ 464	67,323	63,829	60,587	70,565	27,686
Taiwan -----	581	33,731	0	+ 1,539	32,773	5,183	2,051	34,599	2,963
Thailand -----	16	24,450	0	- 30	25,764	11,707	548	36,923	565
Vietnam, South, and Cambodia 16/ -----	0	3,350	0	+ 319	3,031	60,449	767	62,713	-
Total -----	403,463	1,619,617	238,099	+24,033	1,792,479	353,442	227,345	1,987,104	175,502
World total (excluding Sino-Soviet area) -----	12,583,130	7,426,166	7,171,602	+110,577	13,172,175	2,236,346	2,429,061	13,368,753	752,871
Sino-Soviet area (excluding Cuba) *	2,638,900	17/ 212,150	17/ 428,055	+ 91,505	2,331,490	98,725	201,840	2,228,375	-
World total -----	15,222,030	7,638,316	7,599,657	+202,082	15,503,665	2,335,071	2,630,901	15,597,128	752,871

* Estimates based on latest available data.

1/ Total input includes crude runs to stills plus runs of unfinished oils, topped crude and natural gas liquids blended at refineries.

2/ Total output includes refined output and refinery fuel and loss; excludes liquefied petroleum gases sold directly for fuel and chemical uses from natural gasoline plants.

3/ Unless otherwise specified data represent apparent domestic demand, which includes inland demand, refinery fuel and loss, and bunkering. Apparent domestic demand is derived from the components of refined product output, plus imports, minus exports, with no allowance for change in stocks.

4/ Totals include listed data only.

5/ Domestic demand as reported, including refinery fuel and loss, stock changes and bunkering; also includes, where available, liquefied petroleum gases sold directly for fuel and chemical uses from natural gasoline plants.

6/ Includes lease condensate.

7/ Estimated 12,670,000 barrels of finished products blended with crude for further processing.

8/ Ministry of Mines and Hydrocarbon.

9/ Includes an appreciable quantity of blended residual feedstocks.

10/ Includes estimated occupied Sinai production.

11/ Imports come into Kuwait.

12/ Formerly listed as Aden.

13/ Includes Central African Republic, Congo Republic, and Tchad.

14/ Includes Dahomey, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, Togo, and Upper Volta.

15/ Includes 36,663 barrels for non-refining uses.

16/ Includes both military and civilian.

17/ Includes trade among Bloc countries.

TABLE 4. - Exports and reexports of refined products, 1969
(Thousands of barrels)

Country or area	Gasoline		Kerosine and jet fuel		Distillate fuel oil	Residual fuel oil	Lubricants (including grease)	Other 1/	Total exports and reexports of refined products	Bunkers - all flags 2/	
	Aviation (as reported)	Total (incl. motor and aviation)	Jet fuel (as reported)	Total (incl. kerosine and jet fuel)						Distillate fuel oil	Residual fuel oil
North America:											
Bermuda-----	0	0	0	0	0	0	0	0	0	3/ 864	226
Canada-----	6	707	75	163	2,060	432	2	757	4,121	-	-
Mexico-----	0	0	0	0	0	5,805	0	9,018	14,823	-	-
United States-----	1,746	2,449	1,730	1,885	1,123	16,891	16,396	44,705	83,449	3/ 44,071	42,260
Total-----		3,156		2,048	3,183	23,128	16,398	54,480	102,393	44,935	42,486
Central America and Caribbean:											
Costa Rica-----	0	0	0	0	0	117	0	0	117	-	-
Cuba-----	0	0	0	0	0	0	0	0	0	-	-
Dominican Republic-----	0	0	0	0	0	0	0	0	0	0	2,472
El Salvador-----	0	128	0	0	471	0	36	87	722	-	-
Guatemala-----	0	0	0	0	0	0	0	0	0	3/ 265	129
Haiti-----	0	0	0	0	0	0	0	0	0	-	-
Honduras, British-----	0	0	0	0	0	0	0	0	0	-	-
Honduras, Republic-----	0	299	0	0	324	1,284	0	0	1,907	-	-
Jamaica-----	0	33	0	50	388	246	116	0	833	3/ 1,150	789
Nicaragua-----	0	0	0	0	0	0	0	0	0	-	-
Panama, Canal Zone-----	76	194	0	17	30	718	0	24	983	5,268	20,861
Panama, Republic-----	0	0	0	0	0	0	0	0	0	-	-
Puerto Rico-----	0	20,828	112	112	6,986	0	0	1,666	29,592	53	445
Virgin Islands-----	0	825	130	992	9,031	24,898	0	12,415	48,161	-	-
Total-----		22,314		1,171	17,230	27,263	152	14,192	82,322	6,736	24,696
South America:											
Argentina-----	0	0	4	7	13	639	35	848	1,542	3/ 824	1,801
Barbados-----	0	68	0	0	5	0	0	0	73	3/ 1,602	-
Bolivia-----	0	0	0	0	0	0	0	0	0	-	-
Brazil-----	0	0	0	736	767	6	0	1,509	-	-	-
Chile-----	0	0	0	0	0	0	223	0	223	3/ 505	60
Colombia-----	0	0	0	0	1,399	9,893	0	475	11,767	3/ 1,723	879
Ecuador-----	0	0	0	0	0	0	0	0	0	-	-
Guyana-----	0	0	0	0	0	0	0	0	0	-	-
Netherlands Antilles-----	6,159	33,844	19,941	37,751	22,764	147,681	6,013	6,595	254,648	*1,356	*11,351
Paraguay-----	0	0	0	0	0	0	0	0	0	-	-
Peru-----	0	0	0	0	0	0	0	4	4	91	137
Suriname-----	0	0	0	0	0	0	0	0	0	-	-
Trinidad-----	2,018	20,943	14,625	17,266	15,330	80,810	1,394	2,227	137,950	3/ 1,342	8,585
Uruguay-----	0	0	0	0	0	0	0	0	0	3/ 71	351
Venezuela-----	0	509	21,684	21,780	32,466	252,335	2,915	31,203	341,208	3/ 2,257	16,653
Total-----		55,364		77,520	72,744	491,364	10,357	41,575	748,924	9,771	39,817
Western Europe:											
Austria-----	0	26	106	106	2	0	894	79	1,107	-	-
Belgium and Luxembourg-----	18	12,224	6,032	7,055	27,393	16,605	1,316	11,137	75,730	3/ 3,321	16,037
Denmark-----	0	2,669	16	148	3,074	4,342	126	1,147	11,506	1,164	2,937
Finland-----	0	2,362	0	0	709	293	7	100	3,471	67	213
France-----	7	10,676	3,177	3,195	21,680	28,495	191	25,181	89,418	3/ 4,459	19,699
Germany, West-----	936	9,340	244	353	8,222	16,277	2,483	20,181	56,856	3/ 6,827	20,952
Greece-----	0	111	952	952	627	33	0	80	1,803	1,753	2,438
Iceland-----	0	0	0	0	0	0	0	0	0	-	-
Ireland-----	89	157	1,686	1,686	612	2,065	0	309	4,829	194	639
Italy-----	974	26,659	8,900	16,256	74,776	58,856	1,724	28,022	206,293	3/ 13,106	45,069
Malta-----	0	0	0	0	0	0	0	0	0	-	-
Netherlands-----	2,697	17,496	9,552	11,978	61,127	54,399	3,157	35,342	183,499	3/ 15,675	44,906
Norway-----	0	2,527	0	0	2,552	6,501	90	219	11,889	3/ 1,029	2,035
Portugal-----	98	166	32	931	104	107	98	0	1,406	3/ 1,558	2,624
Spain (incl. Canary Islands)-----	30	5,043	2,464	2,721	7,941	20,433	94	3,842	40,074	3/ 3,465	10,683
Sweden-----	0	2,423	520	760	1,992	3,883	28	2,716	11,802	2,596	5,395
Switzerland-----	0	240	0	0	11	1,445	15	151	1,862	-	-
United Kingdom-----	608	7,600	5,645	9,086	40,750	39,045	4,732	2,767	103,980	5,820	32,017
Yugoslavia-----	3	829	192	192	470	161	1	164	1,817	-	-
Total-----		100,548		55,419	252,042	252,940	14,956	131,437	807,342	61,034	205,644
Middle East:											
Bahrain-----	0	7,784	13,681	14,713	15,915	29,750	3	8,609	76,774	3/ 772	5,747
Cyprus-----	0	0	0	0	0	0	0	0	0	7	3
Iran-----	6,331	22,398	9,540	15,242	11,898	34,753	4	3,921	88,216	816	30,004
Iraq-----	0	16	23	174	150	1,396	4	32	1,772	254	317
Israel-----	0	2,420	0	2,019	2,763	1,555	0	862	9,619	-	-
Jordan-----	0	0	0	0	0	0	0	0	0	-	-
Kuwait-----	0	4,232	0	3,157	36,255	29,110	0	5,969	78,723	3/ 9,382	21,167
Lebanon-----	0	41	184	184	144	2,612	2	24	3,007	3/ 3,175	5
Neutral Zone-----	0	0	0	0	0	6,962	0	2,091	9,053	56	2,951
Oman-----	0	0	0	0	0	0	0	0	0	-	-
Qatar-----	0	0	0	0	0	0	0	0	0	-	-
Saudi Arabia-----	0	21,522	14,100	15,466	13,541	47,464	0	13,139	111,132	619	34,375
Southern Yemen 1/-----	0	1,625	4,646	6,194	4,397	26,011	1	0	38,228	-	3,388
Syria-----	0	34	0	0	0	0	0	22	56	-	-
Trucial States-----	0	0	0	0	0	0	0	0	0	-	-
Turkey-----	0	0	0	0	0	707	0	0	707	75	473
Total-----		60,072		57,149	85,063	180,320	14	34,669	417,287	15,156	98,430

See footnotes at end of table.

TABLE 4. - Exports and reexports of refined products, 1969 -- Continued
(Thousands of barrels)

Country or area	Gasoline		Kerosine and jet fuel		Distillate fuel oil	Residual fuel oil	Lubricants (including grease)	Other ^{1/}	Total exports and reexports of refined products	Bunkers - all flags ^{2/}	
	Aviation (as reported)	Total (incl. motor and aviation)	Jet fuel (as reported)	Total (incl. kerosine and Jet fuel)						Distillate fuel oil	Residual fuel oil
Africa:											
Algeria-----	0	1,178	0	294	765	1,206	0	42	3,485	-	-
Angola-----	0	4	0	0	0	1,670	0	0	1,674	-	991
Cameroon, Federal Republic of -	0	0	0	0	0	0	0	0	0	306	99
Cape Verde Islands-----	0	0	0	0	0	0	0	0	0	-	-
Congo, Republic of the (Kinshasa)	0	43	0	0	59	1,683	0	0	1,785	-	-
Egypt-----	0	0	0	273	54	649	0	1,204	2,180	-	-
Ethiopia-----	0	2	0	0	0	805	0	3	810	-	-
Former Equatorial Africa ^{3/} ----	0	0	0	0	0	0	0	0	0	-	-
Former West Africa ^{5/} -----	0	31	162	163	17	1,042	0	123	1,378	1,615	5,687
Gabon-----	0	0	0	0	0	0	0	0	0	-	-
Ghana-----	0	0	0	0	0	1,820	0	0	1,820	-	-
Kenya-----	29	1,412	582	1,087	1,337	1,736	161	239	5,972	3/ 1,681	2,492
Liberia-----	0	0	0	10	45	43	0	1	99	30	121
Libya-----	0	5	0	21	502	0	0	0	528	-	-
Malagasy Republic-----	0	286	0	113	155	860	0	0	1,414	47	166
Morocco-----	0	24	0	2	61	39	0	0	126	-	-
Mozambique-----	0	542	0	0	471	1,456	1	105	2,575	65	656
Nigeria-----	0	1	0	0	0	21	0	0	22	-	13
Rhodesia-----	0	0	0	0	0	0	0	0	0	-	-
Sierra Leone-----	0	89	0	0	178	37	0	0	304	-	-
Somali Republic-----	0	0	0	0	0	0	0	0	0	-	7
Somiland, French-----	0	0	0	0	0	0	0	0	0	*643	*2,120
South Africa, Republic of-----	0	185	0	525	1,550	10,559	323	279	13,421	*1,452	*9,471
Sudan-----	0	0	0	0	1	535	214	1	751	3/ 169	119
Tanzania-----	42	1,193	144	258	1,700	788	2	1	3,942	3/ 60	12
Tunisia-----	0	628	0	148	313	21	4	15	1,129	3/ 589	53
Uganda-----	19	20	0	4	8	0	1	0	33	-	-
Zambia-----	0	0	0	0	0	0	0	0	0	-	-
Total-----		5,643		2,898	7,216	24,970	706	2,015	43,448	6,657	22,007
Asiatic area:											
Afghanistan-----	0	0	0	0	0	0	0	0	0	-	-
Australia-----	4	1,286	461	554	1,732	1,194	534	274	5,574	2,403	13,006
Brunei-----	0	0	0	0	0	0	0	0	0	-	-
Burma-----	0	0	0	0	0	0	0	79	79	-	-
Ceylon-----	0	3	0	0	1	0	0	0	4	-	3,877
Fiji-----	4	34	6	21	59	3	2	3	122	3/ 661	105
Hong Kong-----	0	28	0	46	278	10	131	70	563	1,479	3,485
India-----	0	1,003	0	0	500	53	0	4,579	6,135	175	1,755
Indonesia-----	0	1,609	1,445	1,445	1,158	6,118	0	23,728	34,058	761	168
Japan-----	-	658	15,307	20,250	6,914	54,905	1,521	1,479	85,727	15,123	89,657
Korea, South-----	0	33	0	54	113	142	0	434	776	-	-
Laos-----	0	0	0	0	0	0	0	0	0	-	-
Malaysia-----	11	1,467	5,774	7,850	2,154	11,010	3	29	22,513	-	-
New Caledonia-----	0	0	0	0	0	0	0	0	0	-	-
New Zealand-----	0	0	0	0	9	717	1	8	735	3/ 2,718	1,309
Pakistan-----	0	73	0	0	90	2,416	0	1,085	3,664	3/ 1,541	1,775
Philippines-----	0	0	0	0	94	2,307	0	1,041	3,442	3/ 2,521	1,769
Singapore-----	3,719	13,652	18,792	22,933	17,323	4,542	1,010	1,127	60,587	3/ 714	26,972
Taiwan-----	1	3	120	120	925	106	356	541	2,051	2,214	749
Thailand-----	0	183	2	6	76	265	16	2	548	3/ 565	-
Vietnam, South, and Cambodia---	0	0	0	0	0	256	0	511	767	-	-
Total-----		20,032		53,279	31,426	84,044	3,574	34,990	227,345	30,875	144,627
World total (excluding Sino-Soviet area)-----		267,129		249,484	468,904	1,084,029	46,157	313,358	2,429,061	175,164	577,707

* Estimates based on latest available data.

^{1/} Includes other finished products and unfinished oils requiring further processing, including topped crude.

^{2/} Totals include listed data only.

^{3/} Includes other such as aviation gasoline, commercial jet fuel and lubricants.

^{4/} Formerly listed as Aden.

^{5/} Includes Central African Republic, Congo Republic, and Tchad.

^{6/} Includes Dahomey, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, Togo, and Upper Volta.

TABLE 5. Imports of refined products, 1969

(Thousands of barrels)

Country or area	Gasoline		Kerosine and jet fuel		Distillate fuel oil	Residual fuel oil	Lubricants (including grease)	Other 1/	Total imports of refined products
	Aviation (as reported)	Total (incl. motor and aviation)	Jet fuel (as reported)	Total (incl. kerosine and jet fuel)					
North America:									
Bermuda-----	0	225	509	754	185	329	8	38	1,539
Canada-----	196	6,214	4,731	7,721	19,434	33,242	1,722	5,064	73,417
Mexico-----	48	2,982	122	205	1,726	2,602	609	9,148	17,272
United States-----	0	22,709	45,539	46,504	50,883	461,611	163	59,567	641,437
Total-----		32,130		55,184	72,248	497,784	2,502	73,817	733,665
Central America and Caribbean:									
Costa Rica-----	57	164	0	60	177	0	77	100	578
Cuba-----	125	459	0	482	1,757	2,516	312	141	5,667
Dominican Republic-----	40	1,653	253	380	719	2,472	137	358	5,719
El Salvador-----	44	62	--	--	2	--	46	44	154
Guatemala-----	104	149	8	8	--	--	65	197	419
Haiti-----	7	205	44	63	388	202	15	10	883
Honduras, British-----	34	134	0	60	124	35	19	1	373
Honduras, Republic-----	42	270	0	61	439	0	45	43	858
Jamaica-----	49	54	152	177	313	1,325	128	11	2,008
Nicaragua-----	94	224	5	70	209	0	40	14	557
Panama, Canal Zone-----	124	522	0	25	5,453	21,789	0	439	28,228
Panama, Republic-----	0	0	0	0	49	92	47	88	276
Puerto Rico-----	0	7	3,106	3,106	25	1,122	0	1,167	5,427
Virgin Islands-----	192	341	281	288	808	137	*47	170	1,791
Total-----		4,244		4,780	10,463	29,690	978	2,783	52,938
South America:									
Argentina-----	--	--	0	0	5,505	3,731	1,027	4,467	14,730
Barbados-----	24	55	112	367	540	784	14	14	1,774
Bolivia-----	105	105	0	0	0	0	5	30	140
Brazil-----	616	2,000	88	88	0	0	1,981	4,655	8,724
Chile-----	192	192	801	801	563	1,326	334	73	3,289
Colombia-----	2	463	22	22	15	0	122	107	729
Ecuador-----	134	134	0	0	0	0	75	131	340
Guyana-----	24	380	14	200	773	3,814	17	29	5,213
Netherlands Antilles-----	265	2,432	314	342	1,531	15,645	117	8,840	28,907
Paraguay-----	14	14	0	0	4	102	34	36	190
Peru-----	248	248	0	0	0	2,031	265	930	3,474
Surinam-----	30	202	18	64	625	2,353	29	66	3,339
Trinidad-----	2	7	1	747	1	820	43	43	1,661
Uruguay-----	34	34	0	75	101	682	0	19	911
Venezuela-----	0	0	0	0	0	0	15	146	161
Total-----		6,266		2,706	9,658	31,288	4,078	19,586	73,582
Western Europe:									
Austria-----	0	6,778	1	1	770	12,158	423	1,954	22,084
Belgium and Luxembourg-----	169	4,513	416	583	17,201	19,399	2,101	6,063	49,860
Denmark-----	267	5,002	3,512	4,442	26,759	26,347	609	2,815	65,974
Finland-----	130	172	41	116	14,007	6,009	551	1,615	22,470
France-----	367	5,827	27	169	22,883	4,423	17	6,945	40,264
Germany, West-----	1,500	17,519	3,280	3,483	109,923	21,288	9,341	27,554	189,108
Greece-----	312	831	2,016	2,016	3,081	6,993	308	365	13,594
Iceland-----	21	451	438	452	2,154	618	34	33	3,742
Ireland-----	45	589	1,736	2,286	918	7,706	266	3,121	14,886
Italy-----	107	107	0	574	576	17,935	843	6,505	26,540
Malta-----	0	237	286	455	312	983	1	30	2,018
Netherlands-----	997	5,366	856	3,328	16,994	12,274	1,141	7,323	46,426
Norway-----	199	5,005	532	1,938	8,841	7,312	424	2,436	25,956
Portugal-----	205	1,990	2,336	2,336	3,230	4,069	462	2,628	14,715
Spain (including Canary Islands)-----	399	414	269	348	163	484	343	6,760	8,512
Sweden-----	0	15,020	3,064	4,761	49,661	56,523	322	11,313	137,600
Switzerland-----	0	11,490	0	419	29,225	2,549	598	3,218	47,499
United Kingdom-----	1,235	34,886	4,555	9,057	21,115	41,434	3,655	50,308	160,455
Yugoslavia-----	151	209	0	39	1,956	2,524	364	513	5,605
Total-----		116,406		36,803	329,769	251,028	21,803	141,499	897,308
Middle East:									
Bahrain-----	125	1,588	0	174	0	0	11	0	1,773
Cyprus-----	21	825	0	292	982	1,569	43	12	3,723
Iran-----	0	0	0	0	2	0	34	56	112
Iraq-----	0	0	0	13	384	1,269	1	2	1,669
Israel-----	140	140	0	0	0	3,330	136	106	3,732
Jordan-----	0	33	0	200	0	0	55	1	289
Kuwait-----	8	8	0	5	0	0	164	20	198
Lebanon-----	14	214	5	5	4	0	110	381	714
Neutral Zone 2/-----	--	--	--	--	--	--	--	--	--
Oman-----	57	314	124	211	131	2,493	0	193	3,342
Qatar-----	0	302	0	23	172	0	11	124	632
Saudi Arabia-----	0	0	0	223	5	176	160	9	553
Southern Yemen 3/-----	0	0	0	0	0	0	28	0	28
Syria-----	22	215	120	167	1,936	923	124	332	3,697
Turcial States-----	12	275	0	63	367	0	0	0	705
Turkey-----	0	0	406	966	2,775	131	713	924	5,509
Total-----		3,914		2,343	6,758	9,891	1,610	2,160	26,676

See footnote at end of Table.

TABLE 5 - Imports of refined products, 1969--Continued

(Thousands of barrels)

Country or area	Gasoline		Kerosine and jet fuel		Distillate fuel oil	Residual fuel oil	Lubricants (including grease)	Other 1/	Total imports of refined products
	Aviation (as reported)	Total (incl. motor and aviation)	Jet fuel (as reported)	Total (incl. kerosine and jet fuel)					
Africa:									
Algeria-----	70	156	0	0	0	0	217	948	1,321
Angola-----	0	76	0	86	1,232	0	117	0	1,511
Cameroon, Federal Republic of-----	80	736	390	434	516	171	49	68	1,974
Cape Verde Islands-----	0	17	75	99	327	3,184	2	10	3,639
Congo, Republic of the (Kinshasa)-----	0	0	232	232	123	0	30	0	385
Egypt-----	0	17	92	2,169	2,963	4,933	351	1,096	11,529
Ethiopia-----	67	87	163	176	179	0	11	0	453
Former Equatorial Africa 4/-----	68	407	98	199	457	87	53	92	1,295
Former West Africa 5/-----	24	369	311	365	2,179	5,790	77	115	8,895
Gabon-----	0	50	0	4	8	0	14	0	76
Ghana-----	16	16	327	327	0	0	111	310	764
Kenya-----	77	172	508	643	266	1	209	26	1,317
Liberia-----	3	3	16	16	30	133	2	0	184
Madagascar-----	31	1,794	119	119	2,242	296	190	1,472	6,113
Mali-----	57	124	1	6	115	1	86	123	435
Morocco-----	48	61	0	315	97	100	188	373	1,134
Mozambique-----	0	181	0	129	0	413	68	0	791
Nigeria-----	110	3,002	781	1,841	2,428	2,262	238	159	9,930
Rhodesia-----	--	--	--	--	--	--	--	--	--
Sierra Leone-----	6	22	26	26	299	37	2	104	490
Somali Republic-----	0	132	0	38	234	0	15	0	419
Somalia, French*-----	57	502	15	20	885	3,319	32	36	4,794
South Africa, Republic of-----	91	4,521	822	3,426	3,774	8,862	1,139	4,544	26,266
Sudan-----	196	1,096	1	650	2,077	1,751	403	33	6,010
Tanzania-----	80	701	51	147	1,470	0	91	71	2,480
Tunisia-----	0	7	1	16	0	155	77	107	362
Uganda-----	28	888	530	795	632	423	48	47	2,833
Zambia-----	27	1,112	155	210	1,585	107	167	154	3,335
Total-----		16,249		12,488	24,118	32,025	3,967	9,888	98,735
Asiatic Area:									
Afghanistan*-----	0	128	39	152	39	4	1	52	376
Australia-----	424	3,563	547	1,074	1,854	7,207	267	2,008	15,973
Brunei-----	0	0	0	5	0	0	19	13	37
Burma-----	0	0	0	0	0	0	99	63	162
Ceylon-----	0	705	362	1,450	2,919	5,383	77	373	10,907
Fiji-----	22	268	693	785	641	239	21	12	1,966
Hong Kong-----	44	948	2,372	4,171	4,318	14,965	308	711	25,421
India-----	0	0	401	4,856	0	585	888	1,485	7,814
Indonesia-----	0	0	0	3,072	0	0	0	2	3,074
Japan-----	--	64	--	--	9,335	62,340	3,054	53,444	128,237
Korea, South-----	19	19	--	--	284	509	68	240	1,120
Laos-----	67	378	2	85	275	79	25	30	872
Malaysia-----	28	924	145	766	3,435	225	219	223	5,792
New Caledonia-----	8	234	11	47	794	918	24	20	2,037
New Zealand-----	0	1,490	1,001	1,277	1,783	2	340	419	5,311
Pakistan-----	12	41	189	1,060	744	32	0	80	1,957
Philippines-----	63	200	0	119	0	32	607	260	1,218
Singapore-----	3,880	8,709	10,842	13,158	10,843	29,377	1,318	424	63,829
Taiwan-----	0	0	0	0	0	5,180	3	0	5,183
Thailand-----	74	1,292	401	595	7,496	1,473	703	148	11,707
Vietnam, South, and Cambodia 6/-----	3,431	11,352	26,061	28,835	14,636	4,198	221	1,207	60,449
Total-----		30,315		61,507	59,396	132,748	8,262	61,214	353,442
World Total (excluding Sino-Soviet area)-----		209,524		175,811	512,410	984,454	43,200	310,947	2,236,346

* Estimates based on latest available data.

1/ Includes other finished products and unfinished oils requiring further processing, including topped crude.

2/ Imports come into Kuwait.

3/ Formerly listed as Aden.

4/ Includes Central African Republic, Congo Republic, and Tchad.

5/ Includes Dahomey, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, Togo, and Upper Volta.

6/ Includes both military and civilian.

Table 6 - WORLD MOVEMENT OF CRUDE PETROLEUM: 1965 - 1968

(In thousand metric tons)

Exports of		WORLD	NORTH AMERICA		CARIBBEAN AMERICA		OTHER AMERICA		AFRICA							WEST ASIA										FAR EAST		WESTERN EUROPE		COUNTRIES RES		Exports of	
Exports to	Year		Total ^{1/}	Total	Colombia	Venezuela	Total	Total	Algeria	Gabon	Libya	Nigeria	Tunisia	U.A.R. Egypt	Total ^{1/}	Iran	Iraq	Kuwait ^{2/}	Muscat and Oman	Qatar	Saudi Arabia	Syria	Trucial Oman	Total	Indonesia	Total	Total ^{2/}	Year	Exports to				
WORLD.....	1965	664 740	14 730	129 300	5 610	121 390	450	99 220	24 430	1 280	58 470	13 230		1 620	358 350	72 850	61 640	113 760		10 930	85 560		13 700	18 530	13 020	450	43 720	1965	WORLD				
	1966	745 490	16 910	124 660	4 920	117 900	590	126 700	31 600	1 410	72 230	19 250	620	1 530	405 550	83 640	65 260	121 310		13 820	104 100		17 480	19 680	12 820	750	50 650	1966					
	1967	810 930	23 900	133 330	4 310	126 460	1 720	139 900	36 050	3 190	82 760	15 010	1 570	1 300	434 020	105 830	57 020	121 550	3 150	15 440	112 560		18 530	22 830	15 230	910	54 320	1967					
	1968	917 120	22 830	134 100	2 550	129 050	2 070	180 780	39 510	3 840	124 720	7 000	2 140	3 400	487 780	115 780	70 290	125 630	12 010	16 330	121 420	830	24 350	29 090	19 660	870	59 550	1968					
NORTH AMERICA....	1965	82 910	14 590	38 490	2 180	34 800		3 580	420		1 910	1 015		230	23 230	6 260	1 120	5 150		770	9 110		820	3 020	3 020			1965	NORTH AMERICA				
	1966	82 160	16 710	34 350	2 010	31 350	160	6 830	190		4 030	2 400		210	21 660	7 110	2 330	2 900		30	9 340		950	2 440	2 440			1966					
	1967	80 570	20 810	35 510	1 640	32 580	1 060	5 290	40	130	3 190	1 780		150	14 990	6 000	970	1 750			6 010		260	2 980	2 980			1967					
	1968	89 550	22 640	37 830	1 660	35 160	1 200	8 050	250		5 490	800		1 550	15 950	5 660	30	4 100			5 070		1 090	3 850	3 850			1968					
Canada.....	1965	19 650		12 810		12 200		115				115			6 690	2 430	360	980		200	2 590		130					1965	Canada				
	1966	20 540		11 000		10 400		2 510			710	1 800			7 030	2 920	1 070	570			2 160		310					1966					
	1967	22 910	500	14 290		13 520		2 370			780	1 590			5 750	2 790	740	220			2 000							1967					
	1968	23 870		17 040		16 510		380				380			6 450	2 860	30	360			2 510		750					1968					
United States....	1965	63 290	14 590	25 670	2 180	22 600		3 460	420		1 910	900		230	16 540	3 830	760	4 170		570	6 520		690	3 020	3 020			1965	United States				
	1966	61 620	16 710	23 350	2 010	20 950	160	4 320	190		3 320	600		210	14 650	4 190	1 260	2 330		30	6 180		640	2 440	2 440			1966					
	1967	57 670	20 310	21 220	1 640	19 060	1 060	2 920	40	130	2 410	190		150	9 240	3 210	230	1 530			4 010		260	2 980	2 980			1967					
	1968	65 570	22 630	20 790	1 660	18 590	1 200	7 710	250		5 490	420		1 550	9 500	2 860		3 740			2 560		340	3 850	3 850			1968					
CARIB. AMERICA....	1965	67 670	45	59 550	1 770	57 180		15				15			4 550						4 550						3 510	1965	CARIB. AMERICA				
	1966	69 230	30	60 860	1 540	58 660	40	720			280	420			3 800						3 800						3 840	1966					
	1967	72 640	90	65 230	1 380	63 020	150	2 160			1 320	210			1 190					540	140		510				3 840	1967					
	1968	76 310	50	63 800	690	62 790	470	5 270		2 320	2 630	320			2 400		100			180	1 220		900	120	120		4 000	1968					
Cuba.....	1965	3 510																									3 510	1965	Cuba				
	1966	3 840																									3 840	1966					
	1967	3 840																									3 840	1967					
	1968	4 000																									4 000	1968					
Jamaica.....	1965	1 290		1 290		1 290																							1 290	1965	Jamaica		
	1966	1 340		1 340		1 340																							1 340	1966			
	1967	910		910		910																							910	1967			
	1968	1 150		1 150		1 150																							1 150	1968			
Neth. Antilles..	1965	40 670		40 670		40 670																							40 670	1965	Neth. Antilles		
	1966	39 660		39 170		39 170		490			70	420																	39 660	1966			
	1967	41 810		40 800		40 800		1 010		470	370	170																	41 810	1967			
	1968	39 550		37 700	190	37 510		1 840		1 360	190	290																	39 550	1968			
Panama.....	1965	2 370		2 370	130	2 240																							2 370	1965	Panama		
	1966	2 900		2 900	40	2 860																							2 900	1966			
	1967	2 830		2 830		2 830																							2 830	1967			
	1968	2 940		2 940		2 940																							2 940	1968			
Puerto Rico.....	1965	5 930		5 930		5 325																							5 930	1965	Puerto Rico		
	1966	6 650		6 650	60	5 920	40																						6 650	1966			
	1967	6 930		6 810	200	5 890	120																						6 930	1967			
	1968	7 920		6 120	300	5 600	170	1 000		200	790				640		50				240		350						7 920	1968			
Trinidad.....	1965	12 730		8 170	1 640	6 530		15				15			4 550						4 550								12 730	1965	Trinidad		
	1966	12 9																															

Table 6 - WORLD MOVEMENT OF CRUDE PETROLEUM: 1965 - 1968

(In thousand metric tons)

Exports of		Year	WORLD	NORTH AMERICA		CARIBBEAN AMERICA		OTHER AMERICA		AFRICA						WEST ASIA										FAR EAST		WESTERN EUROPE		COUNTRIES		Exports of																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				Total		Total	Colombia	Venezuela	Total	Total	Algeria	Gabon	Libya	Nigeria	Tunisia	U.A.R. Egypt	Total	Iran	Iraq	Kuwait	Mascat and Oman	Qatar	Saudi Arabia	Syria	Trucial Oman	Total	Indonesia	Total	Total	Year																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Table 6 - WORLD MOVEMENT OF CRUDE PETROLEUM: 1965 - 1968

(In thousand metric tons)

Exports of Exports to		Year	WORLD	NORTH AMERICA	CARIBBEAN AMERICA			OTHER AMERICA	AFRICA						WEST ASIA										FAR EAST		WESTERN EUROPE	COUNTRIES NES	Exports of	
				Total 1/	Total	Colombia	Venezuela	Total	Total	Algeria	Gabon	Libya	Nigeria	Tunisia	U.A.R. Egypt	Total	Iran	Iraq	Kuwait 4/	Muscat and Oman	Qatar	Saudi Arabia	Syria	Trucial Oman	Total	Indonesia	Total	Total 2/	Year	Exports to
W. EUROPE (continued)																														W. EUROPE (cont.)
Yugoslavia.....		1965	1 140				120	120							430		430											590	1965	Yugoslavia
		1966	2 100		20		80	80							1 340	590	750											660	1966	
		1967	2 640		60		690	60			570	60			1 160	500	500											730	1967	
		1968	2 700		130		320	30			290				1 020	170	850	60	100									1 230	1968	
WEST ASIA.....		1965	23 480												23 480	6 810	3 050	2 420		1 430	9 060			710					1965	WEST ASIA
		1966	24 190				490			20	470				23 700	6 660	3 430	2 420		1 040	8 950			1 200					1966	
		1967	24 560				840			20	490	30		300	23 720	5 590	3 570	2 850		440	10 590			680					1967	
		1968	22 250				730				540			190	21 520	5 050	4 120	2 270			9 620			460					1968	
Bahrain.....		1965	6 700												6 700														1965	Bahrain
		1966	6 700												6 700														1966	
		1967	8 440												8 440														1967	
		1968	7 550												7 550														1968	
Lebanon.....		1965	1 470												1 470		750												1965	Lebanon
		1966	1 650												1 650		820												1966	
		1967	1 720												1 720		690												1967	
		1968	1 800												1 800		1 020												1968	
Southern Yemen...		1965	6 990												6 990	2 920	320	2 420						710				1965	Southern Yemen	
		1966	6 970												6 970	2 450	530	2 420						1 200				1966		
		1967	6 210											300	5 910	1 910	300	2 850						680				1967		
		1968	5 300											190	5 110	2 350		2 270						460				1968		
Turkey.....		1965	3 010												3 010		960												1965	Turkey
		1966	3 120				470				470	30			2 650		1 030												1966	
		1967	3 000				520				490				2 480		1 510												1967	
		1968	3 420				540				540				2 880		2 040												1968	
FAR EAST.....		1965	97 220	40	450		450	30							83 000	21 190	5 560	36 140		2 160	17 350			600	11 240	6 440	2 460	1965	FAR EAST	
		1966	115 890	110	480		480	20							100 020	30 630	6 370	40 330		1 470	19 940			1 280	12 260	6 510	2 000	1966		
		1967	140 950	90	440		440	20	50	10		40			123 990	45 350	4 100	45 010		1 200	24 940			2 440	14 490	8 060	1 880	1967		
		1968	171 020	140	490		490	30	220					220	150 280	58 280	2 400	47 500	3 520	1 170	32 680			4 730	19 020	11 120	940	1968		
China Taiwan.....		1965	1 740												1 740		180	1 060											1965	China Taiwan
		1966	2 200												2 200		330	1 720											1966	
		1967	2 190												2 190		160	1 430											1967	
		1968	2 960												2 960		450	2 400											1968	
India.....		1965	6 730												6 630	3 180		1 250							100	100			1965	India
		1966	7 000												7 000	2 830		1 910											1966	
		1967	8 680												8 680	4 620		1 190											1967	
		1968	10 510												10 510	5 880		130											1968	
Japan.....		1965	70 300	40	450		450	30							62 290	14 900	4 620	28 710						600	5 170	5 010	2 320	1965	Japan	
		1966	84 370	110	480		480	20							75 860	23 650	4 400	31 650						590	5 120	4 960	2 790	1966		
		1967	103 100	90	440		440	20	50	10		40			94 240	35 960	2 760	34 850						1 290	6 570	6 300	1 800	1967		
		1968	121 200	140	480		480	30	220					220	109 980	45 330	1 650	32 690	3 520	310	22 740			3 740	9 520	9 330		930	1968	
Korea, Rep. of...		1965	1 400												1 390	480		910											1965	Korea, Rep. of
		1966	1 850												1 840	780		1 060											1966	
		1967	2 370												2 370	1 250		1 120											1967	
		1968	4 750		10										4 780	2 410		2 350											1968	
Malaya.....		1965	1 860												1 860			1 060											1965	Malaya
		1966	2 290												2 290			960											1966	
		1967	2 440												2 440			1 060											1967	
		1968	2 880												2 880			1 320											1968	
Philippines.....		1965	4 700												2 920	620	720	230							1 780	1 250			1965	Philippines
		1966	4 940												2 830	790	850	240							2 110	1 520			1966	
		1967	6 490												3 980	460	550	1 210												

(For general note and footnotes, see end of table.)

(For general note and footnotes, see end of table.)

Table 6 - WORLD MOVEMENT OF CRUDE PETROLEUM: 1965 - 1968

(In thousand metric tons)

Exports of Exports to		Year	WORLD	NORTH AMERICA	CARIBBEAN AMERICA			OTHER AMERICA	AFRICA						WEST ASIA										FAR EAST		WESTERN EUROPE	COUNTRIES NES	Exports of	
				Total 1/	Total	Colombia	Venezuela	Total	Total	Algeria	Gabon	Libya	Nigeria	Tunisia	U.A.R. Egypt	Total	Ifan	Iraq	Kuwait	Muscat and Oman	Qatar	Saudi Arabia	Syria	Trucial Oman	Total	Indonesia	Total	Total 2/	Year	Exports to
OCEANIA 1/	1965	17 810												13 570	2 180	1 170	3 790		1 620	4 160		650	4 240	3 550			1965 OCEANIA 1/			
	1966	20 170												15 320	2 130	1 350	4 780		1 530	4 500		1 030	4 740	3 880			1966			
	1967	21 350												16 100	1 910	1 170	5 710		630	4 850		1 830	5 250	4 140			1967			
	1968	21 410												15 240	2 250	1 120	6 090		810	4 280		690	5 900	4 550			1968			
AFRICA	1965	15 010												11 160	2 800	2 440	1 560		1 200	1 670		1 490				1 700	1965 AFRICA			
	1966	16 830												12 990	4 410	1 880	1 360		1 520	2 290		1 520				2 090	1966			
	1967	17 680												13 890	5 750	2 600	540		2 240	1 630		1 130				2 040	1967			
	1968	17 560												14 060	6 930	2 400	200		1 290	1 200	50	1 970				1 670	1968			
Ghana	1965	790																									590	1965 Ghana		
	1966	800																									600	1966		
	1967	720																									450	1967		
	1968	710																									230	1968		
Kenya	1965	1 800																											1965 Kenya	
	1966	1 860																											1966	
	1967	1 920																											1967	
	1968	1 960																											1968	
Morocco	1965	1 000																									420	1965 Morocco		
	1966	1 120																									530	1966		
	1967	1 210																									580	1967		
	1968	1 290																									540	1968		
Tunisia	1965	720																											1965 Tunisia	
	1966	760																											1966	
	1967	270																											1967	
	1968																												1968	
South Africa	1965	4 680																											1965 South Africa	
	1966	5 500																											1966	
	1967	7 150																											1967	
	1968	7 460																											1968	
U.A.R. Egypt	1965	3 960																									690	1965 U.A.R. Egypt		
	1966	3 990																									960	1966		
	1967	2 440																									1 000	1967		
	1968	1 240																									900	1968		
COUNTRIES NES	1965	18 890																									18 600	1965 COUNTRIES NES		
	1966	22 060																									21 240	1966		
	1967	24 040																									22 810	1967		
	1968	28 620																									27 420	1968		
Bulgaria	1965	2 150																									2 150	1965 Bulgaria		
	1966	2 620																									2 620	1966		
	1967	2 820																									2 690	1967		
	1968	3 310																									3 190	1968		
Czechoslovakia	1965	6 110																									5 960	1965 Czechoslovakia		
	1966	6 520																									6 400	1966		
	1967	7 460																									7 430	1967		
	1968	7 810																									7 810	1968		
Germany, East	1965	5 130																									5 020	1965 Germany, East		
	1966	6 190																									6 240	1966		
	1967	7 040																									6 200	1967		
	1968	8 040																									7 570	1968		
Hungary	1965	2 050																									2 050	1965 Hungary		
	1966	3 030																									2 470	1966		
	1967	2 960																									2 790	1967		
	1968	3 220																									3 220	1968		
Poland	1965	3 210																									3 210	1965 Poland		
	1966	3 350																									3 350	1966		
	1967	3 610																									3 610	1967		
	1968	5 580																									5 580	1968		
UNSPECIFIED DESTINATION	1965	890		90																									1965 UNSPECIFIED DESTINATIONS	
	1966	1 410																											1966	
	1967	1 880																											1967	
	1968	4 170																											1968	

General note: The data are based on the general trade system. In certain cases figures are the result of reconciliation of reported export and import data.

1/ Except in 1967 almost entirely exports of Canada.

In 1967 from Canada 20 310, U.S.A. 3 580

In 1968 from Canada 22 615, U.S.A. 215.

2/ In 1968 from: Peru 490, Ecuador 35, Bolivia 1 355, Argentina 190.

3/ In 1968 from: United Kingdom 330, Yugoslavia 290, Norway 40,

Germany, Fed. Rep. 30, Belgium Luxembourg 150, Netherlands 20.

4/ Includes exports of the Neutral Zone; but excludes

Neutral Zone's deliveries to Kuwait.

5/ Almost entirely exports of U.S.S.R.

6/ Includes the Canary Islands.

7/ In 1963 to: Australia 18 990 and New Zealand 2 420.

8/ Mainly exports of Brunei.

9/ Estimated.

TABLE 7

FREE WORLD INTERNATIONAL FLOW OF PETROLEUM 1970

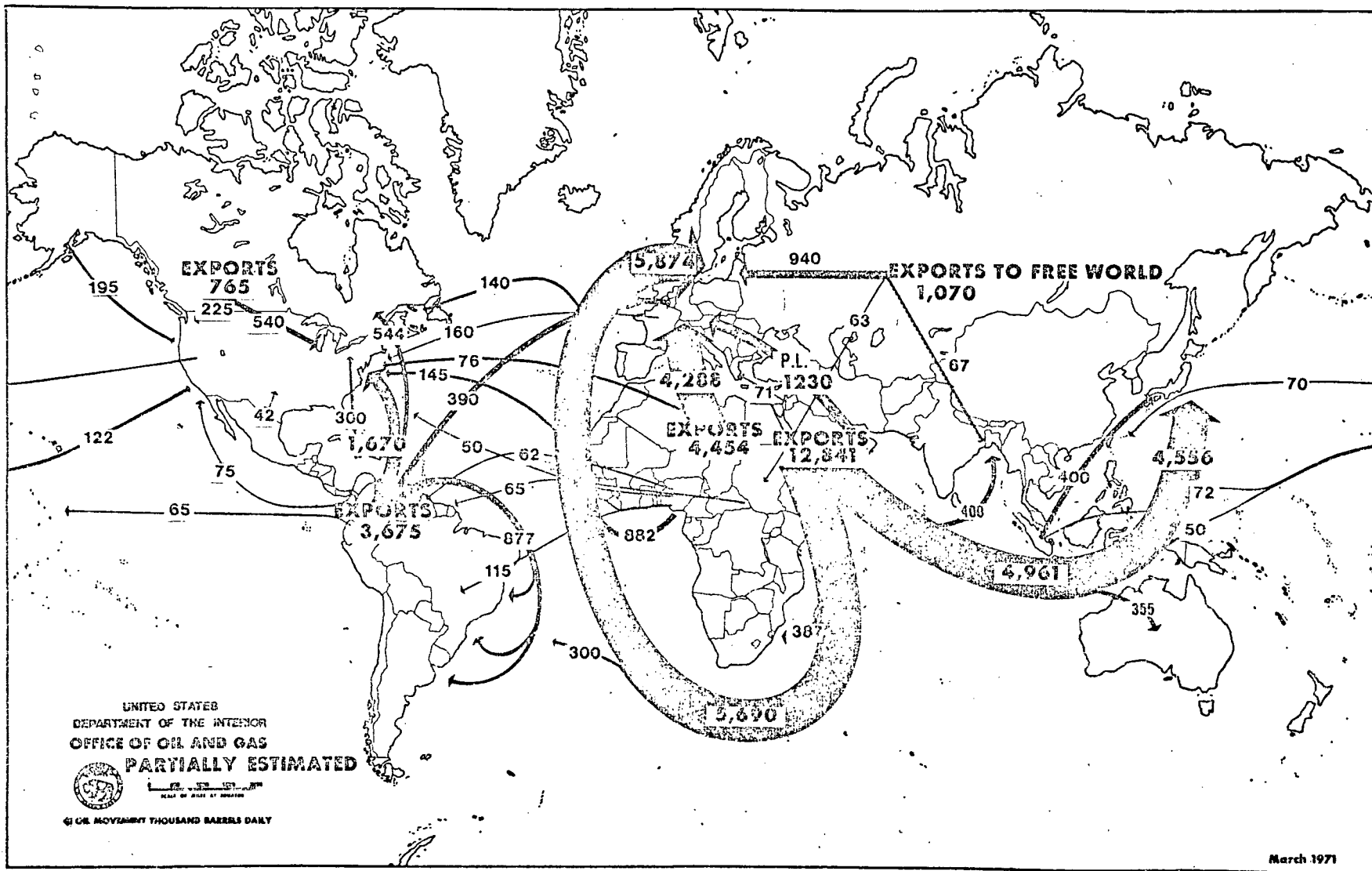


Table 8.

Crude Oil Imports into Japan, 1969

<u>Field/Crude</u>	<u>Country</u>	<u>Barrels Daily</u>	<u>% Sulfur</u>
Arabian heavy	Saudi Arabia	10,206	2.81
Arabian light	Saudi Arabia	145,497	1.70
Arabian light special	Saudi Arabia	62,909	1.67
Arabian medium	Saudi Arabia	8,255	2.36
Arabian medium special	Saudi Arabia	203,287	2.16
Arabian special	Saudi Arabia	37,431	2.15
Arabian heavy special	Saudi Arabia	17,413	2.11
Special Arabian heavy	Saudi Arabia	17,085	2.10
Bunju	Indonesia	5,910	0.12
Cabinda	Angola	730	0.20
Coalinga	United States	861	0.23
Darius	Iran	10,972	2.52
Duri	Indonesia	40,276	0.24
Ekhabin	U.S.S.R.	10,787	0.39
Hout	Neutral Zone	15,879	1.65
Iranian heavy	Iran	908,999	1.66
Iranian light	Iran	269,088	1.46
Khafji	Neutral Zone	232,660	2.90
Khafji special	Neutral Zone	50,738	2.78
Kuwait	Kuwait	207,810	2.55
Kuwait special	Kuwait	46,162	2.45
Minas	Indonesia	159,170	0.10
Minas topped	Indonesia	36	0.30
Monagas	Venezuela	4,576	2.32
Morgan	Egypt	17,597	1.65
Murban	Abu Dhabi	109,755	0.80
Neutral Zone	Neutral Zone	7,712	1.81
North Sumatra	Indonesia	14,599	0.05
Nigeria	Nigeria	814	0.15
Oman	Muscat and Oman	92,015	1.30
Pematang	Indonesia	26,613	0.16
Qatar	Qatar	3,450	1.11
Rostam	Iran	1,078	1.40
Raw oil	Unknown	1,687	0.12
Raw oil special	Unknown	1,357	0.12
Sassan	Iran	20,968	2.09
Seria	Brunei	1,655	0.08
Umm Shaif	Abu Dhabi	1,200	1.37
Sumatra medium	Indonesia	41,136	0.13
Zakum	Abu Dhabi	4,275	1.12
Tia Juana	Venezuela	536	2.20
Wafra	Neutral Zone	1,793	3.88
Wafra special	Neutral Zone	30,931	3.45
Zubair	Iraq	4,246	1.99
Total/Average		2,850,172	1.71