THE MINERAL INDUSTRY OF

MOROCCO AND WESTERN SAHARA

By Bernadette Michalski

Morocco is the world's third largest producer of phosphate rock, following the United States and China. The nation is also a modest producer of antimony, anthracite coal, barite, cobalt, copper, fluorspar, iron ore, lead, manganese, salt, silver, and zinc. The mineral industry is Morocco's largest foreign exchange earning sector and usually accounts for about 6% of the gross domestic product. Current mining legislation in Morocco is based on Mining Code Bill No. 1-73-412 of August 13, 1973. A 1990 revision to the mining law required the Government to respond within 2 months to any foreign investment proposal; and, if not, the contract presumably would be null and void. Generally, all mining law revisions were intended to expedite the Government approval process. Regulations concerning the management of petroleum and natural gas resources were revised in 1992 to provide further incentives for international companies. The revised law reduced the Government's share in agreements with international operators from 50% to 35%. Exploration activity would be fully deductible for more than 10 years for new contracts and more than 3 years for preexisting operators in Morocco. Furthermore, the petroleum duty was waived covering the initial 3 years of production. No royalty is payable on the first 4 million tons (about 30 million barrels) of output from any concession. To complement these new measures, exploration permit sizes were reduced from 5,000 square kilometers (km²) to a minimum of 200 km² and a maximum of 2,000 km². Maximum total holdings are limited to 10,000 km² onshore and 20,000 km² offshore for each company. The minimum duration of an agreement was reduced from 15 years to 8 years. Concessionaires are not required to contribute a share of output to domestic needs. In 1992, the Government abrogated the 1974 Moroccanization law, which pertained to petroleum refining and distribution. These latter legal changes were designed to allow foreign companies to participate in the privatization of parastatals in the petroleum sector.

The Government has placed 114 diverse enterprises on a privatization list. The state's interests in metal and industrial mineral enterprises were represented by the Bureau de Recherches et de Participations Minières (BRPM). Government equities offered for privatization included Société Metallurgique d'Imiter's (SMI) silver mine with capital of \$11.2 million, of which the Government owned 69%; and Compagnie de Tifnout Tiranimine (CTT) with a capital value of \$312,000, of which 40% was Government owned; a fluorite mine of Société Anonyme d'Entreprises Minières (SAMINE) capitalized at \$4 million, of which the Government held a 35% equity share; and the Société Minière de Bou Gaffer (SOMIFER) copper mine

which was capitalized at \$10.3 million, of which the Government held a 34.2% equity. The Government also offered 26% of a lead mine of the Société de Fonderies de Plomb de Zalidge with capital of \$2.7 million and, lastly, the 43% of Société Anonyme Chérifienne d'Etudes Minières, (SACEM), which exploited the manganese mine of Imini in Quarzazate. With the exception of SMI, as of yearend 1996, little interest for these properties from international mining companies was evidenced, and the Ministry of Privatization initiated negotiations with Moroccan companies with the objective of meeting privatization goals by 1998. The privatization program included the sale of 30% of the Government's equity in the Samir Petroleum Refining Co. which raised \$160 million in 1996.

The most pressing environmental issue in Morocco was the pollution of the drinking water supply in the country's two most important river basins, the Sebou Basin and Qum Er Rabia Basin, from domestic, industrial, and agricultural sources. Silting of dams and the deterioration of other existing water infrastructure were a major concern. Therefore, the World Bank recommended that investments should be made in repairing existing structures as opposed to financing new projects.

Although Morocco produced a variety of minerals, it is phosphate rock and fertilizers, including phosphoric acid, diammonium phosphate, and triple superphosphate that remain significant on a global scale. (See table 1.)

Morocco is the world's foremost exporter of phosphate rock and phosphoric acid. Phosphates account for more than 30% of all Moroccan exports and 70% of the mineral exports, which also include copper, iron ore, lead, and zinc. Phosphate exports exceeded 10 million metric tons (Mt) in 1996 with Spain, the United States, and Mexico as the principal markets by order of volume. Copper concentrate exports totaled 41,000 metric tons (t), most of which were delivered to Spain. Lead concentrate exports totaled 45,700 t, while unwrought lead metal totaled 55,000 t. Zinc concentrate exports totaled 178,200 t, all of which were delivered to the European Union with Spain, Belgium-Luxembourg, and France as the principal markets by order of volume.

The major mineral commodity import continues to be crude oil and petroleum products, which totaled more than 55 million barrels in 1996. The principal source for imported crude oil was Saudi Arabia. Algeria was the principal source for liquefied petroleum gas. Other imported mineral commodities included sulfur and solid fuels. Morocco imported more than 2.6 Mt of sulfur in 1996 with Canada, Saudi Arabia, and Poland as the principal sources by order of magnitude. Coal and coke imports

totaled more than 2.2 Mt—mostly from the United States.

The mining industry of Morocco is controlled by the Government, specifically the Directorate of Mines, which is a department of the Ministry of Energy and Mines. The Directorate of Mines is charged with the interpretation and application of the national mining policy. The Directorate also controls the various parastatals and public companies involved in the mining industry. The Directorate of Mines also manages mining properties; labor concerns; commercialization; and studies in mining, mineralogy, and metallurgy.

Established in 1928, BRPM is an autonomous public corporation involved directly or indirectly in the majority of all Moroccan mining enterprises, excluding hydrocarbons and phosphate. BRPM employed about 1,330 people, including 150 engineers. Founded in 1920, the parastatal Office Cherifien des Phosphates (OCP) manages and controls phosphate mining. OCP controls all aspects of the phosphate industry in Morocco, including research, exploitation, and the production of derivative products, such as fertilizers. In 1996, OCP employed about 30,000 people, including some 700 engineers and technicians. Created in 1960, La Centrale d'Achat et de Développement de la Région Minière de Tafilalet et de Figuig (CADETAF) promotes the working of artisanal mines of barite, lead, and zinc in the regions of Tafilalet and Figuig. CADETAF provides technical, commercial, and social assistance to the artisanal miners. The Government parastatal that controls hydrocarbon exploration and production is the Office National de Recherches & d'Exploitations Petrolieres.

Omnium Nord Africain (ONA) is the largest private company in Morocco. The company was active in four areas: agricultural distribution, finance, mining, and technology. ONA's mining subsidiary, Pole Mines, was involved in four significant Moroccan mining ventures. Pole Mines' equity ventures included the polymetallic Douar Hajar Mine with Cie. Minière de Guemassa, the Bleida copper mine with SOMIFER; the cobalt mine at Bou Azzer operated by CTT; and the El Hammam fluorite mine operated by SAMINE. All of the latter joint ventures were with BRPM. The only other joint venture in which Pole Mines was not the sole operator is the silver mine at Imiter, operated by SMI with equity ownership by BRPM. Pole Mines also was involved in chemicals, engineering, contracting, mineral exploration, and transport. (See table 2.)

The Société d'Exploitation des Mines du Rif discontinued mining iron ore in mid-1996. Four remaining iron ore deposits have been identified in the area with an iron content averaging 58% but with a high sulfur content. BRPM plans to issue tenders for the exploitation and pelletizing of the ores from these deposits in 1997 (Metal Bulletin, 1997).

The public offering of 35% of the Moroccan parastatal Société Nationale de Sidérurgie's (SONASID) steel mill in Nador was oversubscribed. In 1996, the mill produced about 400,000 t of steel rebar and wire rod for the domestic market. SONASID stated that it must import about 450,000 metric tons per year (t/yr) of iron and steel billet to meet its requirements. The billet was imported primarily from Italy, Portugal, and Poland. The Government considered offering for sale additional equity in the company to provide capital for upgrading the mill

with an electric arc furnace and a continuous caster.

OCP's Sidi Chennane phosphate rock mine became operational by yearend 1995 and is expected to have a capacity of 5 million metric tons per year (Mt/yr) by 1998. It will replace older mines now approaching depletion.

Morocco has developed a significant capacity for conversion of phosphate rock into downstream chemicals. OCP operated its facilities at 95% of capacity in 1996. OCP plans for debottlenecking existing facilities should result in a 10% to 15% increase in the phosphate chemicals output by yearend 1997.

Domestic crude oil production was negligible, while the domestic consumption rate was steadily rising. Crude oil and petroleum product import costs approached \$1 billion per year. The refineries at Mohammedia and Sidi Kacem together processed nearly 50 million barrels (Mbbl) of petroleum products in 1996. Both refineries have been slated for privatization.

In 1996, reserves of phosphate rock totaled 85.5 billion tons; coal, 17.5 Mt; copper, 8.4 Mt; lead, 10.7 Mt; and zinc, 8 Mt. Crude oil reserves were reported at 1.2 Mbbl and natural gas at 1.1 billion cubic meters.

The railroad network in Morocco totaled 1,893 kilometers (km) of 1.435-meter standard-gauge single track. The highway infrastructure totaled 59,198 km, of which 27,740 km was paved. Crude oil pipelines totaled 362 km, and natural gas pipelines totaled 241 km. Morocco's merchant marine fleet comprised 51 ships totaling 487,479 deadweight tons. Of these ships, there were 3 petroleum tankers and 11 chemical tankers. Major Moroccan ports are at Agadir, Casablanca, Jorf Lasfar, Kenitra, Mohammedia, Nador, Safi, and Tangier. The nation's electrical generation capacity was 2,384 megawatts.

In assessing Morocco's economic performance, the International Monetary Fund (IMF) concluded that the country had made significant strides in restoring its financial balances. Morocco has been pursuing an active structural adjustment strategy since 1983 under the supervision of the IMF. The privatization program that began in 1993, with the intention of transferring resources from the public sector to the private sector to promote business investment, has met limited success. The public offering of the Société Marocaine de l'Industrie du Raffinage's petroleum refinery and the Sonasid rebar and wire mill was oversubscribed; while international mining interest in metal mines was negligible. The economy is expected to improve markedly with the 1997 entry of Morocco into the planned free trade zone with the European Union, which will award grants and loans to assist the private sector in modernization and expansion activities.

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 ${\bf TABLE~1}\\ {\bf MOROCCO~AND~WESTERN~SAHARA:~PRODUCTION~OF~MINERAL~COMMODITIES~1/}$

(Metric tons unless otherwise specified)

Commodity 2/	1992	1993	1994	1995	1996 e/
METALS	_				
Antimony concentrate:	_				
Gross weight	_ 438	369	523	442	345 3/
Sb content	_ 197	167	235	198	152
Chromite	_ 302				
Cobalt concentrate:					
Gross weight	_ 4,253	3,606	3,810	4,885	5,040 3/
Co content	_ 467	397	419	537	565 3/
Copper:	_	27 500	24.040	25.052	25 - 22 24
Concentrates, gross weight	_ 34,297	35,690	36,010	35,952 r/	37,623 3/
Matte, gross weight	_ 2,177	1,548	1,689	1,933 r/	1,671 3/
Cu content, concentrates and matte	_ 14,317	13,746	14,000	14,100 r/	14,550 3/
Gold e/ kilogram	<u>is</u> 500	600	565 3/	580	580
Iron and steel:	_				
Iron ore:		cc 210	60.515	47.102	10 204 27
Gross weight	82,625	66,318	63,517	47,192 r/	12,324 3/
Fe content	_ 51,225	41,117	39,380	31,518 r/	8,257 3/
Metal: e/	_	4.7.000	4.5.000	4 5 000	4.7.000
Pig iron	_ 15,000	15,000	15,000	15,000	15,000
Steel, crude	_ 7,000	7,000	7,000	7,000	7,000
Lead:	_				
Concentrate:	_				
Gross weight	_ 104,940	111,896	104,520	101,631 r/	107,577 3/
Pb content	_ 59,600	81,680	73,160	67,708 r/	71,667 3/
Cupreous matte, Pb content	_ 566	402	442	500 e/	500
Metal:	_				
Smelter, primary only	68,585	69,110	60,740	62,363 r/	61,749 3/
Refined:	_				
Primary Primary	_ 68,500	69,100	60,700	50,000 e/	50,000
Secondary e/	2,000	2,000	2,000	2,000	2,000
Total e/	_ 70,500	71,100	62,700	52,000	52,000
Manganese ore, largely chemical-grade	49,120	42,600	31,452	31,263 r/	29,466 3/
Silver:	_				
Ag content of concentrates and matte kilogram		73,355	68,500	22,000 r/	19,304 3/
Ag content of mine and smelter bullion do		235,800	257,000	182,000 r/	180,291 3/
Total do	<u>o.</u> 213,286	309,155	325,500	204,000 r/	199,595 3/
Zinc concentrate:	_				
Gross weight	_ 42,649	125,737	147,213	153,125 r/	152,580 3/
Zn content	_ 22,603	65,378	76,800 r/	79,900 r/	79,650 3/
INDUSTRIAL MINERALS	_				
Barite	_ 401,599	325,200	264,526	289,308 r/	288,045 3/
Cement, hydraulic thousand ton	<u>ss</u> 6,340	6,350 e/	6,350 e/	6,401 r/	8,000
Clays, crude:	_				
Bentonite	7,273	10,802	24,919	29,308	29,881 3/
Fuller's earth (smectite)	_ 38,098	38,700	22,800	15,027 r/	16,673 3/
Montmorillonite (ghassoul)	_ 2,670	2,440	3,329	3,311 r/	3,169 3/
Feldspar e/	_ 1,000	1,000	1,000	17,233 r/	833
Fertilizers thousand ton	_	2,600	2,000	2,100	2,200
Fluorspar, acid-grade	_ 85,500	70,050	85,000	105,800 r/	100,000
Gypsum e/	_ 450,000	450,000	450,000	450,000	450,000
Mica e/	_ 1,500	1,500	1,500	564 r/ 3/	600
Phosphate rock (includes Western Sahara) thousand ton		18,305	20,375	20,684 r/	20,855 3/
P2O5 content do		5,920	6,580	6,399 r/	6,552 3/
Phosphoric acid de	<u>2,600</u>	2,501	2,603	2,600	2,500
Salt:	_				
Rock	_ 164,528	103,525	142,258	137,910	138,290 3/
Marine		50,900	45,600	42,300	32,530 3/
MINERAL FUELS AND RELATED MATERIALS	_				
Coal, anthracite	_ 575,900	603,800	650,400	649,600	505,600 3/
Gas, natural:	_				
Gross million cubic meter	_	38	25	17	17
_ Drydo	o. 18	35	22	16	16
See footnotes at and of table					

See footnotes at end of table.

TABLE 1--Continued MOROCCO AND WESTERN SAHARA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodi	ity 2/	1992	1993	1994	1995	1996 e/
MINERAL FUELS AND RELAT	ED MATERIALSContinued					
Petroleum:						
Crude	thousand 42-gallon barrels	67	68	62 r/ 3/	36 r/3/	35 3/
Refinery products: 4/						
Liquefied petroleum gas	do.	2,920	3,250	3,300	3,500 e/	3,500
Gasoline	do.	3,460	3,285	3,300	3,300 e/	3,300
Jet fuel	do.	1,600	2,190	1,900	2,000 e/	2,000
Kerosene	do.	351	350	390	390 e/	390
Distillate fuel oil	do.	15,475	14,435	16,200	16,200 e/	16,200
Residual fuel oil	do.	14,965	17,150	17,200	17,300 e/	17,300
Other	do.	7,665	6,500	7,000	7,000 e/	7,000
Total	do.	46,436	47,160	49,290	49,690 e/	49,690

e/ Estimated. r/ Revised.

 ${\bf TABLE~2} \\ {\bf MOROCCO~AND~WESTERN~SAHARA:~STRUCTURE~OF~THE~MINERAL~INDUSTRY~FOR~1996} \\$

(Metric tons unless otherwise specified)

	Major operating companies	Location of	
Commodity	and major equity owners	main facilities	Annual capacity
Anthracite	Charbonnages du Maroc (CdM)	Jerada	650,000.
	(Bureau de Reherches et de Participations Minières		
	(BRPM), 98.89%)		
Barite	Compagnie Marocaine des Barytes (COMABAR)	Zelmou	270,000 concentrate.
	(BRPM, 22.5%; Transocean Drilling, 55%)		
Cobalt	Compagnie de Tifnout Tiranimine (CTT)	Bou Azzer	150,000 ore.
	(BRPM, 40%; Omnium Nord Africain (ONA), 55.2%)		50,000 concentrate.
Copper	Société Minière de Bou Gaffer (SOMIFER)	Bleida	50,000 concentrate.
	(BRPM, 34.2%, ONA, 7.6%)		
Do.	Société de Développement du Cuivre de l'Anti-Atlas	Tiouit	4,500 Cu, Au, Ag
	(SODECAT) (BRPM, 100%)		concentrate.
Fluorspar	Société Anonyme d'Entreprises Minières	Meknes	120,000 concentrate.
	(SAMINE) (BRPM, 35%; ONA, 17.7%)		
Lead	Compagnie Minière de Guemassa (CMG)	Hajar	150,000 Zn concentrate.
	(ONA, 74%; BRPM, 26%)		32,000 Pb concentrate.
Do.	Compagnie Minière de Touissit (CMT) (50% Compagnie	Touissit	73,000 concentrate.
	Royale Asturienne des Mines S.A., Belgium)		
Do.	Société de Développement Industrien et Minière	Zeida	40,000 concentrate.
	(BRPM, 50%)		
Manganese	Société Anonyme Chérifienne d'Etudes Minières	Quarzazate	130,000 concentrate.
	(SACEM) (BRPM, 43%; COMILOG, 30%)		
Petroleum refinery products	Société Marocaine de l'Industrie du Raffinage	Mohammedia	45,000.
thousand 42 gallon barrels	(Government, 66%; private, 34%)		
Do. do	. Société Chérifienne des Pétroles (SCP)	Sidi Kacem	9,000.
	(Government, 79.5%; Elf Aquitaine 24.5%)		
Phosphate million metric tons	Office Chérifien des Phosphates (OCP)	Khouribga, Youssoufia,	25 concentrate.
	(Government, 100%)	Menguerir, and Bou Craa.	
Salt	Société de Sel de Mohammedia (SSM)	Mohammedia	150,000.
	(BRPM, 100%)		
Do.	Société Chérifienne des Sels (SCS)	Zima	50,000.
	(BRPM, 50%; SNSSS, 50%)		
Silver	Société Metallurgique d'Imiter (SMI)	Near Quarzazate	73,000 ore.
	(BRPM, 33%; ONA, 67%)		
Steel rebar, wire rod	Société Nationale de Sidérurgie (SONASID)	Nador	420,000.
	(Government, 65%; private, 35%)		

^{1/} Includes data available through Oct. 1, 1997.

^{2/} In addition to the commodities listed, a variety of crude construction materials are produced including possibly a substantial amount of limestone; however, information is inadequate to make reliable estimates of output levels.

^{3/} Reported figure.

^{4/} Refinery fuel and losses have been included in the output of individual products and is estimated to be about 1.8 million barrels per year.

${\bf TABLE~3} \\ {\bf MOROCCO:~EXPORTS~OF~MINERAL~COMMODITIES~IN~1996~1/}$

(Metric tons unless otherwise specified)

		United	Destinations
Commodity	Total	States	Other (principal)
METALS	10001	Diates	Outer (principal)
Aluminum:			
Metal including alloys, all forms:			
Scrap	2,992		France 787; Netherlands 581; Italy 505.
Semimanufactures	136		France 67; Bahrain 38; Tunisia 17.
Cobalt:			
Ore and concentrate	4,890		All to China.
Metal including alloys, all forms	71	14	Switzerland 21; Japan 20; Belgium-Luxembourg 16.
Copper:	10.650		Carrier 22 550. Palarel 5 500. Palairer I amount area 1 600
Ore and concentrate Matte and speiss including cement copper	40,650 1,342		Spain 33,550; Poland 5,500; Belgium-Luxembourg 1,600. All to Belgium-Luxembourg.
Metal including alloys, all forms:	1,342		All to Beigium-Luxemoodig.
Scrap	5,226		Netherlands 1,368; France 1,324; Italy 813.
Unwrought	60		All to Italy.
Semimanufactures	16	(2/)	Cote d'Ivoire 8; Libya 3; Algeria 1.
Iron and steel:	10	(=/)	cote divone o, Eloya o, riigona ri
Iron ore and concentrate: Pyrite, roasted	13,140		Tunisia 11,700; Belgium-Luxembourg 1,440.
Metal:	, -		, , , , ,
Scrap	90,590		Spain 72,667; France 11,017; Italy 5,499.
Semimanufactures:			
Flat-rolled products:			
Of iron or nonalloy steel:			
Not clad, plated, coated	1,718		Senegal 664; Mali 332; Mauritania 306.
Clad, plated, coated	16,227		Saudi Arabia 7,319; France 1,851; Syria 1,497.
Of alloy steel	43		United Kingdom 29; Mexico 14.
Bars, rods, angles, shapes, sections	58		Senegal 39; Spain 19; Ageria 1.
Wire	141		Mauritania 93; Mali 37; Gabon 8.
Tubes, pipes, fittings value, thousands	\$4,676		Libya \$2,473; France \$1,133; Senegal \$478.
Lead: Ore and concentrate	45,720		India 10,004; Italy 9,825; Canada 7,100.
Metal including alloys:	43,720		maia 10,004; Italy 9,823; Canada 7,100.
Scrap	243		All to Spain.
Unwrought	54,522		Spain 27,607; Portugal 6,951; Tunisia 4,064.
Manganese: Ore and concentrate, metallurgical-grade	29,871	18	France 17,408; Spain 5,053; Italy 3,800.
Mercury	19		All to India.
Silver: Metal including alloys, unwrought and partly wrought	<u> </u>		
value, thousands	\$31,602		Switzerland \$13,342; France \$11,503; United Kingdom \$6,278
Tungsten: Metal including alloys, semimanufactures do.	\$1		All to Netherlands.
Zinc:			
Ore and concentrate	178,175		Spain 104,225; Belgium-Luxembourg 38,200; France 21,750.
Metal including alloys:			
Scrap	42		All to Italy.
Unwrought value, thousands	\$4		France \$2; Gabon \$1.
Other:	250 555	10	G
Ores and concentrates	258,655	18	Spain 109,428; Belgium-Luxembourg 44,274; France 40,489.
Oxides and hydroxides	1 122		All to France. South Africa 486; Belgium-Luxembourg 328; India 204.
Ashes and residues	1,123		South Africa 486; Beigium-Luxembourg 328; India 204.
INDUSTRIAL MINERALS Abrasives, n.e.s.:			
Natural: Corundum, emery, pumice, etc.	11		Egypt 5; United Arab Emirates 3; Saudi Arabia 2.
Grinding and polishing wheels and stones	3		France 1; Mali 1.
Barite and witherite	321,520	57,000	Norway 127,885; United Kingdom 66,352; Congo 12,560.
Cement	244,027		Spain 128,828; Mauritania 32,730; Brazil 30,000.
Chalk	42		Mauritania 29; Congo 13.
Clays, crude:			, ,
Bentonite	20,090		Germany 13,552; Denmark 4,405; France 2,120.
Unspecified	26,785		Italy 17,600; United Kingdom 3,900; Spain 3,055.
Fertilizer materials:	·		* * * * *
	1,750	26	France 223; Pakistan 220; Italy 195.
Phosphatic thousand tons			G : 50 200 F 1 21 205 E
Unspecified and mixed	134,926		Spain 58,388; Italy 31,207; France 23,690.
*	134,926 94,014 231,407	 17	Spain 58,388; Italy 31,207; France 23,690. Canada 41,850; Norway 31,955; Tunisia 14,988. Senegal 40,712; Cote d'Ivoire 40,162; United Kingdom 26,800.

TABLE 3--Continued MOROCCO: EXPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

	_		Destinations
		United	
Commodity	Total	States	Other (principal)
INDUSTRIAL MINERALSContinued			
Lime	121		Cote d'Ivoire 98; Saudi Arabia 10; Spain 8.
Mica: Worked including agglomerated splittings	1		All to Italy.
Phosphates, crude thousand tons	10,140	1,733	Spain 1,798; Mexico 1,739; Poland 675.
Pigments, mineral: Iron oxides and hydroxides, processed	1		All to Mauritania.
Precious and semiprecious stones other than diamond, natural			
value, thousands	\$1		All to France.
Salt and brine	68,250		United Kingdom 49,050; Denmark 16,750; Sweden 2,450.
Stone, sand and gravel:			
Dimension stone:			
Crude and partly worked	14,119	1	Spain 8,781; Italy 5,087; South Africa 123.
Worked	734	163	Italy 196; Germany 94; Spain 83.
Gravel and crushed rock	239,272		Spain 239,264.
Sand other than metal-bearing	383,787		All to Spain.
Sulfur: Elemental: Crude including native and byproduct	23		Egypt 11; Libya 7; Algeria 5.
Talc, steatite, soapstone, pyrophyllite	9		Libya 5; Tunisia 4.
MINERAL FUELS AND RELATED MATERIALS			
Carbon black	6		All to Mauritania.
Peat including briquets and litter	50		All to Libya.
Petroleum refinery products:			
Gasoline	268,971		Netherlands 146,258; Cote d'Ivoire 29,929; Ghana 22,000.
Distillate fuel oil	22,059		Mainly for bunkers.
Lubricants	73,351		Tunisia 32,251; Netherlands 29,000; Nigeria 7,600.
Bituminous mixtures	21		All to Guinea.
The state of the s			

^{1/} Table prepared by Glenn J. Wallace.

Source: United Nations Statistical Office (microfiche).

 ${\bf TABLE~4} \\ {\bf MOROCCO:~IMPORTS~OF~MINERAL~COMMODITIES~IN~1996~1/} \\$

(Metric tons unless otherwise specified)

				Sources
		_	United	
Commodity		Total	States	Other (principal)
METALS				
Akali and akaline-earth metals:				
Alkali metals	value, thousands	\$1		All from France.
Alkaline-earth metals		3		Belgium-Luxembourg 2; Austria 1.
Aluminum:				
Ore and concentrate		19,944		Italy 18,750; China 642; Guyana 552.
Oxides and hydroxides		5,613	16	France 3,324; Germany 1,871; Spain 116.
Metal including alloys, all forms:				
Unwrought		1,599		Netherlands 772; Norway 597; Germany 108.
Semimanufactures		14,171	11	Canada 3,203; France 3,099; Spain 1,587.
Antimony: Metal including alloys, all forms		9		Mainly from China.
Bismuth: Metal including alloys, all forms	value, thousands	\$2		All from France.
Chromium:				
Ore and concentrate		33		Spain 21; Belgium-Luxembourg 12.
Oxides and hydroxides		25	5	France 14; Italy 5; Canada 1.
Cobalt:				
Oxides and hydroxides		1		Mainly from France.
Metal including alloys, all forms	value, thousands	\$36	\$3	Germany \$27; France \$6.
Columbium and tantalum: Tantalum metal inc	cluding alloys, all			
forms	do.	\$3		All from Spain.
Copper:				
Matte and speiss including cement copper		10		Mainly from Italy.
C f				

See footnotes at end of table.

^{2/} Less than 1/2 unit.

TABLE 4--Continued MOROCCO: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

	-		Sources
Comment Pro	TT 4 1	United	Ode (* * * D
Commodity	Total	States	Other (principal)
METALSContinued			
CopperContinued: Metal including alloys, all forms:			
Scrap	31		Italy 16; Spain 11; France 5.
•	\$1,290	\$13	France \$787; Spain \$270; Italy \$218.
Unwrought value, thousands Semimanufactures	17,898	10	France 8,023; Belgium-Luxembourg 5,050; Germany 1,116.
Gold: Metal including alloys, unwrought and partly wrought	17,898	10	France 8,025; Beigium-Luxembourg 5,050; Germany 1,116.
value, thousands	\$3	\$3	
Iron and steel:	\$3	33	
Iron ore and concentrate: Pyrite, roasted	2,916		Canada 2,905; Portugal 11.
Metal:	2,916		Canada 2,905; Portugal 11.
	1 525		Switzenland 1 001, Deleium I wyembourg 500, Eronge 24
Scrap	1,525		Switzerland 1,001; Belgium-Luxembourg 500; France 24.
Pig iron, cast iron, related materials	3,542		Romania 782; Germany 519; Spain 515.
Ferroalloys:	25		D1: 1 1 22 N 5 D : 5
Ferrochromium	35		Belgium-Luxembourg 23; Norway 5; Russia 5.
Ferromanganese	135		Belgium-Luxembourg 66; Spain 29; China 20.
Ferrosilicomanganese	49		France 26; Belgium-Luxembourg 15; Norway 8.
Ferrosilicon	116		Norway 40; Spain 35; Belgium-Luxembourg 29.
Silicon metal	11		Germany 9; France 2.
Unspecified	522.065		Belgium-Luxembourg 3; China 1.
Steel, primary forms	523,065		Italy 114,761; Portugal 92,286; Poland 74,251.
Semimanufactures:			
Flat-rolled products:			
Of iron or nonalloy steel:	4 40 450	4 = 0 =	T. 11
Not clad, plated, coated	169,472	1,797	Libya 31,170; Germany 23,781; Argentina 19,472.
Clad, plated, coated	49,456	144	France 16,715; Germany 10,928; Brazil 8,717.
Of alloy steel	7,267		France 3,805; Spain 1,300; Belgium-Luxembourg 714.
Bars, rods, angles, shapes, sections	161,240		Spain 57,458; Turkey 26,832; Italy 17,609.
Rails and accessories	1,006	(2/)	France 592; Spain 400; Italy 13.
Wire	13,326	(2/)	Belgium-Luxembourg 3,868; Spain 2,632; France 1,712.
Tubes, pipes, fittings	14,940	642	France 3,618; Spain 2,350; Czech Republic 1,724.
Lead:	40.455		G
Ore and concentrate	29,475		Spain 7,322; Italy 5,687; Peru 5,338.
Oxides	464		Spain 298; Italy 96; Germany 65.
Metal including alloys:	122		E 00 0 1 10 D1: 1 1 17
Unwrought	133	-	France 89; Sweden 18; Belgium-Luxembourg 17.
Semimanufactures	66		Netherlands 18; France 14; Belgium-Luxembourg 12.
Magnesium, metal including alloys:			A
Unwrought	4		Mainly from United Kingdom.
Semimanufactures	14	4	Do.
Manganese:	_		
Ore and concentrate, metallurgical-grade	6		All from Spain.
Oxides	1,187		Japan 1,180; Belgium-Luxembourg 7; Italy 1.
Mercury value, thousands	\$8		France \$3; Sweden \$3; Hong Kong \$1.
Molybdenum: Metal including alloys, semimanufactures do.	\$1		All from France.
Nickel:			B
Matte and speiss	4		Belgium-Luxembourg 2; United Kingdom 2.
Metal including alloys:			
Unwrought	44	(2/)	France 21; Canada 17; Italy 3.
Semimanufactures	20		Germany 10; United Kingdom 7; France 2.
Platinum-group metals including alloys, unwrought and partly			
wrought value, thousands	\$22		Belgium-Luxembourg \$17; France \$5.
Silver: Metal including alloys, unwrought and partly wrought do.	\$184		France \$120; Italy \$52; Netherlands \$9.
Tin:			
Ore and concentrate	3		All from Belgium-Luxembourg.
Metal including alloys:			
Scrap	1		All from France.
Unwrought	142		China 33; Malaysia 31; Netherlands 30.
Semimanufactures	7		Netherlands 5; Malaysia 1; Spain 1.
See footnotes at end of table		· ·	

See footnotes at end of table.

TABLE 4--Continued MOROCCO: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

		-		Sources
C P		TP 4 1	United	Other (1 1 1)
Commodity METALSContinued		Total	States	Other (principal)
Titanium:				
Ore and concentrate		174		South Africa 122; Spain 32; Germany 20.
Oxides		476	20	France 188; Germany 161; Saudi Arabia 80.
Metal including alloys, semimanufactures	value, thousands	\$46		France \$32; Belgium-Luxembourg \$7; Germany \$5.
Tungsten:	varue, mousanus	ΨΨΟ		Trance \$52, Beigiani Euxembourg \$77, Germany \$5.
Ore and concentrate		1		All from France.
Metal including alloys:				
Scrap and unwrought	value, thousands	\$2		Do.
Semimanufactures		1		Mainly from France.
Zinc:				
Oxides		254		France 103; Netherlands 54; Portugal 42.
Blue powder		162		France 99; Belgium-Luxembourg 58.
Metal including alloys:				
Unwrought		6,313	25	Algeria 3,011; Belgium-Luxembourg 1,247; Russia 1,038.
Semimanufactures		327		Belgium-Luxembourg 252; Italy 44; Germany 23.
Zirconium:				
Ore and concentrate		81		South Africa 41; Italy 40.
Metal including alloys, semimanufactures		1		All from Canada.
Other:		5 707		Italy 5 700, Erongo 6
Ores and concentrates		5,706 67		Italy 5,700; France 6.
Oxides and hydroxides INDUSTRIAL MINERALS		0/		Norway 25; United Kingdom 10; France 9.
Abrasives, n.e.s.:				
Natural: Corundum, emery, pumice, etc.		7,191	6	Turkey 6,131; Greece 711; Spain 156.
Artificial, corundum		599		France 165; Germany 139; Hungary 114.
Dust and powder of precious and semiprecious	stones including	377		Trance 105, Germany 159, Hungary 114.
diamond	value, thousands	\$7		All from Switzerland.
Grinding and polishing wheels and stones		842	(2/)	Italy 587; France 79; Denmark 62.
Asbestos, crude		5,644		Canada 4,107; Mozambique 703; Switzerland 537.
Barite and witherite		203		Germany 159; Spain 43.
Boron materials: Oxides and acids		31	4	France 24; Canada 1; Germany 1.
Bromine, fluorine, iodine	value, thousands	\$16		France \$10; Chile \$3; Germany \$1.
Cement		61,986		Spain 23,543; Turkey 14,755; France 13,536.
Chalk		7,910		Spain 4,121; France 3,723; Switzerland 66.
Clays, crude:				
Bentonite		92		Spain 48; Greece 20; Portugal 20.
Kaolin		14,666	74	United Kingdom 7,928; Spain 4,445; France 1,318.
Unspecified		16,951	1	France 7,762; Ukraine 6,000; United Kingdom 2,107.
Diamond, natural:		0.100		T
Gem, not set or strung	value, thousands	\$120		Thailand \$69; Belgium-Luxembourg \$35; United Kingdom \$10.
Industrial stones	do.	\$9		All from Switzerland.
Diatomite and other infusorial earth		985	1	Algeria 360; Spain 301; France 262. Spain 3,825; France 501; Norway 64.
Feldspar Fertilizer materials:		4,528		spani 3,023, France 301; Norway 04.
Crude, n.e.s.		611		Spain 523; France 56; Netherlands 23.
Manufactured:		011		Spain 323, France 30, Neuterlands 23.
Ammonia		333,856	29,676	Russia 226,173; Ukraine 47,621; Saudi Arabia 20,010.
Nitrogenous		488,598	3,503	Russia 155,359; Belgium-Luxembourg 78,392; Romania 54,356
Phosphatic	value, thousands	\$6		All from Italy.
Potassic	aroubunds	88,843		Germany 44,207; Ukraine 18,210; Belgium-Luxembourg 5,875.
Unspecified and mixed		4,108	178	France 1,778; Spain 694; Belgium-Luxembourg 380.
Graphite, natural		72		France 49; Spain 23.
Gypsum and plaster		1,448	3	Spain 938; France 454; United Kingdom 23.
Lime		124		Spain 97; France 27.
Magnesium compounds:				
Magnesite, crude		46		Austria 40; Italy 5.
Oxides and hydroxides		290	20	Spain 196; Netherlands 31; United Kingdom 20.
Mica:				
Crude including splittings and waste		5		Germany 2; Norway 2; France 1.
Worked including agglomerated splittings		2	(2/)	France 1; Spain 1.
Nitrates, crude		391		Chile 386; Germany 5.

TABLE 4--Continued MOROCCO: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

				Sources
			United	
Commodity		Total	States	Other (principal)
INDUSTRIAL MINERALSCon				
Phosphates, crude	value, thousands	\$3		Switzerland \$2; France \$1.
Pigments, mineral: Iron oxides and hydroxides,	1	1,548	10	Germany 532; United Kingdom 519; China 190.
Precious and semiprecious stones other than dia				
Natural	value, thousands	\$27		Thailand \$21; Germany \$5; France \$1.
Synthetic	do.	\$116		Thailand \$41; France \$36; Italy \$30.
Pyrite, unroasted		148		France 132; Germany 10; Spain 3.
Salt and brine		779	19	United Kingdom 640; Netherlands 82; France 21.
Sodium compounds, n.e.s.:				
Soda ash, manufactured		22,841		Spain 16,341; Portugal 3,190; Italy 2,500.
Sulfate, manufactured		16,866		Spain 16,784; Germany 57; Libya 13.
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked		9,482		Italy 8,371; Spain 852; Portugal 172.
Worked		6,981	3	Italy 4,044; Spain 2,521; Greece 244.
Dolomite, chiefly refractory-grade		1,060		Spain 631; France 424; Norway 5.
Gravel and crushed rock		722		Spain 363; France 297; Belgium-Luxembourg 61.
Quartz and quartzite		1,708		Spain 882; Belgium-Luxembourg 766; Italy 35.
Sand other than metal-bearing		47,797	19	Belgium-Luxembourg 45,309; Portugal 1,500; Spain 454.
Sulfur:				
Elemental:				
Crude including native and byproduct	thousand tons	2,601		Canada 1,010; Saudi Arabia 770; Poland 473.
Colloidal, precipitated, sublimed	value, thousands	\$19		All from France.
Dioxide		72		Do.
Sulfuric acid		33,026		Spain 21,235; Sweden 6,208; Italy 4,199.
Talc, steatite, soapstone, pyrophyllite		2,284		France 1,378; Spain 428; Finland 315.
Vermiculite, perlite, chlorite		14		Spain 12; France 2.
MINERAL FUELS AND RELATED M	IATERIALS			~;······
Asphalt and bitumen, natural		303		United Kingdom 300; France 3.
Carbon black		7,954	3	Egypt 2,772; Portugal 1,990; Italy 984.
Coal:		7,751		Egypt 2,772,1 Ortugui 1,990, Italy 90 II.
Anthracite		23,174		South Africa 20,792; United Kingdom 2,382.
Other	thousand tons	2,186	1,548	South Africa 637.
Coke and semicoke	thousand tons	32,700		China 12,979; Italy 8,972; Spain 8,700.
Gas, natural, gaseous	value, thousands	\$9		All from Spain.
Peat including briquets and litter	value, illousailus	13,680		Germany 12,983; France 307; Denmark 265.
Petroleum:		13,000		Germany 12,703, France 307, Delillian 203.
Crude	thousand tons	5,743		Saudi Arabia 2,788; Nigeria 1,206; Libya 698.
Refinery products:	uiousaiiu toiis	3,143		Saudi Arabia 2,700, Migeria 1,200, Libya 070.
Liquefied petroleum gas		687,899		Algeria 267,158; France 191,665; Spain 78,995.
Gasoline gas		76,620	181	Spain 69,725; Portugal 4,067; France 1,516.
		13,043	136	
Mineral jelly and wax				Hungary 4,489; Spain 4,050; Germany 1,617.
Kerosene and jet fuel		14		All from Belgium-Luxembourg.
Distillate fuel oil		432,856		Spain 309,044; Libya 96,131; Portugal 10,300.
T 1 ' .				
Lubricants		5,814	356	Libya 4,019; Netherlands 475; Belgium-Luxembourg 348.
Bitumen and other residues		58		United Kingdom 56; France 2.

^{1/} Table prepared by Glenn J. Wallace.

Source: United Nations Statistical Office (microfiche).

^{2/} Less than 1/2 unit.