

THE MINERAL INDUSTRY OF NETHERLANDS

By Harold R. Newman

In terms of world production, the Netherlands was a modest producer of metallic or nonmetallic minerals or mineral products; however, it is very important as a regional producer of natural gas and petroleum for the European market and plays a major role as a transshipment center for mineral materials entering and leaving continental Europe.

Rotterdam, the world's largest container port and a major European transportation hub, remained extremely important as a shipping and storage center. With the ever expanding inland transportation systems, goods entering or leaving Rotterdam can originate in or be destined for almost anywhere in continental Europe. However, the facilities at Rotterdam and surrounding area could not accommodate a significant increase in traffic without upgrading and expansion.

Environmental policy in the Netherlands is the responsibility of the Ministry of Housing, Planning, and the Environment, and protecting and upgrading the quality of the environment is of high priority to the citizens of the Netherlands. In addition to protecting the environment, the Dutch Government was also concerned with remedying the practices of the past. One interesting feature of Dutch environmental policy is the use of "covenants," which are voluntary agreements between industry and government, and sometimes other organizations, to work together to achieve certain environmental goals, such as the reduction of waste.

Production of mineral commodities generally remained the same or dropped slightly during 1996. The high cost of social benefits contributed to the production costs of Dutch products making them less competitive on the world market. The government has reduced its role in the economy since the 1980's, and privatization continues with little debate or opposition. Nevertheless, the state dominates the energy sector and plays a large role in transport, chemicals, aviation, telecommunications, and steel. (*See table 1.*)

Trade data for 1996 were not available for the compilation of this report. However, trends were expected to have changed little from previous years, except for volume and value. The Netherlands is one of the top dozen trading countries in the world, it is ranked 13th in gross national product, 8th in imports of goods and services from the United States, and maintains a commitment to an open market and free trade. Germany is the Netherlands main trading partner. (*See table 2.*)

The only mining operations left in the Netherlands in 1996 were the extraction of peat, salt, and sand and gravel. The metal processing sector relied almost exclusively on imported raw

materials, not only ores and concentrates, but also on scrap. (*See table 3.*)

Production of primary aluminum in the Netherlands by Hoogovens Aluminium BV had been declining steadily for the past few years while the growth of the secondary aluminum industry has been increasing. The production of secondary aluminum consumes about 5% of the energy required to produce primary aluminum.

Hoogovens continued to investigate the possibility of building its own powerplant to serve its aluminum and steel operations. An earlier study by the company had indicated that the organization could save as much as 20% on its energy costs if it were to build a 1,000-megawatt powerplant. This would be equivalent to 6% of the country's electricity capacity.

The steel division of the Hoogovens Group, Hoogovens IJmuiden BV, was Europe's sixth largest steel producer. The company's reorganization plan took effect in mid-1995. The steel division was divided into five separate business-oriented organizations, each responsible for its own financial results. In addition to the marketing, sales, and production units, a product/market unit was created to focus more attention on customer-driven innovation. To increase the international spread of the market, an International Business Development directorate was set up during this reorganization to build up sustainable positions on growth markets outside of Europe.

Natural gas was the most important mineral fuel produced in the Netherlands. In addition to domestic consumption, the gas was exported and provided the equivalent of over US\$4 billion¹ each year in export sales. The gas was produced from 30 offshore facilities in the North Sea and 20 onshore facilities. Companies are now allowed to deplete gas fields over a period of 10 years instead of the previous 14 years and at a maximum load factor of 90% instead of the previous 67%.

The large Slochteren gasfield in Groning Province, first exploited in 1959, is one of the world's largest producing natural gas fields. The Netherlands total proven natural gas reserves, mainland and North Sea continental shelf, have been estimated to be 1.2 trillion cubic meters, of which about 80% is at Slochteren. (The Netherlands, DOS Publication 7967, April 1996, p. 4, accessed May 27, 1997 on URL:gopher://dosfan.lib.uic.edu/).

¹Where necessary, values have been converted from the Netherlands guilders (f) to U.S. dollars at the rate of f1.00=US\$0.52.

TABLE 1
NETHERLANDS: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

| Commodity 2/ | 1992 | 1993 | 1994 | 1995 | 1996 e/ |
|---|--------------|--------------|------------|--------------|-----------|
| METALS | | | | | |
| Aluminum metal: | | | | | |
| Primary | 227,328 | 231,841 r/ | 219,382 | 215,600 r/ | 225,800 |
| Secondary | 151,000 3/ | 150,000 3/ | 175,300 e/ | 191,500 e/ | 200,000 |
| Cadmium metal, primary | 594 | 526 | 307 | 300 e/ | 300 |
| Iron and steel: | | | | | |
| Ore, sintered (from imported ore) | 4,100,000 e/ | 4,000,000 e/ | 3,021,500 | 4,246,400 | 4,250,000 |
| Metal: | | | | | |
| Pig iron including blast-furnace ferroalloys (if any) | 4,846,600 r/ | 5,404,000 | 5,443,400 | 5,646,500 r/ | 5,500,000 |
| Steel: | | | | | |
| Crude | 5,439,000 | 6,001,000 | 6,174,000 | 6,409,000 | 6,400,000 |
| Semimanufactures | 5,194,000 | 5,812,000 | 5,948,000 | 5,500,000 e/ | 5,500,000 |
| Lead, metal, refined, secondary | 24,300 | 24,200 | 25,000 e/ | 25,000 e/ | 25,000 |
| Tin, metal, secondary | 200 | -- | -- | -- | -- |
| Zinc, metal, primary | 218,410 | 206,700 | 212,600 | 206,300 r/ | 212,400 |
| INDUSTRIAL MINERALS | | | | | |
| Cement, hydraulic e/ | 3,300,000 4/ | 3,400,000 | 3,400,000 | 3,400,000 | 3,300,000 |
| Magnesium compounds: e/ | | | | | |
| Chloride | 125,000 | 125,000 | 140,000 | 125,000 | 125,000 |
| Oxide | 90,000 | 90,000 | 100,000 | 100,000 | 100,000 |
| Nitrogen, N content of ammonia | 2,588 r/ | 2,472 r/ | 2,500 e/ | 2,500 e/ | 2,500 |
| Salt, all types e/ | 3,630 | 3,500 | 3,500 | 4,976 4/ | 5,530 4/ |
| Sand, industrial | 20,000 e/ | 20,000 e/ | 25,006 | 23,159 | 2,400 |
| Sodium compounds, n.e.s.: e/ | | | | | |
| Carbonate, synthetic | 400,000 | 400,000 | 400,000 | 400,000 | 400,000 |
| Sulfate: | | | | | |
| Natural | 22,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| Synthetic | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 |
| Sulfur: e/ | | | | | |
| Elemental byproduct: | | | | | |
| Of metallurgy | 125,000 | 125,000 | 125,000 | 125,000 | 125,000 |
| Of petroleum and natural gas | 290,000 | 290,000 | 300,000 | 300,000 | 300,000 |
| Total | 415,000 | 415,000 | 425,000 | 425,000 | 425,000 |
| Sulfuric acid, 100% H ₂ SO ₄ | 1,150,000 | 1,150,000 | 1,250,000 | 1,250,000 | 1,250,000 |
| MINERAL FUELS AND RELATED MATERIALS | | | | | |
| Carbon black e/ | 110,000 | 100,000 | 110,000 | 100,000 | 100,000 |
| Coke, metallurgical e/ | 2,920,000 4/ | 2,900,000 | 2,750,000 | 2,800,000 | 2,800,000 |
| Gas: | | | | | |
| Manufactured e/ | 9,500 | 9,500 | 10,000 | 10,000 | 10,000 |
| Natural: | | | | | |
| Gross | 82,981 | 84,005 | 78,400 | 78,350 | 89,700 4/ |
| Marketed e/ | 81,800 4/ | 83,000 | 77,400 | 78,000 | 86,000 |
| Natural gas liquids e/ | 165,000 | 170,000 | 170,000 | 170,000 | 170,000 |
| Peat, agricultural e/ | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 |
| Petroleum: | | | | | |
| Crude | 20,171 | 18,947 | 25,298 | 21,886 | 16,163 4/ |
| Refinery products: | | | | | |
| Liquefied petroleum gas | 31,300 | -- | 36,100 | 36,000 e/ | 36,000 |
| Mineral jelly and wax e/ | 600 | 600 | 600 | 600 | 600 |
| Gasoline, motor e/ | 73,500 4/ | 74,000 | 75,000 | 75,000 | 75,000 |
| Naphtha and white spirit | 83,100 | 100,000 | 84,200 | 85,000 e/ | 85,000 |
| Jet fuel | 39,800 | 39,000 | 44,200 | 40,000 e/ | 40,000 |
| Kerosene | 1,780 | -- | 1,520 | 1,600 e/ | 1,600 |
| Refinery gas e/ | 21,200 | 21,200 | 22,000 | 20,000 | 20,000 |
| Lubricants e/ | 3,490 4/ | 3,500 | 3,750 | 3,800 | 3,800 |
| Residual fuel oil | 98,000 | 99,100 | 84,400 | 85,000 e/ | 85,000 |
| Bitumen e/ | 4,380 4/ | 4,400 | 4,400 | 4,500 | 4,500 |
| Unspecified e/ | 25,000 | 25,000 | 25,000 | 25,000 | 2,500 |
| Total e/ | 382,150 | 366,800 | 381,170 | 376,500 | 376,500 |

e/ Estimated. r/ Revised.

1/ Table includes data available through Apr. 1, 1997.

2/ In addition to the commodities listed, the Netherlands produces construction materials such as sand and gravel, but output is not reported and no basis exists to make reliable estimates of output.

3/ Sales.

4/ Reported figure.

TABLE 2
NETHERLANDS: 1995 BALANCE OF PAYMENTS, SELECTED MINERAL COMMODITIES 1/

(Thousand dollars)

| Mineral commodity | Exports to EU | Imports from EU | Net gain or (loss) | Exports to the world | Imports from the world | Net gain or (loss) |
|---|---------------|-----------------|--------------------|----------------------|------------------------|--------------------|
| Crude industrial minerals: | | | | | | |
| Feldspar | \$2,928 | \$728 | \$2,200 | \$3,087 | \$3,084 | \$3 |
| Magnesite | 152 | 595 | (443) | 1,960 | 851 | 1,109 |
| Slate | 1,780 | 1,408 | 372 | 1,963 | 3,597 | (1,634) |
| Other | 346,624 | 541,642 | (195,018) | 489,319 | 805,561 | (316,242) |
| Total | 351,484 | 544,373 | (192,889) | 496,329 | 813,093 | (316,764) |
| Metalliferous ores: | | | | | | |
| Copper | 330 | 781 | (451) | 884 | 781 | 103 |
| Lead | -- | 206 | (206) | -- | 206 | (206) |
| Tin | 7 | -- | 7 | 20 | -- | 20 |
| Zinc | 237 | 2,961 | (2,724) | 237 | 104,662 | (104,425) |
| Other (including waste and scrap) | 953,362 | 846,043 | 107,319 | 1,425,745 | 1,577,034 | (151,289) |
| Total | 953,936 | 849,991 | 103,945 | 1,426,886 | 1,682,683 | (255,797) |
| Nonmetallic mineral manufactures | | | | | | |
| | 129,004 | 427,081 | (298,007) | 165,352 | 493,995 | (328,643) |
| Metals: | | | | | | |
| Iron and steel | 3,280,031 | 4,401,066 | (1,121,035) | 4,228,067 | 5,077,546 | (849,479) |
| Magnesium: Metal including alloys: | | | | | | |
| Scrap | 354 | 1,458 | (1,104) | 2,482 | 1,692 | 790 |
| Unwrought | 35,502 | 5,115 | 30,387 | 36,631 | 43,207 | (6,576) |
| Semimanufactures | 5,880 | 399 | 5,481 | 6,102 | 7,197 | (1,095) |
| Total | 41,736 | 6,972 | 34,764 | 45,215 | 52,096 | (6,881) |
| Mercury | 573 | 2,472 | (1,899) | 1,076 | 2,679 | (1,603) |
| Other nonferrous metals | 2,527,251 | 1,755,607 | 771,644 | 2,894,023 | 3,049,730 | (155,707) |
| Total, metals | 5,849,591 | 6,166,117 | (316,526) | 7,168,381 | 8,182,051 | (1,013,670) |
| Mineral fuels | 10,694,041 | 2,869,702 | 7,824,339 | 12,580,214 | 12,092,452 | 487,762 |

1/ Table prepared by Glenn J. Wallace, International Data Unit.

TABLE 3
NETHERLANDS: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons unless otherwise specified)

| Commodity | Major operating companies | Location of main facility | Annual capacity |
|-------------------|---|---|-----------------|
| Aluminum, primary | Hoogovens Aluminium BV | Smelter at Delfzijl | 219 |
| Do. | Pechiney Nederland BV | Smelter at Vlissingen | 178 |
| Cadmium | tons Budelco BV (Australian Overseas Smelting Pty. Ltd, 50%; Kempensche Zinkmaatschappij Zincs de la Campine BV, 50%) | Plant at Budel-Dorplein | 650 |
| Cement | ENCI Nederland BV (Eerste Nederlandse Cement Industrie NV) | 10 plants at Maastricht | 2,700 |
| Do. | Cementfabriek IJmuiden BV | 3 plants at IJmuiden | 1,600 |
| Do. | Cementfabriek Rozenburg BV | 2 plants at Rozenburg | 920 |
| Lead | Hollandse Metallurgische Industrie Billiton BV | Electrolytic plant at Arnhem | 35 |
| Do. | Billiton Witmetaal BV | Electrolytic plant at Naarden | 6 |
| Magnesia | Billiton Refractories BV | Plant at Veendam | 100 |
| Do. | MAF Magnesite BV | Plant at Vlaardingen | 40 |
| Natural gas | million cubic meters per day Nederlandse Aardolie Maatschappij BV (NAM) | Groningen, Leeuwarden, Assen, and other onshore gasfields and several offshore wells in the North Sea | 225 |
| Petroleum, crude | barrels per day AMOCO, CONOCO, and UNOCAL | 766 wells (204 producing) including: North Sea fields: Haven, Helder, Helm, Hoorn, Kotter, Logger, and Rijn | 83,500 (63,000) |
| Do. | do. NAM | Onshore fields: Berkel, DeLier, Ijselmonde, Meerkapelle, Pernis West, Pinacke, Rotterdam, Schoonebeck, Werkendam, and Zoetemeer | (20,500) |

TABLE 3--Continued
 NETHERLANDS: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons unless otherwise specified)

| Commodity | Major operating companies | Location of main facility | Annual capacity |
|----------------------|--|---------------------------|-----------------|
| Refineries | 6 companies, of which the major ones are: | | 1,230,500 |
| Do. | do. Netherlands Refining Co. | Refinery at Rotterdam | (446,000) |
| Do. | do. Shell Nederland Raffinaderij BV | Refinery at Pernis | (374,000) |
| Do. | do. Esso Nederland BV | Refinery at Rotterdam | (175,000) |
| Do. | do. Total Raffinaderij Nederland NV | Refinery at Vlissingen | (150,000) |
| Salt | Akzo Salt and Basic Chemicals BV | Mines at: | 4,000 |
| | | Hengelo | (2,000) |
| | | Delfzijl | (2,000) |
| Sodium: | | | |
| Carbonate, synthetic | do. | Plant at Delfzijl | 380 |
| Sulfate, synthetic | do. | do. | 600 |
| Steel | Hoogovens IJmuiden BV | Plant at IJmuiden | 6,100 |
| Zinc | Budelco BV (Pasmenco Europe BV, 50%; Kempensche Zinkmaatschappij Zincs de la Campine, 50%) | Plant at Budel-Dorplein | 215 |