## 2.3 New Basic Prices for Steels Imported from Third Countries

EC Commission made public in EC Official Journal L321 new basic prices for steels imported from third countries. The new prices are shown in Table E-9 and came into effect from December 1, 1982.

Table E-9 New Basic Prices for Steels Imported from Third Countries

(ECU/MT)

| | New (Dec. 1, 1982) | Old (Oct. 1, 1982) |
|---|---|---|
| Hematite pig iron (P less than 0.5%, Mn 0.1% min) | 185 | 174 |
| Hot coil for rerolling, less than 2mm | 391 | 348 |
| Wire rod, 5.5 - 13mm dia | 382 | 354 |
| Reinforcing bars, less than 12mm | 373 | 332 |
| Other bars, up to 13mm | 425 | 393 |
| U, I or H shapes, web 80mm min | 484 | 462 |
| Hoops, less than 2mm | 408 | 363 |
| H.R. plate, 3 - 10mm | 404 | 369 |
| C.R. coil, 1mm | 448 | 419 |

Source: Official Journal of European Communities, November 17, 1982

At the EC Council of foreign ministers held on November 22, 1982, at Brussels, it was agreed that at the time of negotiations for renewal of bilateral steel trade agreements with 14 countries which would expire at the end of 1982, the EC Commission would negotiate with those countries to cut the imports in 1983 by 12.5% from the level in 1982. The cut-down rate in 1982 was 9%, and the 14 countries are Austria, Finland, Sweden, Norway, Czechoslovakia, Poland, Hungary, Romania, Bulgaria, Japan, Spain, the Republic of Korea and Brazil, who account for about 80% of the total steel import by ECSC.

It was also agreed that similar steel trade agreements be concluded with Venezuela and Argentina.

## 2.4 Revision of Guideline Prices within EC

Guideline prices to improve steel prices in EC were revised from January 1, 1983, as follows. The guideline prices effective from January 1, 1983 are as stated below during the first quarter, and if the market improves, will be revised in the second quarter.

| | | (ECU/t) |
|---|---|---|
| Hot coil | | 352* |
| Strip | | 352* |
| H.R. sheets | | 352* |
| Plate & medium plate | | 369* |
| C.R. sheets | | 446 |
| Wire rod for weaving | | 257 |
| Wire rod for wire drawing | | 332 |
| Rebars | | 236 |
| Bars | : Type 1 | 257 |
| | Type 2 | 300 |
| Sections: | Type 1 | 326 |
| | Type 2a | 356 |
| | Type 2b | 386 |
| | Type 2c | 433 |
| | Type 3 | 466 |

* Published discount taken into consideration.

As a result, for steel exports from third countries to EC, the basic prices imposed by EC and the guideline prices within EC are kind of yardsticks and so are FOB Antwerp prices. The FOB Antwerp prices therefore play an important role in guessing export price levels in the world market.

Export prices of pig iron and semis can be calculated backward from the prices of finished steels by taking into consideration yield ratio from the semis to the finished products. Also it is possible to estimate competitive prices of pig iron and semis exported from Brazil in certain overseas markets by adding transportation, handling and insurances, etc. to their calculated export prices.

However, the steel markets in the developed countries are under recession due, in part, to the structural problem of their domestic steel industry and there are various systems of trade controls against steel imports from foreign countries or from countries outside EC. Therefore, export in orderly marketing manner is essential for the exporting countries.

## 3. Present Condition and Characteristics of Steel Trades among Countries in a Region and Those between those Countries and Countries outside the Region

### 3.1 EC

Needless to say, EC is Common Market with its final goal of economic integration of member countries. The EC and ECSC treaties call for freedom of capital flow in the region and the trades in the region are as a rule free as if they are in a country.

Therefore, in many cases, the steel trades in the EC Region are distinguished from those between EC and third countries.

Table E-10 Steel Trades among EC Countries (1980)

(1,000 MT)

| Importer \ Exporter | | Germany, FR | France | Italy | Belux | Netherlands | EC 6 | UK | Denmark | Ireland | EC 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Germany, FR | | — | 1,633 | 1,120 | 3,136 | 1,076 | 6,965 | 318 | 204 | 2 | 7,489 |
| France | | 2,523 | — | 1,146 | 3,568 | 216 | 7,453 | 130 | 18 | — | 7,602 |
| Italy | | 1,182 | 1,670 | — | 1,002 | 253 | 4,107 | 215 | 1 | — | 4,323 |
| Belux | | 812 | 869 | 58 | — | 818 | 2,556 | 68 | 14 | — | 2,639 |
| Netherlands | | 1,531 | 325 | 71 | 1,058 | — | 2,985 | 112 | 17 | — | 3,114 |
| EC 6 | | 6,048 | 4,498 | 2,394 | 8,764 | 2,362 | 24,067 | 843 | 254 | 3 | 25,166 |
| UK | | 1,125 | 479 | 250 | 597 | 548 | 2,999 | — | 96 | 33 | 3,128 |
| Denmark | | 555 | 118 | 9 | 125 | 52 | 839 | 77 | — | — | 916 |
| Ireland | | 59 | 45 | 11 | 39 | 11 | 165 | 168 | 1 | — | 334 |
| EC 9 | Export to EC(A) | 7,767 | 5,140 | 2,665 | 9,525 | 2,973 | 28,070 | 1,087 | 351 | 36 | 29,544 |
| | Export to others (B) | 11,292 | 5,567 | 4,102 | 4,132 | 1,645 | 26,737 | 1,695 | 296 | 1 | 28,728 |
| | Total (A+B=C) | 19,059 | 10,707 | 6,767 | 13,657 | 4,618 | 54,807 | 2,782 | 647 | 37 | 58,272 |
| A / C (%) | | 40.8 | 48.0 | 39.4 | 69.7 | 64.4 | 51.2 | 39.1 | 54.3 | 97.3 | 50.7 |

Note : - sign indicates data which is not available.

Source: ECE, Statistics of World Trade in Steel, 1981

### 3.2 COMECON

Countries of COMECON consist of the USSR and Eastern European countries and some centrally planned economies in other parts of

the world. In this group also, there is an organization called Intermetal charged with co-ordination of trades within the group including steel.

It should be noted that steel trades of COMECON with third countries are considered, in many cases, in contract with those in the region.

Table E-11 Steel Trades among COMECON Countries (1980)

(1,000 MT)

| Exporter / Importer | USSR | Czecho-slovakia | Hungary | Poland | Bulgaria | Total |
|---|---|---|---|---|---|---|
| USSR | - | 487 | 103 | 209 | 62 | 861 |
| Czechoslovakia | ... | - | 2 | 114 | 14 | 130 |
| Hungary | ... | 56 | - | 18 | 6 | 80 |
| Poland | ... | 242 | 25 | - | 36 | 303 |
| Bulgaria | ... | 55 | 34 | 58 | - | 147 |
| German DR | ... | 281 | 10 | 173 | 42 | 506 |
| Albania | ... | 33 | 9 | 21 | 11 | 74 |
| Romania | ... | 70 | 51 | 83 | 89 | 293 |
| Export to COMECON(A) | ... | 1,242 | 236 | 682 | 310 | 2,470 |
| Export to others (B) | ... | 2,204 | 965 | 1,254 | 740 | 5,163 |
| Total (A + B = C) | ... | 3,446 | 1,201 | 1,936 | 1,050 | 7,633 |
| A / C (%) | ... | 36.0 | 19.7 | 35.2 | 29.5 | 32.4 |

Notes : - sign indicates data which is not available.
... sign indicates data which is unreliable and excluded in this Study.
1) Export of the USSR in 1980 is not available, the total shows the exports from the 4 Eastern European countries.
2) Items included are same as shown in Table E-2.

Source: ECE, Statistics of World Trade in Steel, 1980

### 3.3 ASEAN

ASEAN with its headquarter in Jakarta, Indonesia, has Regional Industry Clubs under ASEAN Chamber of Commerce and Industry, and one of the Clubs is AISIF (ASEAN Iron & Steel Federation).

AISIF has its aims of liberalization of steel trades in the region and elimination of trade barriers and of common trade policies in trades with third countries. At the same time, the group is working on study and implementation of the most favored tariffs, common standards and joint manufacturing plants in the region. This should be noted when export to ASEAN markets is considered.

## IV. Mechanism of Steel Trade and Export Prices

There are no special commodity exchanges for international trade of steel, and the steel trades and prices are basically determined by two parties, suppliers and purchasers. The steel trades may be divided in the manner as follows:

a. Long-term contracts for supplying semis to affiliated (joint venture or technical collaboration) companies overseas such as supply of C.R. sheets for tin plate and galvanized sheets.

b. Export from developed countries to large customers in other developed countries. This is mainly a continuous supply on long-term contracts.

c. Spot contracts for export from developed countries to developing countries. This is most common.

On the other hand, characteristics of trades by product is as follows:

d. In case where semis are slabs for processing into plate and sheets or blooms for heavy sections, the trades once concluded are often on long-term contract basis.

e. Light sections and billets used for making them are often on spot contracts.

As regards prices,

f. Basic general export prices FOB Antwerp which are considered to represent actual market prices on the continent are made a guide of steel export prices in the world for many years.

## Table E-12 Shares of Japan, EC (9), COMECON (5) and the USA in World Steel Trades

(1,000 MT)

| | World total | Regional Trade | | | | Trade excl. Regional Trade | Japan | | EC(9) to Third Countries | | COMECON(5) to Third Countries | | USA | | Total of 4 Regions E/F + G + H/D | Share of Japan in World Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E C (9) | B/A | COMECON(5) | C/A | A−(B+C)=D | | E/D | | F/D | | G/D | | H/D | | E/A |
| | A | B 1) | (%) | C 2) | (%) | | E | (%) | F | (%) | G | (%) | H | (%) | | (%) |
| 1975 | 107,160 | 22,760 | 21.2 | 9,050 | 8.4 | 75,350 | 28,942 | 38.4 | 27,496 | 36.5 | 5,318 | 7.1 | 2,779 | 3.7 | 85.6 | 27.0 |
| 76 | 118,457 | 27,073 | 22.9 | 8,701 | 7.4 | 82,683 | 36,916 | 44.6 | 28,183 | 28.0 | 6,105 | 7.4 | 2,459 | 3.0 | 82.0 | 30.4 |
| 77 | 112,011 | 25,442 | 22.7 | 2,554 | 2.3 | 84,015 | 33,628 | 40.0 | 27,535 | 32.8 | 5,520 | 6.6 | 1,857 | 2.2 | 81.6 | 30.0 |
| 78 | 121,587 | 26,760 | 22.0 | 2,626 | 2.2 | 92,201 | 50,925 | 55.5 | 55,567 | 36.2 | 5,091 | 5.5 | 2,361 | 2.6 | 77.8 | 25.4 |
| 79 | 125,249 | 29,521 | 23.6 | 1,586 | 1.3 | 94,142 | 50,697 | 32.6 | 51,687 | 33.7 | 6,211 | 6.6 | 2,660 | 2.8 | 75.4 | 24.5 |
| 80 | 125,600 | 29,544 | 23.9 | 1,521 | 1.2 | 92,535 | 29,705 | 32.1 | 28,726 | 31.0 | 6,112 | 6.6 | 3,846 | 4.2 | 73.9 | 24.0 |
| Ratio 80/79 | 98.7 | 100.1 | | 95.9 | | 98.5 | 96.8 | | 90.7 | | 96.4 | | 144.6 | | | |
| (%) 79/78 | 103.0 | 110.3 | | 60.3 | | 102.1 | 99.3 | | 95.0 | | 122.0 | | 112.7 | | | |
| Ave. annual growth rate (%) 80/75 | 2.9 | 5.4 | | | | 4.2 | 0.5 | | 0.9 | | 2.8 | | 6.7 | | | |
| Ingots & semis 3) | 21,834 3 | 6,987 | 32.0 | 45 | 0.2 | 14,804 | 5,947 | 26.7 | 4,892 | 33.0 | 716 | 4.8 | 850 | 5.6 | 70.1 | 18.1 |
| Railway truck material | 1,570 | 268 | 17.1 | 15 | 1.0 | 1,287 | 144 | 11.2 | 581 | 29.6 | 139 | 10.8 | 196 | 15.2 | 66.8 | 9.2 |
| Heavy sections | 8,684 | 2,274 | 26.2 | 124 | 1.4 | 6,286 | 1,615 | 25.7 | 2,108 | 33.5 | 486 | 7.7 | 140 | 2.2 | 69.1 | 18.6 |
| Light sections | 18,410 | 5,946 | 21.4 | 392 | 2.1 | 14,072 | 5,935 | 28.0 | 5,857 | 27.3 | 1,466 | 10.4 | 594 | 2.8 | 68.5 | 21.4 |
| Wire rod | 7,605 | 1,978 | 26.0 | 84 | 1.1 | 5,543 | 2,050 | 37.0 | 1,375 | 24.8 | 518 | 9.3 | 193 | 3.5 | 74.6 | 27.0 |
| Strip | 4,535 | 1,432 | 31.0 | 55 | 1.2 | 2,850 | 692 | 24.3 | 1,303 | 45.7 | 381 | 13.4 | 75 | 2.6 | 86.0 | 16.0 |
| Plates | 11,987 | 3,158 | 26.3 | 65 | 0.5 | 8,766 | 1,842 | 21.0 | 2,484 | 28.3 | 1,097 | 12.5 | 189 | 2.2 | 64.0 | 15.4 |
| Sheets | 25,213 | 5,724 | 22.7 | 185 | 0.7 | 19,304 | 7,769 | 40.2 | 5,868 | 30.4 | 773 | 4.0 | 677 | 3.5 | 78.1 | 30.8 |
| Steel tubes & fittings | 12,726 | 2,304 | 18.0 | 439 | 3.5 | 14,983 | 6,456 | 43.1 | 4,798 | 32.0 | 226 | 1.5 | 468 | 3.8 | 79.9 | 36.4 |
| Wire | 2,296 | 658 | 28.7 | 111 | 4.8 | 1,527 | 291 | 19.1 | 555 | 36.3 | 270 | 17.7 | 35 | 2.2 | 75.5 | 12.7 |
| Tin plate | 5,759 | 801 | 21.4 | 1 | 0.0 | 2,957 | 890 | 30.3 | 1,072 | 36.5 | 24 | 0.8 | 628 | 21.4 | 89.0 | 23.8 |
| Wheels, tyres & axles | 201 | 14 | 7.0 | 7 | 3.5 | 180 | 74 | 41.1 | 55 | 30.6 | 21 | 11.7 | 4 | 2.2 | 85.6 | 36.8 |

Notes : 1) EC (9) include EC (6) and UK, Denmark and Ireland.
2) USSR, Bulgaria, Czechoslovakia, Hungary and Poland (Exports from the German Democratic Republic , Romania and Albania and Mongolia are not available.)
3) Ingots & semis include hot coils for rerolling.

Source: ECE, Statistics of World Trade in Steel

These prices are FOB prices at Antwerp, the main port of Belgium, and include exporters' 2 1/2% commission. The shippers are EC steelmakers. However, they are rather spot prices. It is questionable whether they represent actual prices on long-term contracts, but it is possible to grasp a long-term trend of the prices. The FOB Antwerp prices are only one which can be used as a guide.

g. Products under long-term contracts are stable in the price and normally lower priced than those traded on spot basis.

h. In recent years, the export prices from Japan are watched in the world trade because of increased weight of Japan's export in the world trade in steel.

i. Since the world steel trade is increasingly subjected to import controls, the export prices are more closely related with domestic prices in the exporting countries, especially in major developed countries. This reflects the emergence of "fair value" concept which compares the export price with the domestic price, and excepting some special cases, the export price is rarely lower than the domestic market price of the exporting countries.

Generally speaking, Japanese export businesses are handled through sogo-shosha, or general trading companies, and EC steel exports through trading companies owned by steel mills in Europe.

In recent years, however, both in developed and developing countries, steel mills become importers sometimes as domestic marketing measures to prevent deterioration of prices due to infiltration of low priced imports.

As any rate, international steel trades are decided by negotiation between steel suppliers in a country and users in another country. The prices tend to be affected in a great measure by the steel demand and supply condition in the world.

However, for the past decade, on the background of reduced steel demand due to the over-killed world economy, the steel production capacity continue to exceed the demand, resulting in buyers' market.

As already mentioned, a guide for long-term trend of prices in the world steel trade is FOB Antwerp prices. As far as steel export prices are concerned, there are no exchanges as those in London and New York for non-ferrous metals.

There is Bourse Industrielle de Belgique in Brussels. This is a time-honored gathering established in 1919 where basic price levels are fixed without difficulty. Industries included are iron and steel, machinery and coal, etc. Every Wednesday afternoon excepting holidays,

industries' representatives gather at the meeting place in Brussels to exchange informations, and export prices for the week come to rest at a level somehow. Steel exporters play a central role in case of iron and steel and the prices thus fixed are FOB Antwerp prices and indicate actual level of export prices of European steelmakers.

Recent FOB Antwerp prices are shown in Table E-13 and at present they are relatively lower than a while back.

As already mentioned, international prices of steel are usually determined by negotiation between suppliers and users and in a certain range depending on domestic prices in importing countries and exporting countries.

In case of steel import to EC countries from third countries, there are a number of bilateral trade agreements between EC and third countries. This system is called negotiated system or arrangement system, by which prices and volume are fixed. The export prices to EC are governed by the agreed prices.

In case of steel import to the United States, there was a system called Trigger Price Mechanism up to January 1982, by which lowest allowable import prices were fixed and the export to the United States was made under this restriction (At the end of 1982, TPM was still suspended. See Table E-8).

In some cases of steel export from developed countries to developing countries, there are exports on economic co-operation basis and they are often linked to development projects in the developing countries, and some exports from centrally planned economies are linked to political objectives. In those cases, the prices are remote from the ordinary international steel prices.

This condition further intensifies controling nature of the world steel trade. Besides, continuous export of large quantities of steel resulted in various complaints from importing countries. This is especially remarkable in the United States.

As pig iron, scrap and semis are interchangeable, their prices show a tendency to follow a similar pattern. Table E-14 shows changes in prices of those items imported to Japan.

Table E-13 Actual Export Prices at the Continent
(FOB Antwerp Prices)

(FOB $/MT)

| | Rebars, 12mm & over | Sections (up to 600mm | Wire rod, 5.5mm | Heavy plates, over 1) | C.R. coil (17 - 20G) |
|---|---|---|---|---|---|
| 1976 | 180~205 | 220~260 | 220~225 | 100~225 | 225~325 |
| 77 | 170~180 | 190~210 | 180~205 | 185~210 | 235~260 |
| 78 | 180~285 | 200~305 | 230~290 | 230~310 | 245~350 |
| 79 | 305~335 | 305~325 | 310~345 | 300~335 | 360~395 |
| 80 | 285~330 | 325~340 | 300~370 | 320~335 | 360~410 |
| 81 | 225~300 | 285~325 | 280~325 | 310~350 | 350~400 |
| 1981, Nov. 27 | 230~250+ | 320+ | 300~325+ | 320~340+ | 400+ |
| Dec. 30 | 230~240+ | 320+ | 300~315+ | 340 | 390+ |
| 1982, Jan. 29 | 235~240+ | 320+ | 310+ | 340 | 380+ |
| Feb. 26 | 235~240+ | 320+ | 300/310+ | 340+/340 | 380+ |
| Mar. 30 | 235+ | 320+ | 295~300/310+ | 340+/340 | 380+ |
| Apr. 30 | 230+ | 290~300+ | 270~275+ | 340+/350 | 370~375+ |
| May 28 | 210~225+ | 290~300+ | 270~275+ | 330~340 | 365~370+ |
| June 29 | 210~215+ | 280~285+ | 270~275+ | 310~320 | 350 |
| July 30 | 210+ | 280+ | 255~260+ | 300 | 350+ |
| Aug. 27 | 190+ | 270+ | 240~250+ | 300 | 330~335/345~350+ |
| Sep. 21 | 185~190+ | 250/260+ | 230~240+ | 280~290 | 330+/330 |
| 24 | 185~190+ | 250/260+ | 230~240+ | 280~290 | 330+/330 |
| 28 | 185~190+ | 250/260+ | 230~240+ | 280~290 | 330+/330 |
| Oct. 1 | 185~190+ | 260~270+ | 230~240+ | 280~290 | 330+/330 |
| 5 | 185~190+ | 260~270+ | 230~240+ | 280~290 | 330+/330 |
| 8 | 185~190+ | 260~270+ | 230~240+ | 280~290 | 330+/330 |
| 12 | 185~190+ | 260~270+ | 230~240+ | 280~290 | 330+/330 |
| 15 | 185~190+ | 260~270+ | 230~240+ | 280~290 | 330+/330 |
| 19 | 185~190+ | 260~270+/250 | 230~240+ | 280~290 | 330+/330 |
| 22 | 185~190+ | 260~270+/250 | 230~240+ | 280~290 | 320/330+ |
| 26 | 185~190+ | 260~270+/250 | 230~240+ | 280~290 | 320/330+ |
| 29 | 185~190+ | 250~255+ | 220~230+ | 280 | 320 |
| Nov. 2 | 180~190+ | 250~255+ | 220~230+ | 280 | 320 |
| 5 | 180~190+ | 250~255+ | 220~230+ | 280 | 310~320 |
| 9 | 180~185+ | 250~255+ | 220~230+ | 280 | 310~320 |
| 12 | 180~185+ | 250~255+ | 220~230+ | 280 | 310~320 |
| 16 | 180~185+ | 250~255+ | 220~230+ | 280 | 310~320 |
| Dec. 7 | 180~185+ | 240~250 | 220~230+ | 270~275 | 310 |
| 20 | 180~185+ | 240~250 | 220~230+ | 260~270 | 310~315 |

Note: Price for a year shows the highest and lowest in that year.
Date is the date of issue of Metal Bulletin.
Includes exporters' 2.5% commission.

Source: Metal Bulletin

Table E-14 Average Unit Import Prices of Semis, Pig Iron & Scrap into Japan

| | Semis | | | | Pig Iron | | | Scrap | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total Import (MT) | Unit Price CIF (¥1,000/MT) | | | Total Import (1000t) | Unit Price (CIF) | | Total Import (1000t) | Unit Price (CIF) | |
| | | Blooms | Billets | Slabs | | Yen | U S $ | | Yen | U S $ |
| 1975 | 47,347 | 52 | 50 | 101 | … | … | … | 2,508 | 32,500 | 109 |
| 1976 | 128,485 | 42 | 62 | … | … | … | … | 1,875 | 30,800 | 105 |
| 1977 | 132,851 | 38 | 36 | 47 | … | … | … | 1,554 | 23,000 | 89 |
| 1978 | 217,746 | 36 | 46 | 35 | 735 | 23,200 | 115 | 3,800 | 23,300 | 116 |
| 1979 | 496,736 | 54 | 59 | 50 | 551 | 36,900 | 161 | 2,825 | 35,800 | 158 |
| 1980 | 401,512 | 61 | 59 | 56 | 889 | 35,100 | 161 | 2,990 | 36,500 | 165 |
| 1981 | 177,877 | … | 55 | 53 | 1,241 (FY) | 29,300 | 129 | 1,557 | 31,700 | 141 |
| 1982 4～9 | 65,369 | … | 55 | 53 | 74 (September) | 31,900 | 124 | 1,164 | 32,900 | 133 |

Note : ••• sign indicates data which is unreliable and excluded in this Study.

Source: Ministry of Finance, External Trade Statistics

## F. INTERNATIONAL ORGANIZATIONS RELATED WITH STEEL INDUSTRY AND THEIR ACTIVITIES

### I. Organization for Economic Cooperation and Development (OECD)

In OECD, mainly Steel Committee deals with various matters related with steel industry. The Steel Committee was established in November 1978 with initial commitments on steel trade as follows:

a. Sacrifice of restructuring of steel industry in each country shall not be reflected in its trade policy.

b. No trade policy shall not be taken to bring about changes in the traditional flow of trades.

For this purpose, statistical information concerning the steel industry is followed up by continuous information system and each country member presents at the Steel Committee its policy and current situation of its steel industry to ensure transparency about each country's steel policy.

In reality, however, there are some conflicts among developed countries as evidenced by the steel dispute between EC and the United States in 1982, and efforts are being made for progress of the steel industry in each country as well as in the world through mutual understanding and transparency of facts. As regards the situation in Latin America, OECD Steel Committee holds a meeting of special Liaison Committee with Mexico. Therefore, the sessions of OECD Steel Committee include those of Steel Committee, those of Working Groups, those with TUAC and special sessions with Mexico.

Informations of OECD Steel Committee are distributed only to the countries attended the meeting as a rule, but the unified data for the world such as statistics of capacity, etc. are of special significance.

### II. United Nations Economic Commission for Europe (ECE)

This provides a rare opportunity where the representatives from free world and centrally planned economies gather periodically with respect to the steel industry. Steel Committee of UN ECE headquartered in Geneva covers all major steelmaking countries throughout the world, and certain countries like Japan which are located outside the region participate in consultative capacity. They have no right to vote but in fact act as regular members of the Committee.

For many years, ECE is very active in the activities related with the steel industry and holds various technical seminars and sessions of Working Groups in addition to the annual meeting of Steel Committee in autumn with study tour every year.

Publications of ECE Steel Committee include Steel Market in X year, which gives valuable data concerning the steel industry throughout the world, Quarterly Bulletin of Steel Statistics and Statistics of World Trade in Steel.

## III. United Nations Industrial Development Organization (UNIDO)

As a UN organization to promote industrial development, UNIDO is an organization particularly concerned with developing countries. It has a headquarter in Vienna and started activities from January 1, 1967, after its establishment by Resolution No.2152 at UN general meeting on November 17, 1966.

As regards the activities in the field of metal and metallurgical industries, UNIDO selected steel and fertilizer as the most important industries in line with Lima Declaration which aims at increasing the share of developing countries in the world industrial production to 25% by 2000.

Therefore, UNIDO is very active in the field of metal and metallurgical industries. The activities can be divided into operational direct assistance activities and supporting activities.

### 1. Operational Direct Assistance Activities

This concerns concrete and direct technical assistance to developing countries.

a. Feasibility study or pre-feasibility study concerning construction of new steel and plans

b. Assistance on regional or national level concerning long-range plans for steel industry

c. Assistance to installation and operation of pilot plants

d. Advice on selection of iron and steelmaking processes and facilities

e. Advice on rationalization and modernization of steel mills

f. Advice on development and diversification of products

g. Advice on product standardization and quality control

h. Advice on technological transfer

i. Assistance to establishment of technical laboratory and research center

j. Cooperation through seminars and dispatch of experts

k. Supply of various informations and publications

l. Advice on raw material processing

2. Supporting Activities

This covers activities to provide indirect assistance on development and expansion of the steel industry through various seminars, symposiums and export meetings.

At the second general meeting of UNIDO held March 12 through 26, 1975, in Lima, Peru, "Lima Declaration and activity plan concerning industrial development" was adopted, and UNIDO secretariate made broad reorganization as of January 1, 1976, to be more efficient to meet this new development.

The Declaration called for special attention to the development of steel industry together with other basic industries such as chemical, petroleum chemical and engineering.

In line with the guideline that the developing countries account for 25% of the world industrial production by 2000, it was envisaged that the steel industry in developing countries including China produces 550 million tonnes in 2000, accounting for 31% of the world production of 1,750 million tonnes.

For this purpose, UNIDO calls attention to the following:

a. Gathering and analysis of technological and economic data concerning development and expansion of the steel industry in developing countries

b. Study of problems and advantages of developed and developing countries concerning steel production and trade

c. Study and analysis of possibility of regional relocation of industrial production, considering changes in pattern of steel demand and production capacity

d. Provision of meetings and opportunity for discussion and negotiation between developed and developing countries with respect to knowhow, technology, steelmaking machinery and facilities, resources and markets

e. Preparation of long-range plans for progress of steel industry in developing countries

UNIDO held the second general meeting in Lima from March 12 through 26 and adopted "Lima Declaration and activity plan for industrial development". In its activity plan, it pointed out the necessity and urgent nature of consultation meetings between developed and developing countries and pressed for implementation of the goals for fertilizer and steel industries.

It is well known that the Lima Declaration contains a strategic objective to increase the share of developing countries in the world industrial production to 25% by 2000.

Of the industrial production, priority was placed on sector approach on fertilizer and steel industries, and for steel industry, many meetings were convened beginning with preparatory meetings from December 6 to 10, 1976.

This had been ratified at the April 1976 meeting of International Development Board (IDB) of UNIDO where it was decided to take actions in the field of certain industries. Thereafter, IDB held a meeting in September 1976 and established a consultation system by forming secretariate consisting of governments, labors and consumers.

IDB is responsible for implementation of various decisions adopted at the general meetings of UNIDO and also for inspection and approval of plans and budgets of UNIDO.

Already several sessions of consultation meeting were held with respect to steel industry and various working groups were formed to study condition of raw materials and others.

Steel consultation system held the third session in September 1982 at La Guaira, Venezuela, where nearly 200 representatives from 46 nations attended.

Of the information submitted at the session, the scenario for steel industry in 1990 drafted by UNIDO secretariate is shown in Table F-1.

Table F-1 UNIDO Scenario for Steel Industry in Developing Countries in 1990

| | Low-growth Scenario | Normative Scenario |
|---|---|---|
| Premises | Present worldwide slow economic growth will continue for a long period. (Only projects with high probability are realized as capacity.) | Projects announced by developing countries will be realized. (Restrictions in capital, etc. will be removed.) |
| Steelmaking capacity in developing countries expected in 1990 | 1980 capacity 76 million tonnes/year<br>Addition 63.5 "<br>(New entry 6 countries)<br>(75 projects 33 countries)<br>Total 139.5 million tonnes/year<br>(Production in 1980<br>57.8 million tonnes/year | 1980 capacity 76 million tonnes/year<br>Addition 1,117 "<br>(New entry 32 countries)<br>(138 projects 65 countries)<br>Total 193 million tonnes/year |
| Steel demand in developing countries expected in 1990 | (1979 consumption<br>92.6 million tonnes/year)<br>1990 at 4% growth 142.5 "<br>at 2.5% growth 122.4 " | (1979 consumption<br>92.6 million tonnes/year)<br>1990 at 9% growth 238.8 "<br>at 6.5% growth 185.0 " |
| Fund required (Construction cost: $1,500/t/year) | About $100 billion | About $170 billion |

Manpower required (unit: 1,000 persons)
Persons to be added by 1990; ( ) shows foreigners.

| | | |
|---|---|---|
| Engineer & professional staff | 17 (4) | 23 (6) |
| Supervisory staff, engineer, office staff | 96 (10) | 132 (13) |
| Skilled worker | 380 (19) | 527 (26) |
| Unskilled worker | 68 | 93 |
| Total | 560 (33) | 725 (45) |

Source: Data presented at III Consultation Meeting on the Iron & Steel Industry, UNIDO, Sept. 1982

## IV. International Iron & Steel Institute (IISI)

IISI is a private international body consisting of members of the steel industry in free world and is headquarted in Brussels, Belgium. The institute publishes various valuable steel statistics and has standing committees engaged in study and research in various fields such as steel technology, market development, raw materials, environment and labor, etc. Short-range forecast of steel consumption compiled by IISI twice a year receives high reputation.

## V. South East Asia Iron & Steel Institute (SEAISI)

SEAISI was established in March 1971 and has its headquarter in Manila, Philippines.

Members consist of regular members from 5 ASEAN countries and Taiwan and supporting members of Australia and Japan.

Being created in commemoration of the 25th anniversary of United Nations and in line with strategic objective to promote industrial development through the former ECAFE of UN, the institute aims at effective development of steel industry through regional cooperation.

Center of its activities lies in technological matters, and technical seminars and symposiums are held twice a year, in spring and autumn, when its Board of Directors meeting and General Meeting are held, and attended by many people from both in and outside the region.

Plant directory, statistics data, news letters and quarterly bulletins issued by the Institute are very helpful for understanding of the steel industry in the region.

## G. POSITION OF BRAZILIAN EXPORT OF PIG IRON, INGOTS & SEMIS IN WORLD STEEL

This Study on feasibility of a project to establish an integrated steel mill to produce pig iron, ingots and semis for export as part of the large-scale regional development at Carajas, Brazil, necessitated in-depth studies covering broad related fields.

The basic concept of this Study was first to consider the feasibility of such steel production in Brazil as a kind of "black box" and position the Brazilian steel industry in the changing world steel industry and then study the possibility of export of the iron and steel products in question. This naturally called for a study of the present condition of the world steel industry and possible changes of its structure in future and raised the question how the export of the Brazilian products should be positioned in the world steel market. Therefore, in the Study, various statistical data were used to grasp the present condition, and the facts thus found were made the basis of the Study. Also, it needs be mentioned that full attention was directed to the speciality of pig iron, ingots and semis in the world trade.

Brazil is considered for many years as a country of great promise in the 21st century and in fact is gifted with unlimited possibilities. The matter may lie in the process and schedule of their realization.

### I. General Consideration

It should be mentioned that the present Study on the possibility of export of pig iron, ingots and semis with respect to the project to establish an integrated steel mill in Carajas, Brazil was a very difficult one. The reasons are as given in Section A-V. As already mentioned, the export of those products is characterized by the fact that their selling (export) prices cannot be determined on the basis of production cost in Brazil but are governed by the prices of final products produced from those intermediate products.

In addition, purchases of those products are strongly subjected to management consideration of purchasers with regard to their production flow. This is also true to sellers. In the long history of steel industry in the world, there have been a very few examples of establishment of an integrated steel mill specializing in export of pig iron, ingots and semis and their motives were also very limited.

Such condition has been already observed. It may be said that

objectively there is only limited room for pig iron, ingots and semis exported from Brazil to obtain established position as merchandise in the world steel market, and to make it possible, much efforts need be made to make their prices strongly competitive and establish a strong relation with overseas customers as reliable and stable source of those products.

From the above characteristics of the products and the trend of the world steel market, it can be said that it would be easier to ensure the feasibility of this project by incorporating the production of pig iron and semis under this project in the national policy of harmonious progress of the steel industry in Brazil including protective and fostering measures than by designing the project for export only. It is also easier to control it as a steel mill in the country. In this sense, it would be of significance to study the possibility of this project as production of the products designed for domestic consumption for the immediate future. Taking into consideration various existing iron and steel projects underway in Brazil, it may be said that the objective condition of export environment for this Carajas project is likely to ripen in the 1990s.

In connection with the production of pig iron and semis as part of Carajas Project, it is expected that some calculation will be made of estimated production cost of the products. But the project should not be judged by the result of such calculation alone but needs be considered from the point of view that the project, as expansion of the steel industry, will have a big and dynamic effect on the national economy. The desire of Brazil gifted with abundant natural resources for iron and steelmaking to aim at export rather than domestic consumption by utilizing iron ore and charcoal wood is fully justifiable. If the project is helped by strong policies and, if required, protective and fostering measures of the government in view of the above, it can be said that there is a possibility for export of the products in question in line with the structural change in the world steel industry.

## II. Export Characteristics of Pig Iron

As already mentioned, pig iron which Brazil contemplates to export is generally of marginal nature, and its international price fluctuates widely depending on pig iron requirements of user steel companies and changes in demand and supply among manufacturing processes.

Price of pig iron is always affected by the price of scrap in part, and in recent years, by the cost of sponge iron produced by DR process.

At modern integrated steel mills based on blast furnace-B.O.F. route, pig iron for steelmaking is mostly in molten condition because B.O.F.s require hot metal and because this flow of metal between the processes results in saving of energy.

Therefore, pig iron sold on the market as cold pig is destined for use in steel-making by electric arc furnaces and open hearth furnaces. But, though rare, the integrated steel mills based on blast furnaces buy (import) cold pig on long-term contracts as buffer stock.

As for foundry iron, its price is relatively high in cost because steel mills in developed countries produce mainly iron for steelmaking and only limited amount of foundry iron. Therefore, import of foundry iron has showed an increasing trend in all of Japan, European region and the United States. Users of foundry iron require small amount of iron with varying specifications. Brazilian production system based on charcoal small blast furnaces is suitable to meet such market requirement. Brazil has already developed pig iron industry for foundry uses based on the charcoal blast furnaces whose products have already shown competitiveness in the international market.

## III. Export Characteristics of Semis

As already discussed, there are many patterns of cases where semis are sold or exported, depending on the management consideration and overall operation of steel mills at the time of such sale.

In order to enlarge and strengthen participation in the international steel exports, Brazil has established a joint venture to produce semis, called "Cia Siderurgia de Tubarao" with Italian and Japanese counterparts, whose production capacity being 3 million tonnes per year, scheduled to begin operation by the end of 1983.

Patterns of cases where sale or purchase of semis takes place are given in Section C-II-1. As far as purchase of semis by overseas users is concerned, special consideration should be given to the following points.

a. When a user is in developing countries, semis must be delivered to the user on the just-in-time bases. Therefore, for assurance of stable and adequate supply, purchase of the semis from domestic sources is given priority and import of the semis is considerably limited in the quantity.

b. Demand tends to fluctuate widely according to business cycles, and it is necessary to give some extent of flexibility and allowance in determining the quantity which the user is obliged to accept.

c. Integrated steel mills specialized in the production of semis may be considered to be at an interim stage before installation of final rolling facilities and finishing facilities in addition to the existing facilities.

## IV. Structural Changes in the Steel Industry in Developed Countries and Export of Pig Iron and Semis

As specially studied in Section B of this Chapter, restructuring measures of the steel industry is going on for its survival, in particular, in the United States and European countries. The pattern of restructuring varies according to regions and countries as seen in Section B. Of the steel industry in developed countries, the U.S. steel industry is at the crossroads as aptly described by AISI and the strategies are so selected from the viewpoint of economic security as to keep and secure a steel industry with capacity enough to satisfy at least the minimum requirements necessary for the national economy.

For the purpose, efforts are directed to the improvement of productivity, pursuit of the highest efficiency and modernization, but emphasis is placed obviously on the down-stream, rolling department, in addition to the steelmaking department by introduction of continuous casting facilities for improved productivity.

The modernization of the up-stream, especially blast furnace department has delayed because of extreme aging of coke ovens and difficulty of their replacement from environmental complication. Basically the blast furnaces in the United States are small and old and their productivity is low.

There is an ample supply of scrap in the United States and the number of integrated steel mills equipped with electric arc furnaces in addition to B.O.F.s is increasing and the number of so-called mini-mills depending on scrap is also increasing.

Though the age structure of facilities of the steel industry in the United States is rather heavy on older side, the production capacity is relatively larger than the demand at present. If the growth of steel demand is slow as expected, the overall demand and supply balance in the United States as a whole will not necessitate import of foreign steels as far as the quantity is concerned.

The question is this. Once the restructuring efforts of the U.S. steel industry is completed in the 1980s, isn't there a possibility when individual steel companies who cut or gave up their up-stream department look for pig iron or semis from other domestic makers or from overseas?

This can be conceived in the trend or qualitatively. But it is extremely difficult to forecast when or to what extent such situation will occur.

Strength of the U.S. steel industry in its behavior and performance should not be seen too lightly and it is necessary to watch the development in the 1980s.

The situation is same in Europe, and as observed in Section B, there are going on rough waves of drastic restructuring of the steel industry. In both the United States and EC, the production capacities which can be operated economically are now limited because of price drop due to over-killing of the world steel demand and cost rise due to lower operating rate of production facilities.

In this respect, if the world steel market recovers and steel price rises in future, the production capacities of marginal steel makers will be activated. Then it will become necessary to compare cost of the products from those marginal facilities and that of the products produced by the steel mill specializing in the production of semis in Brazil.

On the other hand, however, the restructuring plans under way under the auspices of EC Commission include concentration of production to efficient, high productivity steel mills and reorganization to rational and specialized steel mills, discarding or cutting inefficient, out-of-date-facilities.

This implies a possibility of occurrence of unbalance among production processes in a steel mill or among production processes in a group of steelmills belonging to the same capital ownership, necessitating purchase of semis from others. The 1990s is expected to reveal a clear direction.

As regards the USSR, the largest steelmaking country in the world, as observed in Section B, the production of pig iron is sluggish and, together with low production of iron ore, poses a problem to her steel industry. This is also true to the other Eastern European countries. Their steel industry being heavily dependent on iron ore supply from the USSR, the latter's low production aggravates the shortage of pig iron in those countries. This has been always the cause of their import of pig iron. In reality, however, the pig iron import by COMECON countries has not been very large. This is because there is a policy of COMECON to keep self-support of pig iron in the group and so, the shortage of pig iron does not always result in the import from the third countries.

The same thing can be said about semis. Constant efforts are being made to maintain balance among products by adjustment of trade in the region through Intermetal, and any unbalance is hardly

reflected in increased import from the third countries. In this sense, the USSR and other Eastern European countries cannot be considered as either competitors or a big market to the pig iron and semis to be produced in Brazil.

As regards developing countries, India, South Africa and Australia are exporters of pig iron and/or semis. However, they cannot be constant exporting countries of those products in view of their past trend in steel demand and supply. Namely, they exported the products sometimes in the past according to domestic demand condition. It can be said that in future too, it is unlikely for them to plan construction of steel mills specializing in the production of pig iron and semis for export.

Appendix Table Present Condition and Trend of Trades of Pig Iron, Ingots & Semis

# Export of Pig Iron and Semis by 10 Major Countries

(1972 - 1981)

— Details of Import by Region —

I. Export of Pig Iron by Destination, 1972 - 1981

(10 Major Exporting Countries)

Code for Pig Iron: Major Classification 73.01 -

## Appendix Table I Export of Pig Iron by Destination

(1,000 MT)

| Exporting country \ Destination | | Total | S.E. Asia | Middle East | Europe | North America | Latin America | of which Brazil | Africa | Oceania | Unknown |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Germany, FR | 819.3 | 1.2 | 8.7 | 785.5 | | 19.1 | | 6.3 | | 0.6 |
| | France | 111.5 | | | 111.2 | | | | 0.3 | | |
| | Belgium/Luxembourg | 10.3 | | 0.1 | 10.1 | | | | 0.1 | 0.1 | |
| | Netherlands | 0.1 | | | | | | | | | 0.1 |
| | Italy | 3.1 | | | 0.2 | | | | 0.1 | | 2.8 |
| | UK | 12.2 | 0.6 | | 9.5 | | | | 2.0 | | |
| | Sweden | 6.2 | | | 6.2 | | | | | | |
| | Austria | | | | | | | | | | |
| | USA | 13.6 | 2.9 | | 2.2 | 3.4 | 5.1 | | | | |
| | Japan | 381.7 | 341.4 | | 40.5 | 0.1 | | | | | |
| | Total | 1,357.0 | 346.2 | 8.8 | 961.8 | 3.5 | 24.2 | — | 8.8 | 0.1 | 3.7 |
| 1973 | Germany, FR | 1,164.8 | 85.5 | 11.4 | 964.2 | | 90.3 | | 12.5 | | 1.1 |
| | France | 185.7 | | | 185.2 | | | | 0.5 | | |
| | Belgium/Luxembourg | 17.2 | | | 17.1 | | | | | | |
| | Netherlands | 151.4 | 122.5 | | 29.1 | | | | | | 0.1 |
| | Italy | 5.3 | — | | 2.0 | | 0.8 | | | | |
| | UK | 8.3 | 0.2 | | 7.0 | | 0.1 | | 0.9 | | |
| | Sweden | 42.9 | 28.4 | | 14.6 | | | | | | |
| | Austria | 20.2 | — | | 20.2 | | | | | | |
| | USA | 15.8 | 0.4 | 0.5 | · | 8.6 | 3.7 | 0.1 | 0.5 | | |
| | Japan | 108.2 | 108.2 | | | | | | | | |
| | Total | 1,717.8 | 344.8 | 12.0 | 1,239.5 | 8.6 | 94.9 | 0.1 | 14.4 | — | 1.2 |

Appendix Table I (cont'd.)

(1,000 MT)

| Exporting country \ Destination | | Total | S.E. Asia | Middle East | Europe | North America | Latin America | of which Brazil | Africa | Oceania | Unknown |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | Germany, FR | 1,360.9 | 181.0 | 17.5 | 1,036.7 | 0.8 | 100.9 | 0.5 | 23.3 | | 0.7 |
| | France | 558.8 | 1.0 | 1.0 | 554.1 | 2.0 | | | 0.6 | | - |
| | Belgium/Luxembourg | 11.1 | - | - | 11.1 | | | | - | | - |
| | Netherlands | 55.1 | 22.7 | - | 32.3 | | | | - | | - |
| | Italy | 2.8 | - | - | 2.7 | | | | - | | - |
| | UK | 254.5 | 223.2 | 0.1 | 19.9 | 10.3 | 0.2 | | 0.6 | 0.1 | - |
| | Sweden | 207.0 | 55.9 | - | 129.9 | 7.5 | 13.7 | | - | | - |
| | Austria | 20.8 | - | - | 20.8 | - | | | - | | - |
| | USA | 91.2 | 2.6 | 0.2 | - | 27.5 | 60.7 | 0.3 | 0.2 | 0.1 | - |
| | Japan | 72.1 | 65.1 | - | - | 7.0 | | | - | | - |
| | Total | 2,434.4 | 551.7 | 18.8 | 1,607.6 | 55.2 | 175.5 | 0.8 | 24.8 | 0.2 | 0.7 |
| 1975 | Germany, FR | 762.9 | 5.0 | 2.0 | 715.6 | 5.0 | 18.8 | - | 14.6 | - | 1.9 |
| | France | 220.9 | 0.6 | 1.2 | 210.4 | - | 1.0 | - | 7.8 | - | - |
| | Belgium/Luxembourg | 12.0 | - | - | 10.9 | - | 1.1 | - | - | - | - |
| | Netherlands | 2.1 | - | - | 2.0 | - | - | - | - | - | - |
| | Italy | 0.7 | - | - | 0.5 | - | - | - | 0.2 | - | 0.2 |
| | UK | 18.5 | 1.4 | 0.7 | 14.6 | - | 0.4 | - | 1.5 | - | - |
| | Sweden | 193.5 | - | - | 141.5 | 50.0 | 1.8 | - | - | - | - |
| | Austria | 2.4 | - | - | 2.4 | - | - | - | - | - | - |
| | USA | 54.1 | 0.2 | 0.1 | 0.2 | 20.6 | 32.8 | - | 0.1 | - | - |
| | Japan | 430.8 | 81.9 | 20.7 | 52.1 | 140.2 | 81.6 | - | 0.1 | 0.2 | - |
| | Total | 1,678.7 | 89.1 | 24.8 | 1,185.0 | 215.8 | 137.5 | - | 24.2 | 0.2 | 2.1 |

Appendix Table I (cont'd.)

(1,000 MT)

| Exporting country \ Destination | | Total | S.E. Asia | Middle East | Europe | North America | Latin America | of which Brazil | Africa | Oceania | Unknown |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1976 | Germany, FR | 821.1 | – | 4.7 | 809.7 | – | 0.5 | – | 5.2 | – | 1.0 |
| | France | 226.8 | – | 0.7 | 222.0 | 0.9 | – | – | 3.2 | – | – |
| | Belgium/Luxembourg | 53.5 | · | 0.5 | 52.8 | – | – | – | 0.4 | – | – |
| | Netherlands | · | – | – | – | – | – | – | – | – | · |
| | Italy | 0.1 | – | · | 0.1 | – | – | – | · | – | · |
| | UK | 60.9 | 0.4 | 0.5 | 50.7 | 8.1 | 0.1 | – | 1.1 | – | – |
| | Sweden | 53.9 | – | – | 53.9 | – | | – | – | – | · |
| | Austria | 0.4 | – | – | 0.4 | – | – | – | – | – | · |
| | USA | 52.1 | 0.3 | 0.3 | 0.5 | 28.7 | 21.7 | – | 0.9 | – | – |
| | Japan | 146.3 | 45.8 | – | 100.4 | – | · | · | – | 0.1 | – |
| | Total | 1,395.2 | 46.5 | 6.5 | 1,270.2 | 37.7 | 22.2 | · | 10.9 | 0.1 | 1.0 |
| 1977 | Germany, FR | 794.9 | 0.5 | 7.1 | 689.2 | – | 0.6 | | 5.7 | – | 1.0 |
| | France | 192.3 | – | · | 178.3 | 9.1 | · | | 4.9 | – | – |
| | Belgium/Luxembourg | 56.5 | · | – | 56.5 | – | – | | · | – | · |
| | Netherlands | 0.1 | – | – | 0.1 | – | – | | – | – | – |
| | Italy | 0.6 | – | 0.1 | 0.5 | – | – | | · | – | · |
| | UK | 47.2 | – | 0.9 | 30.4 | 15.2 | · | | 0.7 | – | – |
| | Sweden | 156.2 | 32.3 | – | 98.1 | 25.8 | – | | – | – | 0.1 |
| | Austria | 0.1 | – | – | 0.1 | – | – | | – | – | · |
| | USA | 46.6 | 12.0 | 0.1 | 5.4 | 18.9 | 12.1 | | – | · | – |
| | Japan | 563.9 | 547.9 | 0.4 | 10.5 | 5.1 | – | | – | – | – |
| | 1 0 Total | 1,767.6 | 592.6 | 8.6 | 1,067.2 | 74.0 | 12.8 | | 11.3 | · | 1.1 |

Appendix Table I (cont'd.)

(1,000 MT)

| Exporting country \ Destination | | Total | S.E. Asia | Middle East | Europe | North America | Latin America | of which Brazil | Africa | Oceania | Unknown |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1978 | Germany, FR | 736.7 | 2.2 | 3.6 | 716.5 | -- | 0.3 | | 14.0 | -- | -- |
| | France | 127.5 | · | 0.6 | 115.6 | 6.2 | -- | | 7.1 | · | -- |
| | Belgium/Luxembourg | 36.9 | · | -- | 36.6 | -- | · | | · | -- | · |
| | Netherlands | 1.7 | · | -- | 1.7 | -- | -- | | -- | -- | -- |
| | Italy | 5.5 | -- | -- | 4.9 | -- | -- | | 0.3 | -- | 0.2 |
| | UK | 34.8 | 0.3 | 5.6 | 21.8 | 5.0 | · | | 1.0 | -- | -- |
| | Sweden | 510.5 | 194.1 | -- | 178.9 | 156.4 | -- | | -- | -- | 0.2 |
| | Austria | -- | -- | -- | -- | -- | -- | | -- | -- | -- |
| | USA | 46.4 | 31.6 | 0.1 | 3.6 | 6.1 | 4.9 | | 0.1 | · | -- |
| | Japan | 32.7 | 32.7 | -- | -- | -- | -- | | -- | -- | -- |
| | Total | 1,531.6 | 261.8 | 10.0 | 1,077.9 | 153.7 | 5.4 | | 22.5 | · | 0.4 |
| 1979 | Germany, FR | 948.9 | 4.6 | 9.2 | 891.9 | -- | 7.6 | | 35.2 | -- | -- |
| | France | 360.3 | -- | 0.9 | 352.1 | 26.3 | · | | 1.0 | -- | -- |
| | Belgium/Luxembourg | 22.6 | -- | · | 22.4 | · | · | | 0.1 | -- | -- |
| | Netherlands | 22.8 | -- | -- | 22.7 | -- | -- | | -- | -- | 0.1 |
| | Italy | 6.9 | -- | · | 6.9 | -- | -- | | · | -- | -- |
| | UK | 22.5 | 0.1 | 1.0 | 20.5 | -- | · | | 0.9 | -- | -- |
| | Sweden | 150.3 | 57.1 | -- | 85.7 | 7.5 | -- | | -- | -- | · |
| | Austria | -- | -- | -- | -- | -- | -- | | -- | -- | -- |
| | USA | 95.4 | 60.5 | 0.1 | 0.3 | 8.9 | 5.6 | | -- | 0.1 | -- |
| | Japan | 50.2 | 49.6 | 0.7 | -- | -- | -- | | -- | -- | -- |
| | Total | 1,679.5 | 191.8 | 11.9 | 1,382.5 | 42.7 | 13.3 | | 37.2 | 0.1 | 0.1 |

Appendix Table I (cont'd.)

(1,000 MT)

| Exporting country \ Destination | | Total | S.E. Asia | Middle East | Europe | North America | Latin America | of which Brazil | Africa | Oceania | Unknown |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1980 | Germany, FR | 1,002.2 | 7.8 | 5.1 | 964.6 | - | 0.5 | - | 26.1 | - | - |
| | France | 284.9 | 0.1 | 1.0 | 269.6 | 15.6 | - | - | 0.7 | - | - |
| | Belgium/Luxembourg | 7.6 | - | - | 7.5 | - | - | - | - | - | - |
| | Netherlands | 9.0 | - | - | 8.8 | - | - | - | 0.1 | - | - |
| | Italy | 1.9 | - | 0.1 | 1.6 | - | - | - | 0.2 | - | 0.1 |
| | UK | 30.2 | 0.5 | 0.2 | 29.0 | - | - | - | 0.6 | - | - |
| | Sweden | 179.6 | 52.7 | - | 114.7 | 12.1 | - | - | - | - | 0.1 |
| | Austria | 0.2 | - | - | 0.2 | - | - | - | - | - | - |
| | USA | 66.2 | 46.7 | 0.1 | - | 4.6 | 20.5 | - | - | - | - |
| | Japan | 5.9 | 5.8 | 0.1 | - | - | - | - | - | - | - |
| | Total | 1,587.7 | 107.5 | 4.6 | 1,596.0 | 50.5 | 21.0 | - | 27.9 | - | 0.2 |
| 1981 | Germany, FR | 782.0 | 7.1 | 3.9 | 739.1 | - | 5.3 | | 26.6 | - | - |
| | France | 195.7 | - | - | 178.8 | 10.0 | 5.5 | | 1.5 | - | - |
| | Belgium/Luxembourg | 8.6 | - | - | 8.5 | - | - | | - | - | - |
| | Netherlands | 4.6 | - | - | 4.8 | - | - | | - | - | - |
| | Italy | 0.2 | - | - | 0.2 | - | - | | - | - | - |
| | UK | | | | | | | | | | |
| | Sweden | 45.1 | - | - | 41.0 | 4.1 | - | | - | - | - |
| | Austria | - | - | - | - | - | - | | - | - | - |
| | USA | 14.8 | 1.6 | 1.0 | 0.1 | 6.7 | 4.8 | | 0.4 | 0.1 | - |
| | Japan | 1.5 | 1.5 | - | - | - | - | | - | - | - |
| | Total | 1,052.7 | 10.2 | 5.0 | 972.5 | 20.9 | 15.5 | | 28.5 | 0.1 | - |

## II. Export of Ingots & Semis by Destination, 1972 - 1981

(10 Major Exporting Countries)

## Appendix Table II-1 Total Export of Ingots & Semis from 10 Major Exporting Countries by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel | 3,644.5 | 160.6 | 10.0 | 157.8 | 2,412.6 | 442.2 | 351.2 | 489.4 | 586.9 | 284.5 | 60.1 | 0.9 | 7.9 | 271.8 | 61.7 | 595.1 | 8.5 | 38.9 | 9.6 |
| | Ingots, semis, special steel | 301.4 | 15.2 | 0.5 | 1.9 | 188.8 | 3.7 | 8.9 | 50.0 | 33.9 | 47.3 | 13.2 | 7.3 | 6.9 | 79.5 | 72.0 | 12.1 | 1.9 | 2.1 | 1.2 |
| | Total | 3,947.9 | 175.8 | 10.5 | 159.7 | 2,801.4 | 445.9 | 360.1 | 539.4 | 620.8 | 331.8 | 73.3 | 8.2 | 14.8 | 351.5 | 133.7 | 607.2 | 10.2 | 40.9 | 10.8 |
| 1973 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel | 4,380.4 | 428.6 | 2.6 | 166.9 | 2,792.6 | 470.8 | 423.3 | 520.5 | 642.5 | 311.2 | 33.4 | 2.8 | 5.1 | 98.7 | 46.0 | 857.4 | 126.5 | 54.9 | 5.6 |
| | Ingots, semis, special steel | 332.1 | 15.8 | 0.7 | 1.3 | 237.1 | 4.9 | 11.0 | 60.2 | 43.4 | 59.5 | 21.4 | 4.0 | 10.4 | 62.2 | 59.2 | 9.4 | 2.1 | 5.0 | 0.8 |
| | Total | 4,712.5 | 444.4 | 3.3 | 168.2 | 3,029.7 | 475.7 | 434.3 | 580.7 | 685.9 | 370.7 | 54.8 | 6.8 | 15.5 | 158.9 | 85.2 | 866.8 | 128.6 | 59.9 | 6.4 |
| 1974 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel | 4,812.1 | 529.9 | -- | 156.1 | 3,262.5 | 497.1 | 305.9 | 566.6 | 984.9 | 256.5 | 91.7 | 3.1 | 19.4 | 71.1 | 39.6 | 775.5 | 196.5 | 212.0 | 6.4 |
| | Ingots, semis, special steel | 395.7 | 28.2 | 0.5 | 11.1 | 257.8 | 8.0 | 27.5 | 57.1 | 45.3 | 54.5 | 13.9 | 7.5 | 13.6 | 55.5 | 54.5 | 34.6 | 18.5 | 7.6 | 1.7 |
| | Total | 5,207.8 | 558.1 | 0.5 | 164.2 | 3,520.1 | 505.1 | 333.2 | 623.7 | 1,030.2 | 311.1 | 105.6 | 10.4 | 33.0 | 126.6 | 74.1 | 810.1 | 215.0 | 219.6 | 8.1 |
| 1975 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel | 6,304.0 | 527.9 | 0.2 | 359.2 | 3,958.1 | 160.4 | 229.6 | 375.0 | 918.0 | 126.0 | 154.8 | 29.3 | 45.2 | 113.3 | 70.6 | 1,311.4 | 220.6 | 252.3 | 0.1 |
| | Ingots, semis, special steel | 425.7 | 20.7 | - | 11.2 | 238.7 | 5.0 | 9.9 | 75.4 | 30.0 | 46.8 | 12.2 | 10.1 | 5.9 | 64.9 | 52.7 | 78.7 | 5.5 | 10.1 | 0.4 |
| | Total | 6,729.7 | 548.6 | 0.2 | 370.4 | 4,176.8 | 165.4 | 239.5 | 450.4 | 948.0 | 174.8 | 167.0 | 39.4 | 51.1 | 178.2 | 123.3 | 1,390.1 | 223.9 | 262.4 | 0.5 |
| 1976 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel | 4,686.9 | 200.7 | -- | 158.1 | 3,656.1 | 254.4 | 204.8 | 685.9 | 810.4 | 250.4 | 348.2 | 1.0 | 47.4 | 83.4 | 61.5 | 464.8 | 3.6 | 122.4 | — |
| | Ingots, semis, special steel | 452.8 | 16.7 | 0.2 | 5.9 | 313.5 | 3.5 | 13.8 | 84.4 | 61.2 | 93.5 | 7.6 | 7.9 | 4.2 | 34.0 | 28.0 | 75.6 | 0.9 | 5.0 | 0.5 |
| | Total | 5,139.7 | 217.6 | 0.2 | 164.0 | 3,969.6 | 257.7 | 218.6 | 770.3 | 871.6 | 323.9 | 355.8 | 8.9 | 51.6 | 117.4 | 89.5 | 540.4 | 4.5 | 127.4 | 0.5 |

## Appendix Table II-1 (cont'd.)

(1,000 MT)

| | Destination / Products | Total | S.E. Asia | Japan | Middle East | Europe | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 5,386.8 | 508.6 | — | 106.4 | 2,253.5 | 24.1 | 223.5 | 620.1 | 762.9 | 176.5 | 157.1 | 7.0 | 30.4 | 149.5 | 137.8 | 356.7 | — | 230.8 | 0.2 |
| | Ingots, semis,<br>special steel | 489.6 | 18.4 | 0.1 | 5.1 | 390.7 | 6.3 | 47.0 | 65.4 | 127.1 | 83.6 | 5.4 | 7.9 | 8.5 | 49.1 | 41.2 | 23.5 | 0.2 | 2.2 | |
| | Total | 5,876.4 | 527.0 | 0.1 | 111.5 | 2,624.2 | 30.4 | 270.5 | 685.5 | 890.0 | 257.1 | 162.5 | 14.9 | 38.9 | 198.6 | 179.0 | 380.2 | 0.2 | 233.0 | 0.2 |
| 1978 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 5,413.6 | 520.7 | 58.2 | 224.9 | 2,506.3 | 15.8 | 271.2 | 809.0 | 689.7 | 137.5 | 161.0 | 2.3 | 64.3 | 218.5 | 182.5 | 115.2 | 0.1 | 228.8 | 0.9 |
| | Ingots, semis,<br>special steel | 602.6 | 21.4 | 0.9 | 4.8 | 403.5 | 4.2 | 71.4 | 79.4 | 106.0 | 80.7 | 6.2 | 6.4 | 5.4 | 68.7 | 72.1 | 76.2 | 0.2 | 6.2 | — |
| | Total | 4,016.2 | 542.1 | 59.1 | 229.7 | 2,709.8 | 20.0 | 342.6 | 888.4 | 795.7 | 218.2 | 167.2 | 8.7 | 69.7 | 287.2 | 254.6 | 191.4 | 0.3 | 235.0 | 0.9 |
| 1979 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 3,925.4 | 531.0 | 102.9 | 196.5 | 2,713.6 | 60.4 | 345.7 | 957.7 | 687.5 | 272.6 | 178.2 | 0.7 | 22.0 | 218.5 | 94.4 | 165.3 | 0.2 | 299.6 | 0.8 |
| | Ingots, semis,<br>special steel | 734.0 | 33.5 | 0.3 | 1.7 | 546.3 | 5.2 | 72.2 | 112.2 | 196.1 | 139.9 | 7.5 | 12.9 | 6.1 | 71.1 | 56.6 | 76.8 | 0.2 | 4.2 | 0.3 |
| | Total | 4,659.4 | 564.5 | 103.2 | 198.0 | 3,259.9 | 65.6 | 417.9 | 1,069.9 | 883.6 | 412.5 | 185.7 | 13.6 | 28.1 | 289.6 | 151.0 | 242.1 | 0.4 | 303.8 | 1.1 |
| 1980 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 4,534.1 | 554.5 | 102.5 | 228.2 | 2,562.5 | 49.1 | 435.5 | 723.8 | 496.5 | 299.5 | 258.1 | 6.9 | 54.8 | 79.6 | 14.3 | 541.2 | 12.6 | 331.5 | 36.4 |
| | Ingots, semis,<br>special steel | 992.0 | 70.0 | 0.2 | 12.0 | 597.6 | 6.5 | 81.1 | 127.6 | 119.5 | 170.6 | 29.1 | 13.2 | 10.8 | 28.9 | 15.2 | 217.5 | 8.2 | 23 | — |
| | Total | 5,526.1 | 624.5 | 102.7 | 240.2 | 3,160.1 | 55.6 | 516.6 | 851.4 | 616.0 | 466.1 | 287.5 | 20.1 | 45.6 | 108.5 | 29.5 | 759.1 | 20.8 | 333.8 | 36.4 |
| 1981 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 3,640.2 | 278.6 | 0.3 | 229.3 | 2,187.5 | 25.3 | 251.4 | 463.1 | 604.0 | 161.9 | 258.5 | 9.6 | 21.5 | 252.8 | 90.9 | 517.8 | 184.9 | 179.0 | 0.2 |
| | Ingots, semis,<br>special steel | 618.0 | 28.1 | — | 12.1 | 390.7 | 2.7 | 64.2 | 59.8 | 110.6 | 72.1 | 31.5 | 7.5 | 9.3 | 22.2 | 6.5 | 165.8 | 0.6 | 3.1 | 0.7 |
| | Total | 4,258.2 | 306.7 | 0.3 | 241.4 | 2,578.2 | 28.0 | 315.6 | 522.9 | 714.6 | 234.0 | 290.0 | 17.1 | 30.8 | 275.0 | 99.4 | 683.6 | 185.5 | 182.1 | 0.9 |

## Appendix Table II-2 Export of Ingots & Semis from France by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Netherlands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel; Blooms, billets, ordinary steel; Slabs, sheet bars, ordinary steel; Other semis, ordinary steel | 689.5 | 27.5 | 0.1 | 30.5 | 544.4 | 0.2 | 176.7 | | 152.2 | 45.3 | 27.9 | | | 7.2 | 1.0 | 55.6 | 23.0 | 20.4 | |
| | Ingots, semis, special steel | 53.9 | | | | 52.5 | 0.2 | 3.2 | | 19.9 | 25.2 | 0.3 | | | 0.9 | 0.9 | 0.5 | | 0.2 | |
| | Total | 743.2 | 27.5 | 0.1 | 30.5 | 596.9 | 0.4 | 179.9 | | 172.1 | 70.5 | 28.2 | - | - | 8.1 | 1.9 | 55.9 | 23.0 | 20.6 | — |
| 1973 | Ingots, ordinary steel | 125.9 | | | | 125.8 | | 124.0 | | 1.8 | 3.0 | | | | | | | | | |
| | Blooms, billets, ordinary steel | 399.2 | 3.9 | | 40.7 | 292.4 | | 51.0 | | 52.5 | 38.8 | 2.0 | | | 0.9 | 0.9 | 41.8 | 7.1 | 25.1 | |
| | Slabs, sheet bars, ordinary steel | 10.4 | | | | 7.0 | | 1.6 | | 1.2 | 2.5 | | | | | | | | | |
| | Other semis, ordinary steel | 2.4 | | | | 2.4 | 0.5 | 0.6 | | 1.0 | 0.2 | | | | | | | | | |
| | Ingots, semis, special steel | 60.0 | 2.4 | | 0.5 | 52.9 | 0.6 | 5.8 | | 28.4 | 18.0 | 0.2 | 0.1 | | 0.3 | 0.3 | 2.5 | 0.4 | 1.6 | |
| | Total | 597.9 | 6.5 | - | 41.0 | 480.5 | 1.1 | 207.2 | | 114.9 | 62.5 | 2.2 | 0.1 | - | 1.2 | 1.2 | 44.3 | 7.5 | 24.7 | — |
| 1974 | Ingots, ordinary steel | 94.0 | | | | 94.0 | | 86.8 | | 4.2 | | 3.0 | | | | | | | 3.0 | |
| | Blooms, billets, ordinary steel | 297.4 | 8.4 | | 23.8 | 215.8 | | 67.8 | | 62.9 | 30.6 | 10.0 | | | 2.1 | 2.1 | 6.6 | 1.8 | 24.0 | 0.9 |
| | Slabs, sheet bars, ordinary steel | 41.9 | 3.5 | | | 46.5 | | 9.3 | | 23.6 | 5.2 | 1.5 | 0.4 | | 1.4 | 0.1 | 4.4 | 1.0 | 1.2 | |
| | Other semis, ordinary steel | 10.6 | | | | 10.6 | 0.9 | 1.4 | | 1.7 | 4.0 | 0.4 | | | | | | | | |
| | Ingots, semis, special steel | 61.6 | 2.7 | | | 57.6 | 0.6 | 6.6 | | 25.6 | 18.9 | 0.9 | | | | 1.3 | | | | |
| | Total | 508.5 | 14.6 | - | 23.8 | 424.5 | 1.5 | 171.9 | | 118.0 | 59.2 | 15.8 | 0.1 | - | 3.5 | 3.5 | 11.0 | 2.8 | 30.2 | 0.9 |
| 1975 | Ingots, ordinary steel | 78.5 | | | | 76.2 | | 45.6 | | 8.2 | | | | | | | | | 2.3 | |
| | Blooms, billets, ordinary steel | 431.2 | | | 43.7 | 302.9 | 0.1 | 91.8 | | 76.7 | 40.1 | 11.9 | 1.8 | 0.1 | 2.0 | 2.0 | 37.7 | 0.4 | 45.1 | |
| | Slabs, sheet bars, ordinary steel | 55.5 | 5.1 | | | 50.2 | | 0.1 | | 23.0 | 0.9 | 1.0 | | | | | | | | |
| | Other semis, ordinary steel | 5.0 | | | | 5.0 | 0.4 | 1.6 | | 1.1 | 1.2 | 0.6 | | | | | | | | |
| | Ingots, semis, special steel | 45.5 | 2.4 | | | 34.9 | 0.2 | | | 13.5 | 9.3 | 1.3 | 0.1 | | 5.0 | 5.0 | 2.0 | 1.6 | 1.0 | |
| | Total | 615.5 | 7.5 | - | 43.7 | 469.2 | 0.7 | 139.1 | | 122.3 | 51.5 | 14.8 | 1.9 | 0.1 | 7.0 | 7.0 | 39.7 | 2.0 | 48.4 | - |
| 1976 | Ingots, ordinary steel | 45.1 | | | | 44.2 | | 40.5 | | 3.6 | | | | | | | | | 0.9 | |
| | Blooms, billets, ordinary steel | 254.0 | 1.7 | | 22.0 | 200.0 | 0.9 | 65.6 | | 27.7 | 60.2 | 0.3 | | | | | 5.2 | | 16.3 | |
| | Slabs, sheet bars, ordinary steel | 60.2 | | | | 56.1 | | 0.6 | | 1.9 | 1.9 | 15.5 | | | 0.9 | 0.9 | | | 3.2 | |
| | Other semis, ordinary steel | 6.6 | | | | 6.6 | 0.2 | 1.1 | | 0.3 | 2.1 | 1.7 | | | | | | | | |
| | Ingots, semis, special steel | 70.0 | 1.5 | | 0.2 | 66.0 | 0.2 | 8.0 | | 28.7 | 24.2 | 0.7 | 0.5 | | 0.4 | 0.3 | | | 2.1 | |
| | Total | 435.9 | 2.5 | | 22.2 | 372.9 | 1.4 | 115.8 | | 62.2 | 88.4 | 18.2 | 0.5 | - | 1.4 | 1.4 | 5.2 | - | 31.7 | - |

## Appendix Table II-2 (cont'd.)

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | | | | | | | | | North America | | Latin America | | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | | USA | | Brazil | | |
| 1977 | Ingots, ordinary steel | 16.5 | | | | 16.0 | | 10.4 | | 4.6 | 0.5 | | | | | | | | 0.5 | |
| | Blooms, billets, ordinary steel | 171.8 | | | 10.6 | 99.1 | 1.2 | 52.4 | | 14.5 | 32.2 | 1.5 | | 0.1 | 2.3 | 2.3 | 30.4 | | 29.0 | |
| | Slabs, sheet bars, ordinary steel | 45.0 | 9.1 | | | 15.5 | | 2.5 | | 0.5 | 3.1 | 6.2 | | | 18.2 | 18.2 | | | 2.2 | |
| | Other semis, ordinary steel | 11.8 | 1.0 | | | 10.0 | 0.1 | 0.9 | | 0.4 | 7.0 | 0.2 | | | 4.8 | 0.8 | | | | |
| | Ingots, semis, special steel | 94.4 | | | | 92.1 | 0.1 | 12.2 | | 47.6 | 21.6 | 0.1 | 0.5 | 0.1 | 0.8 | 0.6 | 1.3 | | 0.4 | |
| | Total | 339.5 | 10.1 | | 10.6 | 232.7 | 1.4 | 58.4 | -- | 67.7 | 69.1 | 8.0 | 0.5 | 1.2 | 22.3 | 22.3 | 31.7 | -- | 31.9 | - |
| 1978 | Ingots, ordinary steel | 3.5 | | | | 3.5 | | 3.0 | | 0.1 | 0.2 | | | | | | | | | |
| | Blooms, billets, ordinary steel | 107.2 | 0.6 | | | 74.0 | 1.7 | 27.7 | | 11.1 | 24.8 | 1.1 | | | 1.2 | 1.2 | 4.8 | | 24.8 | 0.2 |
| | Slabs, sheet bars, ordinary steel | 25.9 | 3.9 | | | 18.7 | 0.1 | 11.4 | | 0.1 | 6.5 | 0.1 | | | | | | | 3.3 | |
| | Other semis, ordinary steel | 2.5 | | | | 2.5 | | 0.4 | | 0.6 | 1.0 | 0.5 | | | | | | | | |
| | Ingots, semis, special steel | 126.0 | | | | 121.7 | 0.4 | 56.3 | | 35.1 | 20.7 | 2.1 | | 0.6 | 1.4 | 1.4 | | | 2.9 | |
| | Total | 265.1 | 4.5 | | 1.9 | 220.4 | 2.2 | 98.8 | -- | 47.0 | 53.2 | 3.6 | - | 0.6 | 2.6 | 2.6 | 4.8 | -- | 31.0 | 0.2 |
| 1979 | Ingots, ordinary steel | 9.9 | | | | 9.9 | | 4.1 | | 5.7 | | | | | | | | | | |
| | Blooms, billets, ordinary steel | 81.1 | | | | 64.3 | 0.7 | 23.4 | | 7.2 | 19.6 | 0.5 | | | | | 0.8 | | 16.0 | |
| | Slabs, sheet bars, ordinary steel | 62.0 | 9.1 | 0.2 | | 44.8 | 8.0 | 37.8 | | 0.5 | 9.0 | 0.1 | | | 0.3 | | | | 5.8 | |
| | Other semis, ordinary steel | 0.8 | | | | 0.8 | | | | 0.5 | 0.2 | | | | | | | | | |
| | Ingots, semis, special steel | 138.9 | 0.2 | | | 134.5 | | 62.4 | | 37.6 | 27.1 | 0.9 | | 0.2 | 0.5 | | | | 1.8 | |
| | Total | 292.7 | 9.3 | 0.2 | - | 258.1 | 8.7 | 127.7 | -- | 51.3 | 55.9 | 1.5 | 0.1 | 0.2 | 0.8 | -- | 0.8 | - | 23.6 | 0.2 |
| 1980 | Ingots, ordinary steel | 5.5 | | | | 5.5 | | 4.5 | | 0.4 | | | | | | | | | | |
| | Blooms, billets, ordinary steel | 96.3 | 11.0 | | | 79.0 | 0.6 | 52.1 | | 5.8 | 9.2 | 4.1 | | | | | | | 6.3 | |
| | Slabs, sheet bars, ordinary steel | 117.0 | | | | 116.8 | 0.3 | 103.8 | | 5.8 | 5.8 | 0.3 | 0.3 | 0.1 | 0.1 | | | | | |
| | Other semis, ordinary steel | 2.5 | | | | 2.5 | | 0.2 | | 0.4 | 1.8 | 0.1 | | | | | | | | |
| | Ingots, semis, special steel | 144.1 | 0.1 | 0.1 | 0.1 | 142.8 | 0.2 | 60.4 | | 32.0 | 44.1 | 1.3 | | | | | | | 3.9 | |
| | Total | 365.4 | 11.1 | 0.1 | 0.1 | 346.6 | 1.1 | 221.3 | -- | 42.4 | 60.9 | 5.8 | 0.3 | 0.1 | 0.1 | - | - | -- | 7.2 | - |
| 1981 | Ingots, ordinary steel | 2.2 | | | | 2.2 | | 1.2 | | | | 0.8 | | | | | | | | |
| | Blooms, billets, ordinary steel | 76.9 | | | | 69.9 | 1.6 | 46.9 | | 2.5 | 5.8 | | | | | | 5.0 | | 2.0 | |
| | Slabs, sheet bars, ordinary steel | 24.0 | | | 0.2 | 23.0 | 0.1 | 15.2 | | 2.9 | 5.0 | 0.8 | | | | | 1.7 | | 0.1 | |
| | Other semis, ordinary steel | 2.3 | | | | 2.0 | | 0.4 | | 0.5 | 1.2 | 0.1 | | | | | | | 0.3 | |
| | Ingots, semis, special steel | 160.4 | 0.1 | 0.1 | 0.2 | 151.5 | | 54.1 | | 42.9 | 46.9 | 1.6 | | | 0.1 | 0.1 | 7.7 | | 0.6 | |
| | Total | 268.8 | 1.1 | 0.1 | 0.4 | 248.6 | 1.7 | 117.8 | -- | 48.4 | 59.9 | 3.3 | 0.4 | - | 0.1 | 0.1 | 12.7 | -- | 2.9 | - |

## Appendix Table II-3 Export of Ingots & Semis from Germany, FR by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | West Asia | Europe | Netherlands | Bel/Lux | France | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania | Others |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 947.8 | 12.3 | 0.1 | 85.4 | 806.2 | 160.7 | 67.0 | 346.3 | 111.3 | 8.2 | 0.3 | 1.2 | — | — | 30.7 | — | 10.6 | 2.0 | 0.4 |
| | Ingots, semis,<br>special steel | 71.9 | 2.9 | | 1.3 | 64.2 | 1.5 | 4.0 | 37.0 | 1.1 | | 1.8 | 4.1 | 1.1 | 1.1 | 1.5 | 1.5 | 0.5 | 0.1 | 0.3 |
| | Total | 1,019.7 | 15.2 | 0.1 | 86.7 | 870.4 | 162.2 | 91.0 | 383.3 | 112.1 | 8.2 | 2.1 | 5.3 | 1.1 | 1.1 | 32.0 | 1.5 | 11.4 | 2.1 | 0.7 |
| 1973 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 1,029.2 | 17.0 | | 67.3 | 851.9 | 162.0 | 155.9 | 269.9 | 171.1 | 11.4 | 0.1 | 3.5 | 1.6 | | 72.5 | 0.1 | 13.6 | 4.5 | 0.6 |
| | Ingots, semis,<br>special steel | 82.6 | 2.3 | | 0.4 | 77.9 | 2.7 | 4.4 | 33.7 | 11.6 | 0.3 | | 7.0 | 0.4 | | 0.4 | 0.2 | 0.6 | 0.1 | 0.6 |
| | Total | 1,111.8 | 19.3 | — | 67.7 | 929.8 | 164.7 | 160.3 | 303.6 | 182.7 | 11.7 | 0.1 | 10.5 | 2.0 | — | 72.9 | 0.3 | 14.4 | 4.6 | 1.2 |
| 1974 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 782.0 | 21.1 | | 34.1 | 691.6 | 62.7 | 61.7 | 299.4 | 82.7 | 28.0 | 1.0 | 9.0 | 2.7 | 2.7 | 11.8 | 1.1 | 19.7 | 0.4 | 0.4 |
| | Ingots, semis,<br>special steel | 108.5 | 5.8 | | 5.3 | 86.3 | 6.2 | 5.7 | 38.4 | 10.1 | 3.1 | 2.2 | 9.1 | 1.4 | 1.4 | 5.1 | 5.1 | 5.2 | 0.8 | 0.5 |
| | Total | 890.3 | 26.9 | — | 39.4 | 777.9 | 68.9 | 67.4 | 337.8 | 92.8 | 31.1 | 3.2 | 18.1 | 4.1 | 4.1 | 16.9 | 6.2 | 22.9 | 1.2 | 0.9 |
| 1975 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 879.5 | 4.4 | | 60.7 | 784.5 | 41.5 | 87.5 | 181.1 | 44.7 | 23.1 | 22.5 | 37.7 | 4.2 | 4.2 | 13.0 | 0.4 | 16.1 | | 1.7 |
| | Ingots, semis,<br>special steel | 112.1 | 2.6 | | 2.6 | 88.6 | 3.2 | 2.0 | 48.9 | 10.7 | 1.7 | 3.8 | 5.8 | 11.4 | 11.3 | | | 1.0 | 0.2 | 0.8 |
| | Total | 991.6 | 7.0 | — | 63.3 | 873.9 | 44.7 | 89.5 | 230.0 | 55.4 | 24.8 | 26.5 | 41.5 | 15.6 | 15.5 | 13.0 | 0.4 | 17.1 | 0.2 | 2.5 |
| 1976 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel | 950.5 | 5.6 | | 30.2 | 867.8 | 26.9 | 81.9 | 424.3 | 109.2 | 25.4 | 0.4 | 51.1 | 2.4 | 0.4 | 14.1 | | 29.9 | | 1.4 |
| | Ingots, semis,<br>special steel | 100.8 | 0.5 | | | 91.9 | 2.1 | 3.9 | 37.9 | 13.2 | 1.1 | 1.4 | 2.6 | 5.4 | 5.4 | | | 1.5 | | 1.0 |
| | Total | 1,051.3 | 5.8 | — | 30.2 | 959.7 | 29.0 | 85.8 | 462.2 | 122.4 | 24.5 | 1.8 | 33.7 | 7.8 | 5.8 | 14.1 | — | 31.4 | — | 2.4 |

## Appendix Table II-3 (cont'd.)

(1,000 MT)

| | Products \ Destination | Total | Japan | Thailand | Singapore | Malaya | Philippines | [illegible] | Burma | India | Pakistan | Iran | Saudi Arabia | Israel | Jordan | Syria | Lebanon | Other Asia | Sub-total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel | 12.1 | | | | | | | | | | | | | | | | | |
| | Blooms, billets, ordinary steel | 461.1 | | | 1.4 | | | | | 0.2 | 20.8 | 2.1 | | 8.0 | | 6.5 | | | 39.0 |
| | Slabs, sheet bars, ordinary steel | 385.4 | | 7.8 | | | | | | | | | | | | | | 0.5 | 8.3 |
| | Other semis, ordinary steel | 24.5 | | | | | | | | 0.1 | | 0.2 | | 0.2 | | | | | 0.5 |
| | Ingots, semis, special steel | 97.9 | | | | | | | | 0.3 | | 0.5 | | 0.1 | | | | | 0.9 |
| | Total | 980.8 | | 7.8 | 1.4 | | | | | 0.6 | 20.8 | 2.8 | | 8.3 | | 6.5 | | 0.5 | 48.7 |
| 1978 | Ingots, ordinary steel | 4.3 | | | | | | | | | | | | | | | | | — |
| | Blooms, billets, ordinary steel | 591.6 | | 5.5 | 1.8 | 10.0 | 0.4 | 9.3 | 0.1 | 0.1 | 3.6 | 72.9 | | 18.7 | | 12.0 | | 13.0 | 142.1 |
| | Slabs, sheet bars, ordinary steel | 462.6 | | 15.5 | | 1.2 | | 0.3 | 1.7 | | 2.0 | | | | | | | 0.3 | 20.8 |
| | Other semis, ordinary steel | 18.6 | | | | | | | | 0.1 | 0.2 | 0.1 | | | | | | 0.1 | 0.5 |
| | Ingots, semis, special steel | 101.7 | 0.2 | | | | | | | 0.2 | | | | | | | | | 0.4 |
| | Total | 1,178.8 | 0.2 | 18.6 | 1.8 | 11.2 | 0.4 | 9.6 | 1.8 | 0.4 | 5.8 | 72.9 | — | 18.7 | | 12.0 | | 13.4 | 163.8 |
| 1979 | Ingots, ordinary steel | 5.3 | | | | | | | | | | | | | | | | | |
| | Blooms, billets, ordinary steel | 721.7 | 0.3 | | 2.5 | | 9.9 | 10.5 | | 0.4 | | 0.1 | | 20.4 | 8.5 | 47.3 | 5.0 | 1.5 | 106.4 |
| | Slabs, sheet bars, ordinary steel | 444.7 | | 6.1 | | 2.7 | | 5.9 | | | | | | | | | | | 14.6 |
| | Other semis, ordinary steel | 27.9 | | 0.1 | | | | | | 0.2 | | | | | | | | | 0.3 |
| | Ingots, semis, special steel | 141.9 | | | | | | | | 0.5 | | | | 0.6 | | | | 0.4 | 1.5 |
| | Total | 1,339.5 | 0.3 | 6.2 | 2.5 | 2.7 | 9.9 | 16.5 | | 1.1 | | 0.1 | - | 21.0 | 8.5 | 47.3 | 5.0 | 1.9 | 122.8 |
| 1980 | Ingots, ordinary steel | 9.7 | | | | | | | | | | | | | | | | | |
| | Blooms, billets, ordinary steel | 863.7 | | 2.6 | 5.5 | 13.2 | 13.9 | 70.6 | | 1.1 | 0.5 | | | 3.7 | 10.0 | 22.5 | 2.0 | | 149.4 |
| | Slabs, sheet bars, ordinary steel | 442.6 | | 7.2 | | 2.8 | | 8.7 | | | | 62.1 | | 0.4 | | | | | 80.4 |
| | Other semis, ordinary steel | 38.7 | | | | | | 0.1 | | | 0.1 | 0.1 | | 0.1 | | | 0.1 | | 0.5 |
| | Ingots, semis, special steel | 176.5 | | | | | | | | 2.4 | | | | 0.1 | | | | | 2.5 |
| | Total | 1,501.2 | | 9.8 | 5.5 | 15.2 | 13.9 | 79.6 | | 3.5 | 0.6 | 62.2 | — | 4.3 | 10.0 | 22.5 | 2.1 | | 235.0 |
| 1981 | Ingots, ordinary steel | 6.9 | | | | | | | | | | | | | | | | | |
| | Blooms, billets, ordinary steel | 779.9 | | 13.9 | 0.5 | 6.2 | 2.8 | 24.8 | 0.2 | 36.7 | 0.4 | | 9.6 | 12.2 | 46.7 | 3.1 | 17.4 | 0.1 | 174.6 |
| | Slabs, sheet bars, ordinary steel | 360.1 | | 12.5 | | 5.2 | 0.5 | 2.1 | | | 2.5 | 15.6 | | 0.3 | 0.5 | | | | 37.0 |
| | Other semis, ordinary steel | 15.8 | 0.1 | | 2.1 | | 0.1 | 0.2 | | 0.2 | | 0.1 | | | | | | | 0.8 |
| | Ingots, semis, special steel | 130.5 | | | | | | | | 4.1 | | | | 0.1 | | | | | 4.2 |
| | Total | 1,293.2 | 0.1 | 26.4 | 2.6 | 9.4 | 3.4 | 27.1 | 0.2 | 41.0 | 2.9 | 15.7 | 9.6 | 12.6 | 47.2 | 3.1 | 17.4 | 0.1 | 216.6 |

## Appendix Table II-3 (cont'd.)

(1,000 MT)

| Products \ Destination | | Nether-lands | Bel/Lux | France | Italy | UK | Denmark | Greece | Sweden | Austria | Switzer-land | Portugal | Spain | USSR | Romania | Other Europe | Sub-total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel | 5.0 | 4.5 | 2.1 | 0.4 | | | | | | | | | | | 0.1 | 12.1 |
| | Blooms, billets, ordinary steel | 3.9 | 116.0 | 75.3 | 71.2 | 24.4 | | | | 24.5 | 13.0 | 1.1 | 1.8 | | 1.4 | 17.0 | 351.6 |
| | Slabs, sheet bars, ordinary steel | 8.5 | 1.1 | 340.9 | 6.9 | 4.8 | | 1.6 | 6.3 | | 0.5 | | 1.5 | | | 3.6 | 375.8 |
| | Other semis, ordinary steel | | | 1.5 | | 0.2 | | | | | 0.1 | | | | | 24.5 | 25.9 |
| | Ingots, semis, special steel | 1.2 | 8.0 | 3.4.4 | 6.3 | 1.2 | | | 1.7 | 4.8 | 2.8 | | | | 6.7 | 2.6 | 94.5 |
| | Total | 18.7 | 156.6 | 454.0 | 84.8 | 30.6 | | 1.6 | 8.0 | 29.3 | 16.4 | 1.1 | 3.1 | | 8.1 | 47.6 | 859.9 |
| 1978 | Ingots, ordinary steel | | 2.3 | 1.1 | | | | | | 0.3 | 0.3 | | | | | 0.2 | 4.2 |
| | Blooms, billets, ordinary steel | 5.1 | 81.3 | 118.2 | 32.4 | 29.0 | 0.2 | 0.4 | | 54.5 | 9.2 | | 0.6 | 0.5 | 63.2 | 2.6 | 397.2 |
| | Slabs, sheet bars, ordinary steel | 5.8 | 2.6 | 362.1 | 9.1 | 9.2 | 0.2 | 0.4 | 1.9 | 25.7 | 0.5 | 1.0 | | | | 0.2 | 438.7 |
| | Other semis, ordinary steel | 0.1 | 2.8 | 1.0 | 0.3 | 0.6 | 0.1 | 0.1 | 0.1 | | 0.5 | 0.1 | 0.2 | | | 2.8 | 8.7 |
| | Ingots, semis, special steel | 1.6 | 11.2 | 5.2 | 18.6 | 0.8 | | | 1.0 | 3.6 | 4.8 | | 0.1 | | 13.1 | 1.5 | 93.5 |
| | Total | 12.6 | 100.2 | 559.6 | 60.4 | 39.6 | 0.5 | 0.9 | 3.0 | 84.1 | 15.3 | 1.1 | 0.9 | 0.5 | 76.5 | 7.3 | 922.3 |
| 1979 | Ingots, ordinary steel | | 0.2 | 0.8 | 0.6 | | | | | | 0.6 | | | | | | 2.4 |
| | Blooms, billets, ordinary steel | 42.5 | 91.1 | 217.4 | 76.5 | 58.9 | 0.4 | 15.8 | 0.2 | 20.6 | 10.7 | | 0.2 | | 50.7 | 6.1 | 549.1 |
| | Slabs, sheet bars, ordinary steel | 5.7 | 20.0 | 354.6 | 20.0 | 15.7 | 0.2 | 0.6 | 0.4 | 0.1 | 0.3 | | | | | 0.2 | 417.8 |
| | Other semis, ordinary steel | 1.5 | 0.2 | 4.1 | 0.4 | 0.1 | 0.1 | | | 0.4 | 0.4 | 0.2 | 0.1 | | | 0.3 | 7.8 |
| | Ingots, semis, special steel | 2.4 | 9.5 | 41.1 | 30.4 | 2.9 | 0.1 | | 2.3 | 5.6 | 4.8 | | 0.5 | | 10.0 | 5.5 | 154.1 |
| | Total | 52.1 | 51.0 | 617.0 | 148.1 | 77.6 | 0.8 | 14.4 | 2.9 | 26.7 | 16.6 | 0.2 | 0.8 | | 60.7 | 12.1 | 1,111.2 |
| 1980 | Ingots, ordinary steel | | 1.7 | 4.5 | 2.0 | 1.2 | | | | | | | 0.1 | | | 0.1 | 9.6 |
| | Blooms, billets, ordinary steel | 39.1 | 51.7 | 161.4 | 100.1 | 94.5 | 22.1 | | 3.6 | 63.5 | 53.0 | 1.8 | 0.8 | 1.5 | 0.8 | 17.9 | 561.8 |
| | Slabs, sheet bars, ordinary steel | 6.8 | 3.4 | 271.1 | 14.3 | 24.5 | 5.8 | 0.2 | 0.7 | 0.8 | 0.5 | 1.3 | | | | 0.2 | 329.4 |
| | Other semis, ordinary steel | 0.2 | 11.3 | 4.2 | 1.0 | 0.4 | 0.1 | 0.2 | 0.4 | 2.3 | 0.4 | | | | 0.1 | 0.1 | 20.7 |
| | Ingots, semis, special steel | 5.3 | 13.2 | 50.4 | 54.7 | 15.8 | | | 8.3 | 7.8 | 6.0 | 0.2 | | | 8.8 | 2.1 | 172.6 |
| | Total | 51.4 | 81.3 | 491.6 | 172.1 | 136.2 | 28.0 | 0.4 | 13.0 | 44.4 | 59.9 | 3.3 | 0.9 | 1.5 | 9.7 | 20.4 | 1,114.1 |
| 1981 | Ingots, ordinary steel | | | 2.0 | 4.2 | 0.5 | | | | | 0.2 | | | | | | 6.7 |
| | Blooms, billets, ordinary steel | 13.5 | 71.6 | 82.7 | 64.8 | 94.9 | 9.8 | 18.7 | 3.9 | 20.3 | 28.9 | 22.6 | 5.5 | 9.5 | | 10.6 | 462.1 |
| | Slabs, sheet bars, ordinary steel | 6.9 | 28.9 | 153.8 | 6.1 | 13.0 | 0.9 | 0.4 | | 0.6 | 0.9 | | 56.0 | | | 0.5 | 268.0 |
| | Other semis, *ordinary steel* | | 0.4 | 2.7 | 0.9 | 0.5 | | 0.1 | 0.2 | 0.2 | 1.1 | | 0.1 | | 0.1 | 5.5 | 11.6 |
| | Ingots, semis, special steel | 2.1 | 12.3 | 51.4 | 26.4 | 19.0 | | | 6.2 | 9.3 | 4.3 | 0.1 | | 1.2 | 4.2 | 0.5 | 117.0 |
| | Total | 22.5 | 113.2 | 277.6 | 102.4 | 127.5 | 10.7 | 19.2 | 10.3 | 30.4 | 35.4 | 22.7 | 61.6 | 10.7 | 4.3 | 17.1 | 865.4 |

## Appendix Table II-3 (cont'd.)

(1,000 MT)

| Products \ Destination | | Canada | USA | Mexico | Brazil | Venezuela | Ecuador | Other Latin America | Total | Algeria | Tunisia | Other Africa | Sub-total | Oceania | Unknown |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel | | | | | | | | | | | | | | |
| | Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel | 0.3 | | | | 10.3 | | | 10.6 | 10.2 | 45.0 | 2.8 | 58.0 | | |
| | Other semis, ordinary steel | | 0.1 | | | | | | 0.1 | | | 0.6 | 0.6 | | |
| | Ingots, semis, special steel | | 1.4 | | | | | | 1.4 | 0.3 | | | 0.3 | | |
| | Total | 0.3 | 1.5 | | | 10.3 | | | 12.1 | 10.5 | 45.0 | 3.4 | 58.9 | - | 1.3 |
| 1978 | Ingots, ordinary steel | | | | | | | | | | | | | | |
| | Blooms, billets, ordinary steel | 0.8 | | 1.0 | | 11.2 | 12.8 | 0.3 | 26.1 | 44.2 | 5.0 | 0.5 | 49.7 | | |
| | Slabs, sheet bars, ordinary steel | | | 1.2 | | | | | 1.2 | | | | | | |
| | Other semis, ordinary steel | | 0.2 | | | | | 1.9 | 2.1 | 0.5 | | 6.7 | 9.2 | | |
| | Ingots, semis, special steel | | 0.6 | 3.8 | | | | | 4.4 | | | | | 0.2 | |
| | Total | 0.8 | 3.8 | 6.0 | | 11.2 | 12.8 | 2.2 | 33.8 | 44.7 | 5.0 | 9.2 | 58.9 | 0.2 | - |
| 1979 | Ingots, ordinary steel | | | | | 0.7 | | | 0.7 | | | | | | |
| | Blooms, billets, ordinary steel | | 1.0 | 4.1 | 0.2 | 9.4 | 7.2 | 0.8 | 22.7 | 50.4 | 5.2 | 1.5 | 57.1 | | |
| | Slabs, sheet bars, ordinary steel | | | | | | | | | | | | | | |
| | Other semis, ordinary steel | | 0.4 | | | | | | 0.4 | | 0.1 | 19.1 | 19.2 | | |
| | Ingots, semis, special steel | | 2.2 | 2.9 | | | | | 5.1 | 0.2 | | | 0.2 | 0.2 | |
| | Total | - | 3.6 | 7.0 | 0.2 | 10.1 | 7.2 | 0.8 | 28.9 | 50.6 | 5.3 | 20.6 | 76.5 | 0.2 | - |
| 1980 | Ingots, ordinary steel | | | | | | | | | | | | | | |
| | Blooms, billets, ordinary steel | | 0.2 | 12.4 | | 0.8 | | | 13.4 | 81.9 | | 0.4 | 82.3 | | |
| | Slabs, sheet bars, ordinary steel | | 1.2 | | | 28.1 | | 9.9 | 39.2 | | | | | | |
| | Other semis, ordinary steel | | | 0.1 | | | | 0.1 | 0.2 | | | 17.2 | 17.2 | | |
| | Ingots, semis, special steel | | 0.5 | 0.1 | | | | 0.1 | 0.7 | 0.6 | | | 0.6 | 0.4 | |
| | Total | - | 1.9 | 12.6 | - | 28.9 | - | 10.1 | 53.5 | 82.5 | - | 17.6 | 100.1 | 0.4 | |
| 1981 | Ingots, ordinary steel | | | | | | | | | | | | | | |
| | Blooms, billets, ordinary steel | 0.2 | 3.3 | 51.1 | | 6.1 | 8.5 | 3.2 | 52.4 | 68.2 | 10.0 | 7.4 | 85.6 | | |
| | Slabs, sheet bars, ordinary steel | | 23.4 | 30.7 | | | | | 54.1 | | | | | | |
| | Other semis, ordinary steel | | 0.1 | 0.1 | | | | | 0.2 | | | 3.0 | 3.0 | | |
| | Ingots, semis, special steel | | 4.8 | 4.4 | | 0.1 | | | 9.2 | 1.7 | | 0.4 | 2.1 | 0.6 | |
| | Total | 0.2 | 31.6 | 86.2 | - | 6.2 | 8.5 | 3.2 | 115.9 | 69.9 | 10.0 | 10.8 | 90.7 | 0.6 | |

## Appendix Table II-4 Export of Ingots & Semis from the Netherlands by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel<br>Ingots, semis,<br>special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 1527 | 1.0 | — | — | 927 | — | — | 7.6 | 556 | 115 | 108 | 4.0 | 1.6 | 0.1 | 0.1 | 538 | — | — | — |
| 1973 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel<br>Ingots, semis,<br>special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 1487 | — | — | — | 1484 | — | — | 4.6 | 671 | 191 | 106 | 1.8 | 2.5 | 0.1 | 0.1 | — | — | 0.1 | — |
| 1974 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel<br>Ingots, semis,<br>special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 4844 | — | — | — | 4838 | — | — | 8.9 | 4282 | 190 | 44 | 2.0 | 3.5 | 0.2 | 0.2 | 0.4 | 0.2 | — | — |
| 1975 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel<br>Ingots, semis,<br>special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 6275 | 0.5 | — | — | 5770 | — | — | 12.9 | 4252 | 10.0 | 47.4 | 0.5 | 1.1 | — | — | 50.0 | — | — | — |
| 1976 | Ingots, ordinary steel<br>Blooms, billets,<br>ordinary steel<br>Slabs, sheet bars,<br>ordinary steel<br>Other semis,<br>ordinary steel<br>Ingots, semis,<br>special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 6615 | 0.2 | — | — | 6605 | — | — | 11.1 | 3664 | 8.2 | 252.7 | 0.1 | 1.2 | — | — | — | — | 0.6 | — |

## Appendix Table II-4 (cont'd.)

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Netherlands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 500.1 | 0.5 | – | – | 463.6 | – | 15.8 | 2.8 | 399.4 | 11.0 | 28.5 | 0.5 | 2.5 | 36.1 | 36.1 | – | – | – | – |
| 1978 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 589.8 | 45.6 | – | 56.1 | 411.5 | – | 106.5 | 14.8 | 275.2 | 12.7 | 1.6 | 0.1 | 0.2 | 45.6 | 45.6 | – | – | 31.0 | · |
| 1979 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 737.9 | 45.8 | – | – | 576.0 | – | 192.1 | 10.1 | 247.2 | 15.5 | 9.8 | 0.1 | · | – | – | 32.5 | – | 73.7 | – |
| 1980 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 880.1 | 42.7 | – | 10.0 | 620.6 | – | 208.8 | 10.2 | 254.8 | 17.6 | 90.0 | 2.0 | – | – | – | 133.5 | – | 73.5 | – |
| 1981 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 986.6 | 39.4 | – | 0.4 | 724.9 | – | 79.9 | 21.4 | 427.7 | 10.7 | 185.7 | 5.3 | – | 0.3 | 0.3 | 138.8 | 100.0 | 63.9 | – |

# Appendix Table II-5 Export of Ingots & Semis from UK by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 240.3 | 27.4 | 0.6 | 58.1 | 66.1 | 2.1 | 1.9 | 8.4 | 7.0 | 54.1 | – | 2.1 | 1.1 | 126.8 | 122.7 | 4.2 | 4.1 | 3.9 | 1.2 |
| 1973 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 194.6 | 6.0 | 0.1 | 0.8 | 93.6 | 2.0 | 4.0 | 12.6 | 19.6 | 41.6 | – | 2.6 | 1.0 | 84.9 | 81.3 | 0.3 | - | 5.4 | 0.5 |
| 1974 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 224.8 | 4.9 | – | 6.7 | 124.3 | 2.8 | 14.1 | 13.3 | 26.2 | 58.2 | – | 4.2 | 2.4 | 66.9 | 62.6 | 1.4 | 0.1 | 20.5 | 0.1 |
| 1975 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 256.9 | 4.6 | – | 4.6 | 146.1 | 1.9 | 1.0 | 23.6 | 51.0 | 36.0 | – | 3.8 | 1.9 | 80.7 | 78.0 | 1.7 | - | 19.1 | 0.1 |
| 1976 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 259.3 | 2.1 | – | 1.5 | 202.6 | 1.7 | 6.7 | 25.6 | 47.5 | 81.0 | – | 4.5 | 1.2 | 39.1 | 37.9 | 0.1 | – | 13.6 | 0.4 |

## Appendix Table II-5 (cont'd.)

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Netherlands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 416.5 | 7.0 | – | 0.7 | 328.5 | 6.4 | 25.9 | 26.5 | 51.2 | 81.5 | – | 5.4 | 0.8 | 73.9 | 71.5 | 5.1 | – | 6.0 | · |
| 1978 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 552.1 | 17.7 | – | 2.7 | 194.5 | 1.6 | 16.1 | 33.1 | 49.1 | 71.7 | – | 5.8 | 1.5 | 113.7 | 108.5 | 0.7 | – | 2.6 | 0.5 |
| 1979 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 521.5 | 57.5 | – | 1.0 | 209.5 | 1.1 | 6.2 | 42.1 | 41.0 | 76.4 | – | 8.1 | 0.4 | 68.0 | 60.3 | 2.2 | – | 3.5 | 0.2 |
| 1980 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 186.4 | 13.4 | · | 10.4 | 141.7 | 0.2 | 2.2 | 12.6 | 25.3 | 75.1 | – | 3.8 | 0.1 | 16.3 | 13.8 | 0.6 | – | 1.9 | 0.1 |
| 1981 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | – | | | | | | | | |

## Appendix Table II-6 Export of Ingots & Semis from Italy by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | 178.5 | | | | 178.5 | | 66.2 | | 105.4 | | | | 1.9 | | | | | | |
| | Total | 218.0 | · | – | · | 209.2 | · | 66.3 | 2.7 | 115.4 | – | · | · | 2.1 | 4.8 | 4.8 | 1.0 | – | 2.7 | – |
| 1973 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 149.4 | 0.5 | – | 0.1 | 146.2 | · | 81.5 | 25.9 | 15.5 | – | 0.4 | · | 0.4 | · | · | 1.7 | · | 3.8 | – |
| 1974 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 199.6 | 1.2 | – | 6.9 | 159.5 | · | 58.3 | 14.8 | 7.1 | – | 0.2 | · | 5.4 | · | – | 0.2 | · | 23.9 | – |
| 1975 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 558.0 | 2.2 | – | 14.3 | 145.0 | · | 9.8 | 8.5 | 8.5 | – | 0.1 | – | 3.0 | 13.3 | 0.1 | 17.6 | 11.3 | 9.6 | – |
| 1976 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 123.3 | – | – | 4.0 | 62.8 | · | 10.0 | 10.2 | 10.5 | – | 0.1 | 0.2 | 5.2 | · | · | 39.8 | · | 16.7 | – |

## Appendix Table II-6 (cont'd.)

(2,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Netherlands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 660 | · | — | 6.6 | 540 | · | · | 158 | 68 | — | 0.1 | · | 5.1 | 0.1 | · | 7.4 | 0.1 | 12.0 | — |
| 1978 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 154.9 | 11.5 | — | 4.3.0 | 194.5 | 0.1 | · | 37.4 | 9.8 | — | 0.5 | · | 3.5 | 0.3 | 0.3 | 30.0 | — | 1.0.7 | · |
| 1979 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 152.2 | 0.8 | — | 66.6 | 65.1 | · | · | 40.9 | 11.7 | — | 2.3 | · | · | 5.8 | 5.1 | 0.6 | — | 15.2 | — |
| 1980 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 188.4 | 0.2 | — | 98.0 | 79.8 | 0.6 | · | 50.9 | 12.5 | — | 2.9 | 0.4 | 0.9 | 0.5 | 0.5 | 8.1 | · | 2.0 | — |
| 1981 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 248.7 | 11.5 | — | 104.0 | 68.5 | 0.3 | 0.1 | 44.0 | 11.5 | — | 2.9 | 0.5 | 0.4 | 17.7 | 17.7 | 21.5 | · | 5.4 | — |

## Appendix Table II-7 Export of Ingots & Semis from Belgium/Luxemburg by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | | | | | | | | | North America | | Latin America | | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | | USA | | Brazil | | |
| 1972 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 8178 | 160 | — | 78 | 7879 | 2286 | — | 1347 | 1721 | 705 | 118 | · | 47 | 04 | 03 | 42 | — | 18 | 26 |
| 1973 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 11184 | 94 | — | 58.7 | 10446 | 3050 | — | 2197 | 3641 | 121 | 29 | 20 | 15 | 02 | 01 | 262 | 192 | 52 | · |
| 1974 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 12596 | 155 | — | 39.5 | 11650 | 4156 | — | 2457 | 5605 | 360 | 462 | 06 | 38 | 15 | 12 | 239 | 55 | 98 | 47 |
| 1975 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 14068 | 44 | — | 96.7 | 9514 | 1174 | — | 1712 | 2899 | 187 | 749 | · | 55 | 267 | 84 | 5252 | — | 223 | · |
| 1976 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 10717 | 58 | — | 65.8 | 8755 | 2256 | — | 2571 | 5109 | 212 | 267 | · | 125 | 19 | 18 | 1164 | — | 134 | — |

## Appendix Table II-7 (cont'd.)

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 644.5 | 5.4 | – | 17.5 | 529.1 | 5.1 | – | 176.7 | 295.1 | 7.5 | 54.2 | 0.1 | · | 0.2 | 0.2 | 21.4 | – | 69.7 | – |
| 1978 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 642.8 | 4.9 | – | · | 605.4 | 1.8 | – | 227.4 | 307.9 | 19.7 | 37.9 | 0.6 | – | 2.1 | 2.1 | 1.8 | – | 29.4 | – |
| 1979 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 850.5 | 3.5 | – | · | 774.4 | 1.8 | – | 258.5 | 355.0 | 103.6 | 28.1 | 2.0 | 0.8 | 0.8 | 0.8 | – | – | 72.7 | – |
| 1980 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 709.5 | 1.8 | – | · | 598.4 | 2.0 | – | 273.5 | 179.5 | 104.6 | 28.2 | 0.4 | – | 0.2 | 0.1 | 0.7 | – | 91.3 | · |
| 1981 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 595.1 | 1.8 | – | · | 422.7 | 3.5 | – | 175.6 | 134.5 | 64.1 | 13.5 | 0.6 | – | 1.9 | 1.9 | 12.5 | 7.7 | 6.1 | – |

## Appendix Table II-8 Export of Ingots & Semis from Sweden by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Nether-lands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 89.6 | 0.6 | — | — | 86.3 | 17.7 | 1.0 | 1.9 | 21.7 | — | 1.22 | — | · | 2.5 | 2.5 | 0.3 | 0.3 | — | — |
| 1973 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 104.5 | 0.2 | 0.1 | — | 101.3 | 2.9 | 1.4 | 2.0 | 42.7 | · | 15.4 | — | — | 3.0 | 2.0 | 0.8 | 0.8 | — | — |
| 1974 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 201.5 | 0.2 | — | — | 185.9 | 5.0 | 5.0 | 2.2 | 83.5 | — | 6.8 | — | — | 1.5 | 1.5 | 0.6 | 0.6 | 13.1 | · |
| 1975 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 127.6 | 2.9 | — | — | 123.1 | 0.5 | — | 3.5 | 70.2 | 0.1 | 4.3 | — | — | 0.9 | 0.9 | 0.7 | 0.7 | · | — |
| 1976 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 185.9 | · | — | — | 152.6 | · | 0.2 | 4.0 | 66.0 | 0.1 | 33.1 | — | — | 32.4 | 32.3 | 0.9 | 0.8 | — | — |

## Appendix Table II-8 (cont'd.)

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Netherlands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 272.5 | 2.7 | — | 12.6 | 175.2 | 0.7 | 13.6 | 9.4 | 68.1 | 2.9 | 60.1 | — | — | 44.4 | 44.4 | · | · | 37.7 | — |
| 1978 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 16.1 | — | — | — | 16.1 | — | — | — | 2.7 | — | 13.4 | — | — | — | — | — | — | — | — |
| 1979 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 520.4 | 121.9 | 102.6 | 48.3 | 256.5 | 1.8 | 9.7 | 7.8 | 103.7 | 10.4 | 65.8 | — | — | 77.8 | 77.7 | 0.1 | 0.1 | 15.6 | — |
| 1980 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 408.4 | 126.6 | 86.3 | — | 240.5 | 0.5 | 2.8 | 7.0 | 93.6 | 34.5 | 31.9 | — | — | 12.7 | 12.7 | 0.1 | 0.1 | 28.2 | — |
| 1981 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 258.8 | · | — | — | 214.1 | 0.2 | 7.6 | 5.2 | 89.3 | · | 57.0 | — | — | 30.5 | 30.5 | 0.2 | 0.2 | 11.9 | — |

## Appendix Table II-9 Export of Ingots & Semis from Austria by Destination

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Netherlands | Bel/Lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 4.6 | - | - | - | 1.9 | - | - | 0.1 | 2.1 | 0.3 | - | - | - | 0.1 | - | 0.4 | 0.3 | - | 0.1 |
| 1973 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 11.5 | 1.2 | - | - | 9.6 | - | - | - | 2.2 | 0.6 | - | - | - | - | - | 0.5 | 0.5 | 0.1 | - |
| 1974 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 87.1 | 0.1 | - | - | 86.5 | - | - | 0.1 | 6.6 | 1.9.2 | 0.2 | 0.2 | - | - | - | 0.1 | 0.1 | - | 0.2 |
| 1975 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 161.9 | 0.1 | - | - | 161.2 | - | - | - | 0.7 | 8.5 | 0.1 | 0.1 | - | 0.4 | - | 0.1 | - | - | 0.1 |
| 1976 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 54.0 | - | - | - | 54.7 | 0.1 | - | - | 2.7 | 2.5 | - | 0.1 | - | 0.1 | - | - | - | 0.1 | 0.1 |

## Appendix Table II-9 (cont'd.)

(1,000 MT)

| Products \ Destination | | Total | S.E. Asia | Japan | Middle East | Europe | Nether-lands | Bel/lux | France | Germany, FR | Italy | UK | Sweden | Austria | North America | USA | Latin America | Brazil | Africa | Oceania |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 4.5 | – | – | – | 4.0 | – | – | 0.3 | 1.6 | 0.3 | 0.2 | 0.3 | – | 0.2 | 0.2 | · | · | · | – |
| 1978 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 5.2 | – | – | – | 4.9 | 0.3 | – | 0.4 | 1.3 | 0.1 | 0.1 | 1.0 | – | 0.1 | 0.1 | · | · | 0.1 | – |
| 1979 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 7.0 | – | – | – | 6.4 | · | – | 0.3 | 3.3 | 2.0 | 0.1 | 0.4 | – | 0.4 | 0.4 | – | – | 0.1 | · |
| 1980 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 8.3 | · | – | · | 7.9 | – | – | 0.2 | 1.8 | 0.5 | 0.1 | 0.2 | – | · | · | – | – | 0.1 | 0.2 |
| 1981 | Ingots, ordinary steel<br>Blooms, billets, ordinary steel<br>Slabs, sheet bars, ordinary steel<br>Other semis, ordinary steel<br>Ingots, semis, special steel | | | | | | | | | | | | | | | | | | | |
| | Total | 11.2 | – | – | 0.1 | 11.0 | – | · | – | 2.1 | 0.6 | – | · | – | · | · | – | – | 0.1 | · |

# Appendix Table II-10 Export of Ingots & Semis from Japan by Destination

(1,000 MT)

| Products \ Destination | | Total | Korea, Rep. of | Taiwan | Singapore | Hongkong | Malaya | Philippines | Indonesia | India | Thailand | China | Burma | Iraq | Other Asia | Total Asia |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel | 16,527 | 549 | 989 | | 1,757 | | 3,457 | | | | | | | 8,997 | 16,049 |
| | Blooms, billets, ordinary steel | 105,494 | 4,666 | 5,495 | 14 | | | 12,299 | | 1,125 | 96 | 98 | | | 11,547 | 55,160 |
| | Slabs, sheet bars, ordinary steel | 193,240 | 21,267 | | | | | | | | | | | | | 21,267 |
| | Other semis, ordinary steel | - | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | 6,250 | 5,431 | | | | | | 2 | 2 | | 53 | | | | 5,486 |
| | Total | 284,511 | 32,243 | 4,484 | 14 | 1,757 | | 15,756 | 2 | 1,127 | 96 | 151 | | | 20,544 | 75,964 |
| 1973 | Ingots, ordinary steel | 882 | 731 | 1 | | | | | | | | | | | | 732 |
| | Blooms, billets, ordinary steel | 144,776 | 18,589 | 285 | | | 157 | 3,165 | | 5,025 | | | | | 8,296 | 35,517 |
| | Slabs, sheet bars, ordinary steel | 624,275 | 318,533 | | | | | | 5 | | | | | | | 318,538 |
| | Other semis, ordinary steel | - | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | 9,170 | 8,170 | 967 | | 35 | | | | | | | | | | 9,122 |
| | Total | 779,103 | 346,776 | 1,253 | | 35 | 157 | 3,165 | 5 | 5,025 | | | | | 8,296 | 356,709 |
| 1974 | Ingots, ordinary steel | 5,415 | 4,300 | 59 | | | | | 502 | | 13 | | | 10 | | 4,861 |
| | Blooms, billets, ordinary steel | 137,757 | 16,219 | 2,652 | 2,999 | | | 5,772 | 23,979 | | 1,788 | | 5,998 | | 31,246 | 88,635 |
| | Slabs, sheet bars, ordinary steel | 473,484 | 118,032 | 101 | | | | | | | 96 | | | | | 118,229 |
| | Other semis, ordinary steel | - | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | 12,263 | 9,284 | 1,074 | | | | | | | | | | | | 10,358 |
| | Total | 628,917 | 147,835 | 3,846 | 2,999 | | | 5,772 | 24,481 | | 1,894 | | 5,998 | 10 | 31,246 | 222,083 |
| 1975 | Ingots, ordinary steel | 2,911 | 2,150 | 97 | | | | | | | | | 220 | 165 | | 2,630 |
| | Blooms, billets, ordinary steel | 498,989 | 38,885 | 27,653 | 47,497 | 7,866 | 7,775 | 9,218 | 36,852 | 11 | 9,029 | | 4,748 | | 115,831 | 306,545 |
| | Slabs, sheet bars, ordinary steel | 1,372,979 | 98,594 | | | 101 | | 509 | | 10 | 5,399 | | | | 35,168 | 137,581 |
| | Other semis, ordinary steel | - | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | 15,067 | 9,631 | 1,742 | | | | | | 166 | | | | 111 | | 11,650 |
| | Total | 1,889,946 | 149,260 | 29,672 | 47,497 | 7,967 | 7,775 | 9,727 | 36,852 | 187 | 12,428 | | 4,968 | 274 | 153,999 | 460,406 |
| 1976 | Ingots, ordinary steel | 16,849 | 1,286 | 215 | | | | | 15,005 | | | | | | | 16,504 |
| | Blooms, billets, ordinary steel | 286,279 | 75,940 | 29,670 | 11,807 | 8,957 | | 4,906 | 28,754 | 66 | 6,984 | 2,032 | 179 | | 19,960 | 189,255 |
| | Slabs, sheet bars, ordinary steel | 742,362 | 1,432 | 3,547 | 10 | | | 37 | | | 196 | | | | 14 | 5,236 |
| | Other semis, ordinary steel | 128 | | 6 | | | | | | | | | | | 120 | 126 |
| | Ingots, semis, special steel | 14,459 | 11,072 | 717 | 11 | | | | 1 | 6 | 4 | | 6 | | 7 | 11,824 |
| | Total | 1,060,057 | 89,730 | 34,155 | 11,828 | 8,957 | | 4,945 | 43,758 | 72 | 7,184 | 2,032 | 185 | | 20,101 | 222,925 |

## Appendix Table II-10 (cont'd.)

(1,000 MT)

| Products \ Destination | | France | Germany, FR | UK | Sweden | Other Europe | Total Europe | Canada | USA | Brazil | Argentina | Other Latin America | Total America | Total Africa | Oceania | Others |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | Ingots, ordinary steel | 5 | | 33 | | | 37 | | 231 | | | | 231 | | 8 | |
| | Blooms, billets, ordinary steel | | | | 14 | 24 | 38 | | | | 70,572 | | 70,572 | 96 | 4628 | |
| | Slabs, sheet bars, ordinary steel | | 166 | 1,030 | | | 1,196 | | | | 130,777 | | 130,777 | | | |
| | Other semis, ordinary steel | | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | | 68 | 556 | 4 | 91 | 699 | 2 | 61 | | | | 63 | | | |
| | Total | 5 | 234 | 1,607 | 18 | 115 | 1,972 | 2 | 292 | | 201,349 | | 201,643 | 96 | 4636 | |
| 1973 | Ingots, ordinary steel | 2 | | 16 | | | 18 | | 124 | | | | 124 | | 8 | |
| | Blooms, billets, ordinary steel | | | | | | | | | | 109,459 | | 109,459 | | | |
| | Slabs, sheet bars, ordinary steel | | 518 | | | | 518 | | 254 | | 309,965 | | 310,219 | | | |
| | Other semis, ordinary steel | | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | | 4 | | | | 4 | | 34 | | | 10 | 44 | | | |
| | Total | 2 | 522 | 16 | | | 540 | | 412 | | 419,424 | 10 | 419,846 | | 8 | |
| 1974 | Ingots, ordinary steel | 1 | 88 | 7 | | 62 | 150 | | 385 | | | | 385 | | 17 | |
| | Blooms, billets, ordinary steel | | | | | 10,931 | 10,931 | | | 13,419 | 15,023 | 490 | 30,932 | 7,259 | | |
| | Slabs, sheet bars, ordinary steel | | | | | | | | | 54,090 | 198,579 | 25,407 | 278,076 | 77,179 | | |
| | Other semis, ordinary steel | | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | 37 | 270 | 19 | | 1,050 | 1,376 | | 529 | | | | 529 | | | |
| | Total | 38 | 350 | 26 | | 12,043 | 12,457 | | 914 | 69,509 | 213,602 | 25,897 | 309,922 | 84,438 | 17 | |
| 1975 | Ingots, ordinary steel | 2 | | 54 | | 26 | 84 | | 217 | | | | 217 | | | |
| | Blooms, billets, ordinary steel | | | 185 | | 2,890 | 3,075 | | 8,496 | 27,581 | 65,453 | 11,839 | 113,366 | 74,003 | | |
| | Slabs, sheet bars, ordinary steel | | | | | 716,667 | 716,667 | | 2,969 | 81,259 | 288,840 | 103,791 | 473,859 | 44,902 | | |
| | Other semis, ordinary steel | | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | | 24 | 17 | | 946 | 987 | 466 | 1,916 | | | 26 | 2,410 | | 20 | |
| | Total | 2 | 24 | 256 | | 720,501 | 720,763 | 468 | 13,598 | 108,840 | 351,293 | 115,656 | 589,852 | 118,905 | 20 | |
| 1976 | Ingots, ordinary steel | 1 | | 170 | | 47 | 216 | | 127 | | | | 127 | | | |
| | Blooms, billets, ordinary steel | | | | | 25,157 | 25,157 | | 9,045 | | | 47,497 | 56,540 | 15,347 | | |
| | Slabs, sheet bars, ordinary steel | | | | | 584,383 | 584,383 | | 426 | 3,653 | 48,037 | 100,609 | 152,725 | 18 | | |
| | Other semis, ordinary steel | | | | | | | | 2 | | | | 2 | | | |
| | Ingots, semis, special steel | | 124 | | | 1,451 | 1,555 | 68 | 617 | | | 575 | 1,060 | | | |
| | Total | 1 | 124 | 170 | | 611,018 | 611,313 | 68 | 10,215 | 3,653 | 48,037 | 148,681 | 210,454 | 15,365 | | |

## Appendix Table II-10 (cont'd.)

(1,000 MT)

| Products \ Destination | | Total | Korea, Rep. of | Taiwan | Singapore | Hongkong | Malaya | Philippines | Indonesia | India | Thailand | China | Burma | Iraq | Other Asia | Total Asia |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel | 11,867 | 7,989 | 11 | 3 | | | | 3,047 | 54 | | | | | | 11,084 |
| | Blooms, billets, ordinary steel | 118,534 | 41,546 | 3,852 | | | | 24,755 | 34,757 | | 773 | 11 | | | 66 | 105,760 |
| | Slabs, sheet bars, ordinary steel | 281,963 | 128,993 | 2,086 | 14 | | | | 47 | 54 | 270 | 901 | | | | 132,345 |
| | Other semis, ordinary steel | 14 | 14 | | | | | | | | | | | | | 14 |
| | Ingots, semis, special steel | 15,483 | 11,401 | 938 | | 1 | 3 | | | | 9 | 108 | | | | 12,460 |
| | Total | 427,861 | 189,943 | 6,887 | 17 | 1 | 3 | 24,755 | 37,851 | 68 | 1,052 | 1,020 | | | 66 | 261,665 |
| 1978 | Ingots, ordinary steel | 3,618 | 3,532 | 9 | | | | | | 7 | | | | | | 3,548 |
| | Blooms, billets, ordinary steel | 14,885 | 905 | 556 | | | 8,101 | 974 | 817 | | 15 | 102 | | | | 11,470 |
| | Slabs, sheet bars, ordinary steel | 88,418 | 6,104 | 972 | | 105 | | | 2 | | 56 | 75,327 | | | | 82,566 |
| | Other semis, ordinary steel | 147 | 94 | | | | | | | | 6 | | | | | 100 |
| | Ingots, semis, special steel | 5,188 | 1,975 | 724 | | | | | | 593 | 8 | 62 | | | | 3,362 |
| | Total | 102,256 | 12,610 | 2,261 | | 105 | 8,101 | 974 | 819 | 600 | 85 | 75,491 | | | | 101,046 |
| 1979 | Ingots, ordinary steel | 1,761 | 1,738 | | | | | | | | | | | | | 1,738 |
| | Blooms, billets, ordinary steel | 101,446 | 30,928 | 599 | 2 | 113 | 4,562 | 4,062 | 335 | | | | | | 35,297 | 75,698 |
| | Slabs, sheet bars, ordinary steel | 9,499 | 2,824 | 250 | | 53 | 48 | 18 | | | 165 | 4,375 | | | | 7,733 |
| | Other semis, ordinary steel | 70 | 4 | 21 | 8 | | | | | 37 | | | | | | 70 |
| | Ingots, semis, special steel | 10,519 | 2,714 | 544 | 3 | 1 | | | 13 | 1,111 | 14 | 4,486 | | | | 8,886 |
| | Total | 123,295 | 38,208 | 1,214 | 13 | 167 | 4,610 | 4,080 | 348 | 1,148 | 179 | 8,861 | | | 35,297 | 94,125 |
| 1980 | Ingots, ordinary steel | 6,089 | 5,447 | 2,593 | | | | | | | | | | | | 6,040 |
| | Blooms, billets, ordinary steel | 139,460 | 22,692 | 18,709 | | 169 | 20,401 | 23,984 | 12,223 | | 3 | 292 | | | 13,828 | 112,301 |
| | Slabs, sheet bars, ordinary steel | 38,621 | 639 | 750 | | 166 | 45 | 5 | | | 165 | 543 | | | 797 | 3,110 |
| | Other semis, ordinary steel | 95 | 70 | | 25 | | | | | | | | | | | 95 |
| | Ingots, semis, special steel | 4,648 | 1,544 | 647 | 1 | 10 | | 2 | | 1,307 | 8 | 398 | 23 | | 9 | 3,949 |
| | Total | 188,933 | 28,392 | 22,699 | 26 | 345 | 20,446 | 23,991 | 12,223 | 1,307 | 176 | 1,233 | 23 | | 14,634 | 125,495 |
| 1981 | Ingots, ordinary steel | 8,034 | 7,910 | 109 | | | | | | | | | | 2 | | 8,021 |
| | Blooms, billets, ordinary steel | 83,850 | 12,425 | 2,037 | 4,942 | 111 | 34,870 | 22,246 | 4,192 | 45 | 17 | | 98 | | 664 | 81,647 |
| | Slabs, sheet bars, ordinary steel | 13,927 | 7,329 | 1,169 | | 114 | 4,560 | | | 2 | | | | | 162 | 15,356 |
| | Other semis, ordinary steel | 78 | | 4 | 10 | | | | | | | | | | | 14 |
| | Ingots, semis, special steel | 12,104 | 2,669 | 1,804 | 4,512 | 32 | | 2 | 32 | 1,841 | 7 | | | | | 10,899 |
| | Total | 117,993 | 30,533 | 5,123 | 9,464 | 257 | 39,430 | 22,248 | 4,224 | 1,888 | 24 | | 98 | 2 | 826 | 115,937 |

## Appendix Table II-10 (cont'd.)

(1,000 MT)

| Products \ Destination | | France | Germany, FR | UK | Sweden | Other Europe | Total Europe | Canada | USA | Brazil | Argentina | Other Latin America | Total America | Total Africa | Oceania | Others |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | Ingots, ordinary steel | 4 | | 51 | | | 55 | | 723 | | | | 723 | | 5 | |
| | Blooms, billets, ordinary steel | | | | | 69 | 69 | | 168 | | | 2,093 | 2261 | 10,403 | 41 | |
| | Slabs, sheet bars, ordinary steel | | | | | | | | | | | 149,618 | 149,618 | | | |
| | Other semis, ordinary steel | | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | | 17 | 16 | | 880 | 913 | | 1,899 | | | 182 | 2,081 | 21 | 6 | |
| | Total | 4 | 19 | 67 | | 949 | 1,039 | | 2,790 | | | 151,893 | 154,683 | 10,424 | 52 | |
| 1978 | Ingots, ordinary steel | 1 | | | | | 1 | | 69 | | | | 69 | | | |
| | Blooms, billets, ordinary steel | | | | | 9 | 9 | | 155 | | | 178 | 331 | 5,075 | | |
| | Slabs, sheet bars, ordinary steel | | | | | 552 | 552 | | | | | | | | 300 | |
| | Other semis, ordinary steel | | | | | | | | 55 | | | 14 | 47 | | | |
| | Ingots, semis, special steel | | 58 | 26 | | 328 | 412 | | 1,348 | 61 | | | 1,409 | | 5 | |
| | Total | 1 | 58 | 26 | | 889 | 974 | | 1,605 | 61 | | 192 | 1,856 | 5,075 | 305 | |
| 1979 | Ingots, ordinary steel | 1 | | | | | 1 | | 17 | | | | 17 | | 5 | |
| | Blooms, billets, ordinary steel | | 1 | 5 | | 993 | 999 | | 34 | | | | 34 | 24,715 | | |
| | Slabs, sheet bars, ordinary steel | | 328 | | | | 328 | | 837 | | | | 837 | | 601 | |
| | Other semis, ordinary steel | | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | 10 | 19 | 75 | | 25 | 129 | | 1,503 | | | 1 | 1,504 | | | |
| | Total | 11 | 348 | 80 | | 1,018 | 1,457 | | 2,391 | | | 1 | 2,392 | 24,715 | 606 | |
| 1980 | Ingots, ordinary steel | 2 | | 23 | | | 25 | | 21 | | | | 21 | | 3 | |
| | Blooms, billets, ordinary steel | | 9 | 86 | | 584 | 679 | | 60 | | | 965 | 1,025 | 25,459 | | |
| | Slabs, sheet bars, ordinary steel | | | | | | | | | | | | | | 35,511 | |
| | Other semis, ordinary steel | | | | | | | | | | | | | | | |
| | Ingots, semis, special steel | | 15 | 15 | | 67 | 97 | | 584 | | | 1 | 585 | | 37 | |
| | Total | 2 | 26 | 124 | | 651 | 797 | | 665 | | | 966 | 1,631 | 25,459 | 35,551 | |
| 1981 | Ingots, ordinary steel | 3 | | | | | 4 | | 3 | | | | 3 | | 6 | |
| | Blooms, billets, ordinary steel | | 17 | 134 | | | 151 | 7 | 1,028 | | | | 1,035 | 982 | 35 | |
| | Slabs, sheet bars, ordinary steel | | | | | | | | 522 | | | | 522 | | 49 | |
| | Other semis, ordinary steel | | | | | | | | 64 | | | | 64 | | | |
| | Ingots, semis, special steel | | 52 | 9 | | 15 | 76 | 406 | 691 | | | | 1,097 | | 32 | |
| | Total | 4 | 69 | 143 | | 15 | 231 | 413 | 2,308 | | | | 2,721 | 982 | 122 | |

## III. Sources of Statistics of Export of Pig Iron, Ingots & Semis

| | | |
|---|---|---|
| 1. | Germany, FR | Aussenhandel Spezialhandel nach Waren und Landern (Reihe 2) |
| 2. | France | Special Data of Customs |
| 3. | Belgium/Luxemburg | Special Data of Customs |
| 4. | Italy | Special Data of Customs |
| 5. | Netherlands | Maandstatistiek Van de Buitenlandse Handel per Goederensoort |
| 6. | UK | Special Data of Customs |
| 7. | Sweden | Utrikeshandeln Utforsel |
| 8. | Austria | Der Aussenhandel Osterreichs |
| 9. | USA | U.S. Exports - Schedule B. Commodity and Country (FT 410) |
| 10. | Japan | Monthly Statistics of Foreign Trades (Ministry of Finance) |

Annex

# [A] MANGANESE NODULES

# [A] MANGANESE NODULES

CONTENTS

# [A] MANGANESE NODULES

## A. ORE RESERVES OF MANGANESE NODULES

### I. Estimates of Manganese Nodule Ore Reserves

Manganese nodules were discovered by R/V Challenger during an oceanographic research cruise between 1873 and 1876. The next 8 decades were a period largely devoted to basic scientific research.

Dr. J. L. Mero's The Mineral Resources of the Sea, published in 1965, estimated manganese nodule ore reserves for the first time, thus bringing them into the limelight as a new resource. This book divided the Pacific Ocean into three regions — eastern, middle, and western — calculated the average coverage in each region, and estimated the ore reserves from these coverages and from the sizes of the regions. It was estimated that in the Pacific Ocean, throughout which high coverages of high-grade manganese nodules are reportedly distributed, their ore reserves total approximately 1,700 billion tonnes, of which nickel amounts to 160 billion tonnes, copper 8.8 billion tonnes, cobalt 5.8 billion tonnes and manganese 400 billion tonnes.

Starting in the latter half of the 1960s, but particularly since the early 1970s, research by research institutions and corporations in various countries, and by international consortiums, has progressed rapidly. This has included energetic studies in a promising zone between the Clarion and Clipperton fracture zones, (also known as the C.C. Zone), where manganese nodules are thought have the highest grade and the densest concentration in the Pacific Ocean.

This work enabled many researchers to estimate ore reserves and mineral content. For example, J. Z. Fraser of the Scripps Institute of Oceanography, University of California, made estimates of ore reserves (shown in Reference Table A-1) on the basis of 50,000 items of data collected at about 1,500 locations. Simultaneously, he conducted extensive statistical research, using large amounts of data, concerning the correlation between the grade and quantity of nickel, copper, cobalt, manganese and iron, on the one hand, and such conditions as sea floor sediments, bathymetry and the shapes of manganese

nodules, on the other. AFERNOD (France) also made estimates of ore reserves, which, in general, do not differ much from Fraser's figures. However, it should be stated that the insufficiency of data on continuity of quantity and quality, or perhaps secrecy imposed on large volumes of data by private businesses, has left many aspects of manganese nodule ore reserves unclear. A. A. Archer, the Assistant Director of the Institute of Geological Science (U.K.) pointed this out at the 3rd International Ocean Symposium, in 1978. The results of many research studies, however, suggest that the quantities of ore reserves of manganese nodules that will be mined in the first phase [1] are as follows:

| | | | |
|---|---|---|---|
| Total wet weight: | 10-15 | billion tonnes | (Moisture 30%) |
| Nickel : | 0.077-0.13 | " | (Grade 1.1-1.25%) |
| Copper : | 0.056-0.126 | " | ( " 0.8-1.2%) |
| Cobalt : | 0.014-0.042 | " | ( " 0.2-0.4%) |
| Manganese : | 1.75-3.15 | " | ( " 25-30%) |

The following list compares the above ore reserves with those on land (Mineral Commodity Summaries, 1981). For comparison, the reserves on land are taken as 1 in each category.

| | | Estimated ore reserves on land | |
|---|---|---|---|
| Nickel : | 1-2 | 59,800 | thousand tonnes |
| Copper : | 0.1-0.26 | 493,000 | " |
| Cobalt | 4-12 | 3,400 | " |
| Manganese: | 0.3-0.6 | 5,400,000 | " |

If the above estimates are roughly correct, they indicate that the ore reserves of manganese nodules are neither enormous nor minute, compared with the reserves on land. (A. A. Archer, 1978)

1) The period from about 2000 to 2050 when operations may conceivably be conducted by initial-stage mining techniques.

Reference Table A-1 Ore Reserves Estimated by J. Z. Fraser

Recoverable Metals in Paramarginal Demonstrated Resources
(Clarion-Clipperton Zone)

(million MT)

| | In situ amount | Amount recoverable at mining efficiency of: 20% | 40% | Estimated land reserves [a] |
|---|---|---|---|---|
| Nodules [b] | 4,000-15,000 | 560-2,100 | 1,120-4,200 | |
| Nickel [c] | 35-131 | 6.3-24 | 13-47 | 54 |
| Copper [d] | 29-108 | 5.2-19 | 10-39 | 460 |
| Cobalt [e] | 6.4-24 | 0.8-2.9 | 1.5-5.8 | 1.5 |
| Manganese [f] | 706-2,600 | 120-450 | 240-900 | 2,000 |

Notes: a) Archer (1978)
b) In situ nodules contain 30% water. Amount of recoverable nodules calculated on a dry-weight basis.
c) Nodules estimated to contain 1.25% nickel; processing recovery efficiency 90%.
d) Nodules estimated to contain 1.03% copper; processing recovery efficiency 90%.
e) Nodules estimated to contain 0.23% cobalt; processing recovery efficiency 60%.
f) Nodules estimated to contain 25.2% manganese; processing recovery efficiency 85%.