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

		(EC	J/MT)
	New	01d	
	(Dec. 1,	1982) (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)

Imp	Exporter	Germany, FR	France	Italy	Belux	Nether- lands	E C 6	UK	Den- mark	Tre- land	ЕСЭ
Ge	rmany, FR		1,633	1,120	3,136	1,076	6,965	318	204	2.	7,489
Fr	ance	2,523		1,146	3,568	216	7,453	130	18	_	7,602
It	aly	1,182	1.670		1,002	253	4,107	215	1	_	4,323
Ве	lux	812	869	58		818	2,556	68.	14		2,639
Ne	therlands	1,531	325	7 1	1,058	_	2,985	112	17	-	3,114
E	. C . 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
De	nmark	535	118	. 9	125	52	839	77	·		916
Ir	eland	59	-45	11	39	11	165	168	1	_	334
Е	Export to EC(A)	7,767	5,140	2,665	9,525	2,973	28,070	1,087	351	36	29,544
С	Export to others (B)	11,292	5,567	4,102	4,132	1,645	26,737	1,695	296	1	28,728
9	Total(A+B=C)	19,059	10,707	6,7 6 7	13,657	4,618	54807	2,782	647	37	58,272
	A/C (%)	408	480	39,4	69.7	6 4,4	5 1.2	39.1	54.3	97.3	5 0.7

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	•••	Mag (M)	2	114	14	130
Hungary		5.6		18	6	80
Poland		242	25	F*-	3.6	303
Bulgaria		5.5	3 4	58	**=	147
German DR		281	10	173	4 2	506
Albania	•••	3.3	9	- 21	11	7.4
Romania		70	5.1	83	89	295
Export to CCMECON(A)	•••	1,242	2.3.6	682	310	2,4 7 0
Export to others (B)	7	2,204	965	1,2,54	740	5,163
Total $(A + B = C)$		3,446	1.201	1,936	1,050	7,633
A / C (%)	•••	3 6.0	1 9.7	3 5.2	295	3 2.4

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.

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

	World	œ.	Regional	n Trade		Trade excl.	Japan		SC(9) to Third Countries	rd	COMEGON (5) to Third Countries	16.5	USA		Total	Share of
/	cotal	(6) O B	B/A	0 0 X 8	C / A	Trade		0/3		5/3		0/0		H/D	Regions	Horid Total
	٧	(T 8	(%)	C 2)	(#)	A - (B +)	ક્ર	(4)	Ćs,	(%)	S	(%)	12	(8)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(A)
20.00	102166	22,7 60	2.12	9.050	ж Ф	75.350	28942	4.9.4 4.9.4	27,496	3.6.5	5,3 1 8	7.1.	2,779	۲.۶	85.6	27.0
9	118457	27.073	2.2.9	8,701	7. 4	82,603	36,916	4 5.6	23.183	280	6.105	7.4	2,459	ъ Б	8 2.0	234
F:	1:2011	25,442	2.2.7	2.55	2.5	8 4 0 1 5	33628	4 0.0	27535	\$2.8	5.520	9,9	1,857	2.2	81.6	ස් භ
ø.	121587	26,700	220	2,626	64	92201	50,925	الا الا	53.567	5.6.2	5.091	us us	2.561	2.6	27.8	 64
o 1.	125.249	1982	54 54 64 64 64 64 64 64 64 64 64 64 64 64 64	9 8 5	5.5	94,122	30,697	32.6	51,687	3.3.7	6.211	9	2.663	2.8	75.4	24.5
ខន	125,600	29.82	239	1,5.2.1	ç; ∴	92.555	22705	5.2.1	28,728	5,10	6,172	6.6	3.846	4.2	72.9	24.0
Ratio 88/79	683	ומטו		95.9		985	9 6.8		7006		964		144,6			
86/82 (*)	10.50	1,10.5		60.3		:021	\$86		950		1220		1127			
prouch rate 80/75	2.9	5.4				4.2	0.5		0.0		2.8		6.7			
Ingots & semis	5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5	4987	\$2.6	¢ \$	0.2	14,804	5947	2 6.7	4,892	3 5.0	716	8.8	850	5.6	70.1	(3)
Rallway truck material	,57 d	43.08	121	'n	0.	1,287	> ;-	11.2	85	2 % 6	139	8 7 7	1961	1.52	5.6.8	9.2
Heavy sections	18 8 9 10	2274	2 0 2	7) (4)	7.	6.286	1,615	2.8.7	2.108	3.5.5	486	7.7	371	2.2	5.9.1	00 1-
Light sections	01+81	3.946	**	64 64 77	23.	14,072	3,935	280	1.857	22.2	1.466	1.3.4	396	22	685	2 1.4
Wire rod	7505	6 1 6 F	13.6.0	2.50		5,5 4 3	2.050	37.0	1,375	24.8	5. 5.	2,3	193	ri ri	7 4.6	27.0
Strip	4,535	3,432	2 40	33	1.2	2.850	672	24.5	1,503	4.5.7	5.8	3.2.	7.5	26	8 6.0	1,60
Plates	11987	83:58	28.5	**) **	25	8,755	1,642	0	2.6.4	283	1697	.25	6 83 11	. 22	64.0	15.4
Sheets Steal tubes o	£ 5.5.5	5,724	22.7	185	93	19,504	7.769	4 5 5	5,668	304	773	9,4	577	υς •α	۲۰ ش	до сі 10
	17726	4 0 80	186	4	¥)	14.985	6.56	-i	4,798	\$2.0	22€	u) v2	897	1d	79.9	3 6.5
Wire	2.200	80 80 80 80 80 80 80 80 80 80 80 80 80 8	187		æ) ••	1,527	162	٥.	5. 25. 25.	5.5 5.5 5.5	275	17.7	KJ NI	23	7.5.5	2.7
Tin place	98.55	0) 0)	†† ;	•-	0 0	2,937	40 40	303	1.072	3 6.5	2 4	(O)	628	21.4	93 63 63	7 78
s axles	201	7 -	0.2	•	\$ 5.	3.50	74	**	30	20.6	2.1	1.7	4	22	क क्र	5 68

Notes: 1) EC (9) include EC (6) and UK, Donmark 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 revolling.

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 })	C.R. coil (17 - 20G)
1976		180~205	220~260	220~225	100~225	225~325
7.7		170~180	190~210	180~205	185~210	235~260
7-8		180~285	200~305	230~290	230~310	245~350
7 9		305~335	305~325	310~345	300~335	360~395
80		285~330	325~340	300~370	320~335	360~410
8 1		225~300	285~325	280~325	310~350	350~400
1981, Nov.	27	230~250+	320+	300~325+	520~340+	4004
Dec.	30	230~2401	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	219~225+	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
j	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+
i i	29	185~190+	250~255	220~230+	280	320
Nov.	2	180~1904	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	180~1854	240~250	220~230+	270~275	310
	20	180~1851	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

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

	ce (CIF)	S n	109	CO W	o. 100	, %	00 10	2. 2.	4	6. 80 80
Scrap	Unit Price	Xen	32,5.00	30,800	23,000	23,500	8 5,8 0 0	34500	31,700	32,900
	Total	(1000t)	2,508	1,875	1,554	3,800	2.82	2.990	5.557	3,164
	ce (CIF)	⊕ S Ω	:	:	÷	115	161	20 2-	2.0	124
Pig Iron	Unit Price (CIF)	Yen		:	•	2 3,2 0 0	36,900	35,100	29300	31,9១០
	Total	(1000c)	:	:		735	83 15 83	ბ. დ თ	1241 (PY)	74 (September)
	1,000/MT)	Slabs	101	:	47	ул 19	C) V)	S	N N	ന . ഗ
ıs	CIF (¥	Billets	50	6.2	*0	4	o. vs	ς, ο,	ស ស	လ လ
Semis	Unit Price	Blooms	2.5	C1	80 +0	*0 *13	ফ জ	*		•
	Total	TMDOTE (ML)	47,847	2.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8	132,851	217745	# 9 & 7 50 6	40.5	100 100 101 100 101	\$. \$6 \$6 \$6 \$6
			ه د د	9 2 6 1		65 1~ 0.	0. fr. 0.	c)	o. 0.	016 w 1 6 9

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
- 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
- 1. 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.

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

	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 capa- city in developing countries expected in 1990	1980 capacity 76 million tonnes/year Addition 63.5 " (New entry 6 countries) (75 projects 33 countries) Total 139.5 million tonnes/year (Production in 1980 57.8 million tonnes/year	1980 capacity 76 million tonnes/year Addition 1,117 " (New entry 32 countries) (138 projects 65 countries) Total 193 million tonnes/year
Steel demand in developing countries expected in 1990	(1979 consumption 92.6 million tonnes/year) 1990 at 4% growth 142.5 "at 2.5% growth 122.4 "	(1979 consumption 92.6 million tonnes/year) 1990 at 9% growth 238.8 "at 6.5% growth 185.0 "
Fund required (Construction cost: \$1,500/t/year)	About \$100 billion	About \$170 billion
Manpower required (unit: Persons to be added by	anpower required (unit: 1,000 persons) Persons to be added by 1990; () shows foreigners.	
Engineer & professional staff	17 (4)	23 (6)
Supervisory staff, engineer, office Skilled worker Unskilled worker	staff 96 (10) 380 (19) 68	132 (13) 527 (26) 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 ${\sf DR}$ 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 minimills 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.	Pig Iron	٠	•	•	4	•	٠	٠	٠	•	٠	٠	[7]-144
II.	Ingots & Semis	٠	•	•	٠		٠	٠	•	•	٠	٠	[7]-150
ттт.	Sources of Statistics	_										_	[7]-175

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

America
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Appendix Table I (cont'd.)

											(I,000 ME)
Ехроган	Exporting country	Total	S.E. Asia	Middle Bast	Europe	North America	Latin America	of which Brazil	Africa	Oceania	Unknown.
	Germany, FR	13689	181.0	1.25	1,0567	8 0	100.9	0.5	2 2.5		7 55
	France	3588	1.0	1.0	554.1	2.0			9 11		•
t	Belgium/Luxembourg	1 8 4		•	1.				•		
3 / 4	Metherlands	# មា ភា	2 2.7		3.2.3				1		
	Italy	63	ŧ	į	2.7				•		!
	Š	254.5	2232	0.1	189	10.3	53		0.6	ේ	•
	Sweden	20%0	ဇ- ဘ် ယ	:	: 29.9	2.5	1.2.7		ŧ		•
	Austria	2 4.8	1	ı	ස ජ ස	1			F .	•	1
	us.a	912	2.6	0.2	•	2 7. 5	60.7	20	5 5	0	1
_	Japan	7.2.1	 .:5 .0	I	i	7.0			i		ì
	Total	2,434,4	5.5.1.7	1 & G	1,602.6	5 5.2	1758	0.6	2 4.8	0.2	2.7
	Germany, FR	7 6 2.9	5.0	2.0	7.15.6	5.0	4 60		14.6		6.1
	France	2202	9 el	1.2	2164	ı	D •*	J	7.	i	***************************************
6 6	Belgium/Luxembourg	22.72		1	10.9	,	14 4-2	j	l	l 	í
•	Netherlands	54 F	1	i	2.0	ı	ı	j	I	1	
	>: E	£ a	;	•	0.5		l	1.	0.2	l	5 2
	ğ	\$ B :	•1	0.7	1 4.6	ı	c))	7.5	1	1
	Sweden	1035	;	ţ	1415	8 0.0	ω 	l	1	l	·
	Austria	ei ei		i	13	1	ļ	ţ	Ì	1	
	USA	€ ₩ 90	3	n.	0.2	20.6	5 2.8	i	: d	1	
	ເສດສາ	ரை என் ப	4:8	2.0.7	52.1	1402	3:6	!	0,3	0.2	1
	Total	26787	6.9.3	24.8	1,185.6	215.8	1525	*	24.2	0.2	2:
	Charles and the second		4							·	

Appendix Table I (cont'd.)

i i		•									(1,000 MT)
Exporting	ng country Destination	Total	S.E. Asia	Middle East	Burope	North	Latin	of which Brazil	Africa	Oceania	Unknown
	Germany, FR	8211	:	4.7	8087	,	0.5	Į	5.2	. 1	e.
	France	2268	ì	.i.	2 2 2 .0	& C)	l	1	22	ı	1
" 6 •	selgium/Luxembourg	is ri ri		20.00	8 % 8 %	i	ł	į	d d	l	!
	Netherlands	ē	!	:	i	<i>†</i>	1	1	1	ı	•
night demonstration	Italy	i o			1	!	ł	.1	,	ı	
	š	কু শুকু কু শুকু	c)	ಕ	50.7	ed	5	1	-	1	f
	Sweden	ক ক ক	i	;	ও কু	1		1	ı	ı	
	Austria	* ::	!	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ö	!	1	ı	l	1	4
	usa	5.2.1	ž. <u>c</u>	D. 3	න ප්	287	1,7	I	ఈ భ	ı	1 .
	Japan	2 4 6 11	# 83 83	ı	100.4	į.	•	•	1	ರ	l
	Total	1,395,2	4.6.5	6.5	1,270.2	57.7	22.2	,	о. .: .:	ن 1	6 6
<u> </u> 	Germany, FR	7 3 4.3	0.5	1.7	5882	į	9.6		۲. بر: د بر:	ļ	0 ;
	France	1923	!	•	1783	6;	•		o vi	1	
, ,	Belgium/Luxembourg	5 6.5		į	S S S	í	†		,	ı	•
	Netherlands	2,	ı	1	- -	į	l		I	!	1
	Italy	3 .0	i	1.0	S O	į	,		•	1	•
	š	47.2	ı	6 3	5 0.5	1 5.2	•		0.7	1	ı
	Sweden	1562	3.2.3	- in	۵ م م	2,55	i		ı	1	Ö
	Austria	0.1	***	:.	ť	1	t		l	l	· . ,
	USA	4 6.6	12.0	0.1	n.i A	189	12.1		l		J
	Japan	563.9	547.9	0.4	10.5	5.1	_		1	l	ı
	1 O Total	1,767.6	592.6	9 8	1,067.2	7 4.0	1 2.8		11.3	•	1,1

Appendix Table I (cont'd.)

Арре	Appendix Table 1 (cont d:)	ż									(1,000 MT)
Exporti	Experting country	Total	S.E. Asia	Middle	Burope	North America	Latin America	of which Brazil	Africa	Oceania	Unknown
	Germany, FR	7367	2.2	3.6	7 1 6.5	-	ह ल		4.0	1	1
	France	1275	•	0.6	11.56	6.2	1		7.1		1
	Belgium/Luxembourg	56.9	•	į	2. 2. 5.		٠			!	
5) >-	Netherlands	ks.	:	1	1,7	1	;		t	‡	1
	Italy	ທີ່	1	j	4.9	1	i i		8 0	i	2 3
	N.	8 % 8	0.3	5,6	2.1.8	0.5	,		9	1	ı
	Sweden	5 1 0.5	- 4.	ì	1789	1564	÷		ı	1	63
	Austria	Į	1	1	1	ì	(ì	1	1
	USA	* 9 *?	51.6	ci	**	-ú	6.4		d		1
	Japan	5 2.7	1. ci	1	ì	***			ì		1
	Total	1,537.6	261.8	1.0.0	1,077.9	1517	કે છે		225		2
	Germany, FR	5 8 5 5	4.6	2 6	8919	ļ 	7.6		5 5.2		‡
	France	3 6 ជ 5	i	& ಬ	5.52.5	265			0	l	1
·	Belgium/Luxembourg	2 2.6	÷	-	2.2.4		-		r d	1	
0. M. 6.		જ લે લ	!	:	22.7	Ť	l 		1	1	ci
	rtaly	્ર વ્ય	1,	•	64		1		,	1	1
	¥	જી જે જ	đ	9 +	20.5	;	,		e d	1	i
	Sweden	ର ପ୍ର ଜ	17.6	i	9.57	7.5	į		1	1	1
	Austria	I	1	i i	1		ı		l 		
	USA	es es es	\$ 0 \$	6	ದ	ಯ	8 23]	ਲੇ	1 .
	. วันซอมา	(1 (d (s)	2.2.4	r. e	1	I	,		ı	1	
ر در	20123	1.679.5	87.51	\$ 1.6	1,3825	42.7	: 5.5		57.2	Ci	5

Appendix Table I (cont'd.)

Total S.E. Asia	Asi	1	Middle East	edozna	North	Latin	of which Brazil	Africa	Oceania	Unknown
Germany, FR	1,0022	82	\$ 1	964.6	57,40	5.0	1	26.1	t	i i
	23 24 9	; ;	1, 3	2 6 9. 6	5.00		ı	4.7	ł	i
Belgium/Luxembourg	9	-		7.5	ì	}	1	,	l	į
Netherlands	G 8	i	ž.	জ কা	,	1	1	ri	ł	
	8.7	i-	0	5.5			,	22	ļ	ij
	302	\$ C	64 63	2 8 0	í	1	ŀ	8 0	ł	ĺ
	1796	5 2.7	į	114.7	12.1	į	and a	-		cJ
	0.2	j	!	0.2	i	•	ì	I	İ	1
	6 6.2	4 6.7	ت ت	•	4.8	205	1	I	1	1
	e oi	88		ı		!	!	i	ļ	ł
Total	1,5877	1025	4.6	1,596.0	50.5	2 1.0		27.9	i	0.2
Germany, FR	782.6	7.3	3.9	7 5 5 5	1	5.3		26.6	ı	J
~ -	1957	-		1788	10.0	'n	· 	10	1	ì
Belgium/Luxembourg	9 m	-		හ ශ්	ì	1			ı	ı
Netherlands	A. A.	i	!	8 4	<i>‡</i>	;		ļ	1	ŀ
	0.2	ı	•	0.2	ı	•		•	ı	
	4 55.1	i	ŧ	4.1.0	7	:		i	1	
maa oo maar een		ŧ	VAN.	ı	}	I		1	j	ı
	14.8	1.6	1.0	0,1	6.7	8.4		c)	ei)
	1.5	1,5	ą		ì	-		1	1	ı
Total	1.052.7	1.0.2	5.0	9725	2.0.9	15.5		28.5	0.1	

Appendix Table II-1	Total Export by 10 Countries	[7]-151
Appendix Table II-2	France	[7]-153
Appendix Table II-3	Germany, FR	[7]-155
Appendix Table II-4	Netherlands	[7]-159
Appendix Table II-5	UK	[7]-161
Appendix Table II-6	Italy	[7]-163
Appendix Table II-7	Belgium/Luxembourg	[7]-165
Appendix Table II-8	Sweden	[7]-167
Appendix Table II-9	Austria	[7]-169
Appendix Table II-10	Japan	[7]-171

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

(ZW 00	27.02.000		9;	, <u>ī</u>	93 1:	З	0.8	7,0	78	7.7	P.	ä	773	C.S		0.5	0.5
(1,000) - Sept. (a) a)	2.5	40.5	0. V	50 [5%6	2120	7.6	219.6	2523	10.1	2624	22.2	20	127.4
	America	Brazil	. 3	ĝ;	: 32	1265	522	1286	6 6 7	185	215.5	2206	5.5	223.5	35	6Ü	4.5
:	Latis 7		69 12 13	121	407.2	다. 1년 1년 3	च . 6	879	7755	34.6	5101	€. 1- 5- 5-	787	1,396.1	4648	7.55	540,4
	America	US.A	6.17.	720	1337	4 6.D	59.2	8.52	*** 6: ***	5-5	74.1	7.2.6	52.7	123.3	6.1.5	280	99.5
. !	North A		271.6	79.5	35.5	15	623	1550	<u>.</u>	5.55	126.6	133	64.9	1782	8 5.5 5.	3.4.D	1174
		Austria	62	مْن	14.8	Ü	134	: 5.5	0; 4	5.5.5	3.5.0	. 52	5.9	51.1	4 7.4	4.2	51.6
		Sweden	ci Ci	7.5	82	3	0,5	6.8	×	7.5	10.4	લ જ	10.1	55.4	0.1	7.9	8.9
		š	6.Q.1	13.2	733	** ** ** **	27.5	548	9.1.7	13.9	10.5.6	ر 4 م	: 22	1570	34 8.2	7.6	3558
٠		Italy	284.5	10 1년 12	331.5	.0 	59.5	3707	25 55 55 55	54.5	311.1	1260	48.8	174.8	250.4	93.5	\$259
-		Germany,	566.9	339	62 D.B	6425	234	5828	9.84.9	45.5	t.0.5.0.2	o 1 & C	3.0.0	9480	810.4	6 1,2	87.1.6
		France	2 8 2, 2,	200	539.4	52.05	6 D.2	5.90.7	5 6 6.6.	6.2.3	6237	3.75.0	75.4	450.4	685.9	84,4	7.76.3
		Pc1/Lux	3312	ල. ශ්	\$4 C.1	42 42 43 40	11.0	4343	8.0 % 0.0 % 0.0 %	27.5	3352	22%6	6.6	2388	204.8	1.5.8	2186
		Nether-	22.2	5.7	445.9	4 7 C.B.	9.	475,7	49.2.1	03	505.1	160,4	20	1.65,6	254.4	5.5	2577
	Europe		24120	80 80 -	2,001,4	2,7926	2371	5,928,7	5,2625	25.7.8	5.520.1	5,758.1	2387	4,176.8	5,656.1	31.55	3,969.6
	Middle.	Sast	1578	\$	159.7	6.991	M)	1662	15.51		1642	3582	1:2	3784	1581	5.9	1 6 4.0
	t	Japan	ទ ប្រ :	5.5	10.5	ġ.Z	Э	25.5	1	0.5	0.5	0.2		0.2		0.2	0.2
	S.E.	Asia	40 -0 -0	λυ Κν	: 75.8	428.5	λυ Φ	7777	52.9.9	282	558.1	327.9	20.7	348.6	2007	16.9	2176
		1 0 0	3.6.6.5.	3014	5,947.9	4,380,4	532.1	4,7125	48123	595.7	52078	\$ 6,504.0	425.7	6,729.7	4,686.9	4528	5,159,7
	Destination	Products	Import, erdinary tree! Bloom, billets, erdinary steel Glibs, Event, erdinary steel ordinary steel ordinary steel	्रेस्ट्रे	Total	Induct, estimaty steel blooms, littles, critical, great flabs, above bur, critical, above bur, critical, above the critical actions are all continuely steel	ingoin, nema,	Total	English ordinary steel blocks, billets, billets, billets, billets, ordinary steel condinary accel ordinary accel ordinary steel	Trgots, senis,	Total	Impore, ordinary attent Discons, Editors, Ordinary street Glabs, shore bafs, ordinary street Other coast, ordinary street	Ingota, semia, apecial szeel	Total	Inpote, ordinary freel History billers, ordinary freel Clash, wheel hars, ordinary freel other refis ordinary freel other refis	Ingota, semis, special steel	Total
	V	Š.	6.	and the last of th	propriet for	\$ 76:			1974			1975			1976		

Appendix Table II-1 (cont'd.)

(1,500 MT)

March Marc	\bigvee	Destination		a a	-	of daily	Europe		!	ı	ŀ				-	Boarth Agorthus	F 62.50	13815 / CONT.	2000	}	
March Marc	0 t 0	/	Total	Asia		East	L#11		}		ŧ	Teally		1	Austria	L	USA	L	Τ.,		Seense
The control of the	(6)		43865	\$0%5	!	\$ 70 G.A		24.1	22.5.5	620.1	7629	17.65	157.1	62	50, 50, 44, 44, 44, 44, 44, 44, 44, 44, 44, 4	14.9.5	85.	2567	. !	23.52	770
The part of the		Inspir, semis,	9 8 8	 	çà	5.3	3967	6.5	4.70	5.5.4 5.5.4	127.1	92.6	7.4	2.	es.	4.8.1	4.1.2	23.5	22	22	
March Nation Marc	}	Total	5,8 7 6.4	52.70	9.5	111.5	2,52,42	3.0.4	270.5	6855	6900	25.21	1625	149	587	1986	1720	3802	0.2		22
Particionary Column Colu	1978		2.41.36	\$20.7	5 9 2	63x 2 2	2,506,3	8,8,1	27.42	80%0	6.6.9.7	1575	07.77	2.3	643	2185	82. 5.	1152	6	2288	63
Total Apple State Stat		SOUNDS COMES.	0.026	THE CH	63	8,9	4635	Ş	7.1.4	79.4	10.60	8 0.7	6.2	99.	u)	6&7	72.1	762	23	6.2	I
March Marc		Total	4,616.2	5423	59.1	1322	3,709.8	250	3426	888.4	7957	2182	1672	r)	697	307.2	2546	73.61	5.5	2350	65
Total Tota	6.264		3.92.54	55 1.0	6.87 0.4	2.00 2.00	22156	*0.4	-6 7.5 7.5	9577	\$ 8 7.5	272.6	:762	(0)	220	23.55	778	5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	23	29.50	8
Total		Topotal atoms	7.542	3.5.5	50	17	5.66.5	5.2	7.22	1122	1261	1.399	7.5	12.9	29	7.1.	5,6,5	7.68	7.5	75	23
		Total	76597	564.5	10.52	19 8.0	3,25,9,9	757	4124	1,0 6 9 9	815.6	4125	1857	136	28.1	2886	151.0	242.1	70	50.5.8	1.1
December 1985 120 121 122 123	3861		25.5	9) 9) 9)	\$6 6 6 7	ଫ ଅ ଫ ୧.	25625	2. 0.	जी जी की क	7.22.8	4965	2955	25.8.1	579	60 7 7	79.5	4. 4.	5, 25	12.6	រុក ស ស	ъ 50 М
Total 52e3 240. 316.0 516.0 466.1 787.5 20. 45.5 759.5 759.6 516.0 516.0 466.1 787.5 20. 45.5 759.7 20.		ingota, somis, special stock	3336	7 3.0	Ĉ.	321	5226	33	: 18	127.6	119.5	173.6	29.1	1.52	900	289	152	217.5	c;	23	i
Director, Statistics		Total	52633	0 2 4 S	.55	2432	5:601	858	5:55	9534	6160	465.1	7875	20:	757	1085	295	7591	208	(N)	364
13 42854 2787 35 1214 15:82 230 5:50 7:100 72: 3:5 75 83 2752 45 1555 16	8		\$ 5 kg	9 9 9 10 64	er G	5. 5. 5.	90 20 20 20 20 54	2.5.5	\$	5. 5. 5. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7.	0 4 0 4 0	0) 	20 20 20 20 20 20 20 20 20 20 20 20 20 2	30	21.5	25.28	\$ c1	(Q) (F) (O)	0, 10 10	C) 04 1%	20
42552 2763 35 2214 15:782 2783 3186 5249 7146 25:55 2903 17:1 308 2753 79.4 6836 1855 1		Support of the suppor	63	1.0		:-	\$ 00.7	ä	<u>(</u>	5.88	1100	101	·0	66 67	6.5	222	\$5	35.47	5.6	13.	ci
		Total	12821	たがさい	1.5	#1 33	28:82	28.0	315.6	62.63	7:56	2559	2900	127	80.5	2752	394	683.6	185.5	:82:	0.0

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

	81128000 I			1.						1		o. ci			ma rae or	0.9			-									
	4 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	202	22	20.6		23.7			ç	247	3.0	23	2		** ·*	302	23	5.5.1	•		2	28.4	60	16.5	3.2		12	31.7
America	55023	ଫୁଟ୍ଟ		230		7.			7,	7.5		9)	E.J			25		70		-	1.6	25						
utas.		\$5.6	3	55.9		48			25	577		9.9	4			0.1		37.7			20	39.7		52				52
North America	450	ů.	G CJ	a;		6 6			8	1.2		Ğ	8			3.5		22		•	8	2.0			9.5		6.3	*1
Sorth /	,	2.2	දී	<u>a</u>		ද <u>ි</u>		hade a pada gap	35	1,2		63	7			3.5		S			3.5	2.0			ô		0.2	1.4
	Austria			,		· · · · · · · · · · · · · · · · · · ·				•						٠		Ö.				เบ						٠
	Sweden								to o	100	-		S	,_		1.0		8:			3	5"					0.5	0.5
	5	97.6	· • • • • • • • • • • • • • • • • • • •	282		2.0	•••		22	22	3.0	130	5,	70	ອ. ເວ	15.8		11.9	97	Ö,Ö	*?	14.8		0.3	155	D	0.7	18.2
	Trait	건 당 기	282	705	350	3.8.8	2.5	53	1.820	625		20.6	Ç2,	-1°	18.9	59.2		t 0.1	60	1.2	2.3	5.1.5		602	67	2.1	242	884
	Germany, FR	1522	5%;	1721	1.5	525	, r.	5.5	286	114.9	2,2	629	23.6	1,7	25.6	1182	8.2	7.6.7	233	F	13.3	1223	5.6	22.7	6.2	0.3	287	622
	Prance		·																									
	15:1/Lux	17 5.7		;	1240	(7 86	5.5	0.6	85	2072	878	67.8	9.5	27.	ò.6	171.9	45.6	91.8	Ü.	1.6		159,1	4 0.5	9.5.6	j.6	7	6.0	1.15.8
6	Sether-	ะ	3				. /pu	5.0	93	.3				3.9	0.6	2.5		0.1		ğ	0.2	7.00		\$:G		0.2	0.2	4.1
Niedle Burope		5444	828	5969	1258	292.4	7.0	7.7	52.9	480.5	74.0	2158	465	: 0.6	57.6	4245	7.62	502.9	502	5.0	54.9	4692	224	2000	56.1	9.9	0.6.6.D	3729
Wied Le	Bast	90 10	· · · · · · · · · · · · · · · · · · ·	305		40.7	_,,	***	9	41.5		2 3.8		~~~		23.8		4.5.7				4.5.7		220			0.2	222
	Japan East	ដ	·	6								~~~							···········									
si si	Asia	27.5	h v, výstě sporyklež svo (m v my nym	273		0- 25			** 62	6.3		4)	2,5		2.3	146			.;.		2.4	7.5		-			5.5	25
	10 t	45 45 45 45 45 45 45 45 45 45 45 45 45 4	82 84 84 84	74.32	:25.9	29.62	ਲੱ	27	တ တ စ	5979	076	297.4	61.9	3	61.6	5085	785	431.2	5.8.8	C) ນໍາ	4.5.5	615.5	45.1	254.0	60.2	6.5	730	435.9
Destination	Products	and a second constitution	Order control ordinary area; injury, comis, system these;	Total	terio discretare negotiar		Disks sheet beek	Ordinary when	Ingueso, nomina. apresimi escrit	Total	tante gradita establica	,	Glabs, sheet Sara, ordanasy steel	ordinary steel	Ingota, centa, apocial steel	Total	Ingott, ordinaty uteni	Blooms, ballene, ordinary steel	Slubs, sheet bacs, ordinary steel	Other semin, ordinary wheel	ingote, nemis, special accel	Total	Ingots, ordinary steel		Slabs, sheet bacs, ordinary stend	Other semis, ordered orderery	Ingota, sumis, special steel	Total
<u>/</u>	27.0	(-) (-) (2)				6.						15.		·			<u> </u>	1975					<u></u>	1976				

Appendix Table II-2 (cont'd.)

\bigvee	Destination		5 5		W. 2017	Surone Europe				**************************************					Part of the	And (2) (5)	0-40 mm	Series of A		
. λ Δ	~~	Total	Asia	Japan		-	Nether-	1 x07/7-80	France	Cermany,	1	-	The state of	-,			L.	7	Serios O	Oceania
,							Lends			F.R.	, cu k.7	4		#12. CDA		ron.	2	nrez-a		1
	incota, ordinary atout	16.5				16.0				4.6	90 0								3	*****
1.1.4		81.71			10.0	4.65	6:	3.7.4		14.5	57.2	\$		0.1	23	2.3	303		29.0	
	stabe, sheet bern, ordinary steel	45.0	6			15.5		25		0.3	3.1	6.2			,82	18.2			22	
	Caher formin, ordinary stori	8.1.1	1.0			1 0.0	โล	6.0		0.4	7.0	0.2			8.5	908				
	Incota, mesta.	5.1.0 5.1.0				92.1	0.1	122		47.6	21.5	5	[3]	G.	80	93	10		3	
	Total	5893	10.1		1 (1.6	2527	4.1	584	!	67.7	5.8.1	ກສ	6.5	1.2	223	223	31.7	ţ	5.5	
	Inquir , and placy stand	5.5				3.5		2.0		6.1	9.2									
1978	Blacks, billets, ordinary steel	1072	0.6			7.4.0	5	27.7		11.1	248	*- *-			1.2	1.2	8.8		24.8	83
	Slads, shore bars, ordinary steel	25.9	3.5			187	0.1	11,4		.0.	99	5			-4			hangrår v – fa	33	~
	Orthor cemis, orthory stem;	25				2.5		0.4		970	ğ	0.5			···					·
	ingeta, sensa, special stact	1260				121.7	0.4	5 6.3		35.1	20.7	27		3	7.	7.			2.9	
ĺ	Total	25,5.1	4.5	:	1.9	2204	22	988	t	07.6	532	3.6		90	7.7	22	4.8	1	3.10	8
	Injois, ordinary steel	56				66		4.1		53							 			
6161	~~~	33.89				643	0.7	234		7.2	28.	50				·	88		1,60	
	Slobs, short bucs, ordinary ates!	07.9	9.	0.22		8.7.4	9.0	57.8		0.5	9.0	r,		~	2.3				5.8	****
	Other Ments, ordinary stoel	83				80				0.5	0.2									
	Ingone, weals, appearal steal	1380	0.2			1565		024		37.6	27.1	60		20	95		erenerik revere		á	
	Total	2553	9.3	20		258.1	9.7	1277	1	\$13	9.5.8	1.5	13	0.2	90	i	90	•	23.6	55
	Imper, ordinary seed	5.5				5.5		4.5		ט"ע				L						
0861	Dicort, billets,	585	11.0			790	ਲੌ	52.1		8.5	9.2	7					g namenia ve njete u		, i	
	Slade, where there, ordening these	62		10 ,		116.3	0.5	370		6.5	88	5.5	55	ö	Ġ	*****			good, of an or	
	ordinary stock	2.5				2.5		3		7	8,	tr				-			en nu we	**********
	ingota, nebra, special steal	1223	101	G.	: U	1428	20	604		320	44,1	1.3				~			60	!
	Total	3050	13.1	Ö	5.4	346.6	1,1	2213	ŧ	424	6.0.9	5.8	6.5 {	0.1	£3	•		i	7.2	•
	Tooth Astripso 'stobut	13			L	22		114				82	,		,				#inm.	
8	->	061				596	9.	697		2.5	η, σ			e consumer			SS		20	
	States, shown bases, outliness street	6.5			C2	6.1 5.3 C.3	6	152		2.9	S.	g)				~ - -	12	~~~	čš	
	ordinary steet	33			·	20		ў С		3	23	ř.							3	
	Actions, separe,	3000	ő	e e	6.0	1515		5.4.3		423	43.9	97.			ä	ï	7.7		970	
	Total	20 5a	1	3.1	3	2.4.8.6		117.8	1	4.8.4	55.9	5.5	8		63	5	12.7	-	230	

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

O MT)	رام بدور م	0	d	19	55	8	3	2.2	c)	SS	င်	7.7	සි	13	2	Ę,	2.6
(1,000	200000		8	Ġ	2:	u) V	៊ី	9.5	ö	сі в)	12		23	0.2			
	,		305	3.5	1.4	3.56	3	2,5	t > 9;	23	22.9		0.	121	6. 6. 7.	Ą.	3.1 to
	America	Brazil	ł	5	. .5	ទី	Ħ	150	**.	์ เก	5.4	0.4		D.c.			1
	स्य धाराम्य		F- G 101	'n	320	725	3	7.2.9	χο •-	22	661	13.0		130	7		14.1
	nerica	USA			<i>\$5</i>	CONTRACTOR OF THE STATE OF THE		1	а	1.4	6,3	5	11.3	15.5	3	5.4	5.8
	North America			,	13	· Q	ti i	120	22	7.	Ş	d.	7.	1 5.6	45	5.4	7,8
		Austria	2	Ş	3	ų	Ç.	18.3	6; 6;	o:	181	37.7	5.8	41.5	1.1.8	2.6	337
		Szeden	ఇ	8.	2.1	5		3	Ç	22	3.2	225	3.8	26.5	ö	1,4	1.5
		άĶ	28		82	711	53	1:17	280	ió	5.1.1	23.1	72	24.8	23.4	5	245
		fresy	2.1 27 27	+-'	1121	1711	- 0	1827	\$2.7	10.1	928	44.7	10.7	554	1082	1.32	1224
		Prance	5.00 A B B B B B B B B B B B B B B B B B B	3.7.6	3835	5,692	52.7	367.5	6. 9. 8.	58.4	5.57.8	1.181	489	230.0	4.2.4.3.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	8.7.9	4822
		Bel/Lux	64 C13	7.0	9.10	155.9	71, 71	146.3	23.9	7.5	67.4	87.5	2.0	89.5	81.9	3.9	858
		Mether- Lands	: 60.7	53	1622	1629	23	1647	62.7	6.2	689	۵. د.	32	44.7	26.9	2.1	29.0
	Europe		ें ें ें ें क	64.2	8204	85.50 9.10 9.10	77.9	8388	691.6	\$ 98 8 9	777.9	784.5	श्रेष्ठ १	872.9	867.8	91.9	7.656
	West	Asia	ന ഡ പ	72	86,7	67.3	Š	67.7	34.1	23	59.4	60.7	2.6	6.5.5	30.2		505
		Japan	C 5		Ü						!			Į.			:
	•	Asia	#? 2 **	2.9	1.5.2	621	23	1 9.3	2.5.3	83	26.9	4 A	52	7.0	5.3	G.S	5.8
	18404	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0. 4 14 00	2 1.9	10:197	5,52.52	828	1,111.8	7820	108.5	8903	8725	112.1	901.6	7505	1008	1,051.5
**************************************	Destination	Products	Dagota, octinacy stant Biogram, billoct, whicher stool Sinch, sheet hare, containty stool Ciber seas, cetinacy steel,	Ingport, nomina, sp.otal needs	Total	Impara, centrary standing conditions, solidary state; chart, these barr, conditions are approximately standing	ingular, nears,	Total	Indoto, occinary streit Dicente, pillate, Occinary streit Gibbs, shore bars, Ocher sevis octinary streit Shore sevis	injots, semis,	Total	Impora, ordinary serol Blocas, billyet, Codianry stock Slabe, shore bette, Codianry stock Orbite armie, Orbite armie,	Ingota, nemin, special steel	Total	Ingots, ordinary steel Stoom, Dillett, ordinary steel Stab., sheet bars, ordinary steel ordinary steel ordinary steel	Ingots, somis, special special accol	Total
V	/	72.0	All the state of t			7) (- 0			1574			:975			1976		

Appendix Table II-3 (cont'd.)

/	_																	
	Tora	Japan	that Lend	Sinda- pore	Malaya	Philip-	7/32/cr	Вигта	India	Pakistan	Iron	Saudi	Israel .	Jordan	Syria	Lebenon	Scher	Sub- total
Indoca, ordenity atmit	12,1	12						-										
atooms, bullets, ordinary senel	461.1			27					0.2	20.8	2.1		C: 85		u)			83
Slabs, sheet barn, ordinary stool	385.4	7	æ. '				•											80
other seria, sectionsy steat	24.5	3)							1.5		0.2		5.2				-	0.5
inguta, omass. Spicaal steel	626	6:							0.3		50		ទី					eg eg
Total	9808	81	7.8	1.4					9.0	2 C.B	2.8		K)		6.5	-	S.C.	427
Ingote, exchanty steel		4.3																
Dioces, Dillero. Sedimory Speek	5916	0	5.5	æ.	13.0	20	163 55	÷.	r.	3.6	728		18.7		120		0.00	. 42.
Stabe, sheat been, ordeness acces	4626	*	15.5		ci		ö	O		2.5					-		50	20.8
Other semis, ordinary stori	18.5	3							G	0.2	ថ				·		E	93
intois, semis, special sten!	1017	17 0.2							503							# ************************************		ક
Total	1,17.88	3.8	8.5	E1	112	0.4	98	10	20	5.8	72.9	-	:87		120		15.4	859
Ingota, ordanacy steel		5.3									ļ.—-							
Blooms, Billere, ordinary steel	721,5	£.0		Cđ Rử		9.	2,0		70		Ü		204	80	47.3	S.C.	9	10.64
Simbs, wheat hare, ordinary areas	1000	77	3		23		8.5		· · · · · ·									16.6
Other means, ordinary steed	6. F.J F.J	ο.	6						92		_,			,		No. _{Al} er anger produce		2.5
Ingets, somis, special stoel	51.51	67							5.0				0.6	***********			Š	',7
Total	1,3.3%	શ્ક લક	73	2.5	3	56	5.61				6.5	,	21.0	च क	47.3	5.3	67	1228
ingone, ordinary theri		6.7		-	 ,													
strone, beliefe. ordinary steel	. E 6 8 3 3	12	26	3	7	2.5.5	7.03		<i>5</i> :	9	- ••		7.2	8	223	ପ୍ଷ		767
State Street these	\$7.27	35	272		2		જ				6.2.1		0.4	Mary rather		*******		300
Other senio. Sedioury stasi	187	r)				:	0	··		Ö	G		5			d	m'em 644,	51
special atout	17.65	2			;				3.5				či		1-2-20-107-			25
Total	1.501.2	3	86	<u>१</u> १	£8.4	130	796		5.5	75	622	-	4.2	10:0	223	3		2350.
ingers, ordinary accel		5.0									- mm-			6 m/mm mb			***	
Plocms, billiots, britishry steel	8 C	0	3.50	\$3	\$	54 85	7) *2 C4	0.2	36.7	20		8.6	22	46.7	S.	17.4	3	1746
Markey, Tryophy Belle.	550.1		5.7		50.50	\$3	64		~~~	61	35.		ij	9				0 12 0
Caber sending ordanas steel	**.	15.5		54		Z	20		3	and the second second	 (3							3
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Total	60000	10	9	4,	Ç.	ų ni	¥11	Ŋ	012	2.5	1.57	8.8	126	52.4	45 15	3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Ç.i	2:65

Appendix Table II-3 (cont'd.)

(1,000 MT)

9.9.1.1.1.4 Probating Character		Destination																
National content and content	27.0	סקחכבט	Wether: Lands	Bel/Lux	ಕಾಗಕಾಗ	realy	ž	Denmark	Greece	Sweden	Austria	Switzer- land		Spain	USSR	Romania	Ouher Surope	Sub-
Lancy Miles, Mil		Degate, ardunary seest	S	3)	<i>i</i> 3	경.											ย	
Control March National Activity Cont	6		Q n1	65	75.3	(N)	25.				24.5	***	1.	αį		,;	020	**
1. 1. 1. 1. 1. 1. 1. 1.		Wilder, abeat mans, desinant moses	33	 	345.9	0,0	4.8		5.1			80		20		rana mmo	Ä	
Particularies 1.5		Children acathes.			H)		62	-~-		orte-ta-	- + *	ii					24.5	
The thirty of the control of the con		System assessing	ęg	350	2.4.2	ş	1.2			7.7	8.4					6.7	2.6	
1. 1. 1. 1. 1. 1. 1. 1.		Total	187	1566	4540	विष्व	80.8		91	ල ස්	29.5		7.7	H		83	47.6	
No. of the control	L	Source ordinary sound		23	2						0.3						23	
1. 1. 1. 1. 1. 1. 1. 1.	d) Ex			£1.8	1182	8) C4	2.62	0.2	5		5.55	6		نۇق	53	652	2.6	
Continue		Clabs, speed bana, ordinary steel	(I)	2.5	582,1	35	6.2	0.2	0.4	2.	257	6)	မ္		-2		8	,
Continue No. 1		Debor semise, Destabling stem;	3	82	Ş	0.3	90	Ġ	8	ä		5.5	či	92		1. Lange	ci	
Total 124 102 2576 678 6		Ingota, semin, theread analy	9	Z.	22.5	88.	0.8			C.	95			rī ci			ų;	
Protect content cont		Total	12.6	1932	65%6	604	59.0	57)	6.0	24	64.3	153		6:0	0.5	7 6.5	7.3	
Marie Property Mari		indoca, ordinary steel		0.2	85	3.8						9 9 9						22.5
Control Cont	1975		4.25	 	217.4	7.6.5	3 3 3	70	15.8	0.2	20.6	5		हिं		527	ŝ)- is: u
Control Cont		ordinary nites	3	252	3546	200	1.5.7	77	28	či ci	G.	0.3					65	
Total Si Si Si Si Si Si Si S		ordinary nietl	5:	22	Ş	78	Ē	3			3	st Ci	0.2	G.			*}	
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Appear, octainer, contract 20.1 4.5 20.1 4.5 20.1 4.5 5.5.1 4.5 5.5.2 5.5.3		Total	52.1	51.3	617.6	1481	77.6	90 90	14.4	62	26.7	16.5	0.2	0.8		40.4	121	1,1112
Property stricts		Ingota, ordinary streil		1.7	4.5	3.0	1.2					1.00-0		5			8	8.8
Control Annel Date Control	1980		38.1	517	p1.6.	1003	3,49	22.1		9.0	555	53.0	90	80	1.5	gs	17.0	\$81.8
Part Journal Control	<u>.</u> _	Slade, abret bace, ordinary steel	879	5.4	27.11	163	2.4.5	83	0.2	0.7	80	0.5	57	- 6-46 9.27/			55	3284
Inger: Side (side) Side (side) <t< td=""><th></th><td>Orbin somis, ordinary steel</td><td>0.2</td><td>1.13</td><td>C4 *</td><td>1.0</td><td>23</td><td>65</td><td>0.2</td><td>0.3</td><td>23</td><td>0.4</td><td></td><td>······</td><td></td><td>ភ</td><td>ರ</td><td>207</td></t<>		Orbin somis, ordinary steel	0.2	1.13	C4 *	1.0	23	65	0.2	0.3	23	0.4		······		ភ	ರ	207
Total 514 815 4916 1721 1562 280 04 130 444 589 33 09 15 09 202 202 202 202 202 202 202 202 202		Ingoth, numbs, special steel	5.5	1.32	504	54.7	15.8			8.5	7.8	6.0	0.2			8.8	2.1	172.6
Indicase, ordinary stem! 15.5 7.1.5 8.2.7 8.2.7 8.2.5		Total	5.1.2	813	42.1.6	172.1	1562	2.8.0	0.4	1.5.0	44,4	59.9	3.3	4°D	1.5	5.7	202	1,114,5
Allocation to the first state of		Ingots, ordinary steel			32	4.2	6.5					20						6.3
Ar. 1 6.9 2.89 15.58 6.1 1.341 0.9 0.6 0.9 5.65 0.1 0.3 0.5 0.4 2.7 0.6 0.3 0.1 0.2 1.1 0.2 1.1 0.1 0.1 0.1 5.5 1 2.1 1.2 1.2 1.8 1.2 1.3 1.2 1.3 1.2 1.3 1.0 1.2 1.0 1.2 1.0 1.2 1.0 1.2 1.0 1.2 1.0 1.2 1.0 </td <th>198.</th> <td></td> <td>1.5.5</td> <td>7:5</td> <td>528</td> <td>8:59</td> <td>9.49</td> <td>30; o-</td> <td>187</td> <td>o. ĸi</td> <td>20.3</td> <td>28.9</td> <td>226</td> <td>t) Si</td> <td>νή O:</td> <td></td> <td>10.6</td> <td>46.2.1</td>	198.		1.5.5	7:5	528	8:59	9.49	30; o-	187	o. ĸi	20.3	28.9	226	t) Si	νή O:		10.6	46.2.1
1, 2, 12, 12, 13, 2, 16, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10		Slabs, sheet bara, ordinary steel	679	28.9	15.58	1.9	1.50	9.0	ะี่		3.6	6.0		5.6.3			50	2635
12 223 1132 2776 1024 1275 10.7 19.2 10.3 304 3.54 22.7 6.16 10.7 2.3 171		Other seals, ordinary steel		0,4	2.7	63	6.5		U.1	0.2	0.2	;;;				0.1	8.5	3.11.6
223 1132 2776 1024 1275 107 192 103 304 354 227 616 197 23 171		Ingota, semis, special stack	2.5	123	52.4	2 6.4	1 9.0			6.2	¥2.5	4,3	0.1		1.2	2.2	0.5	1170
		Total	22.5	1132	277.6	10.24	127.5	10.7	1 9.2	10.3	3 0.4	35.4	22.7	61.6	16.7	4.3	17.1	865.4

Appendix Table II-3 (cont'd.)

The control																(I, COO ME)
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Marie Preside Marie Presid			3		2 3		1		?	1.2	7	3	C.	7.7.4		·
The color of the		Other seam.		çı Gi			<u>. </u>		6	2.1	0.5		6.7	9.2		
Total	·	Ingotal sector		5.5	#Y					4.4					32	
Particle Section Control Con		Total	සිට	80	6.0		11.2	128	2.2	53.8	177	5.0	9.2	589	0.2	
State Stat		Imports, ordinary steel					6.7			0.7						
Application of the control of the	8.		.	o,	-1	0.5	**	77	80	22.7	50.4	5.2	Ü	52.1		
Decision Company Com		States when hark, ordinary steel					· •							A		
The state of the		continuity attent	-	ਰੋ			<u> </u>			ö		5		19,2		
Total 36 70 131 72 06 289 582 582 264 745 Department eterm 12 124 <td< td=""><td>····</td><td></td><td></td><td>(3) (1)</td><td>2.9</td><td></td><td></td><td></td><td></td><td>5.1</td><td>19.2</td><td></td><td></td><td>0.2</td><td>32</td><td></td></td<>	····			(3) (1)	2.9					5.1	19.2			0.2	32	
12		Total	-	3.6	7.0	0.2	10.1	7.2	0.6	289	50.5	5.3	20.6	76.5	22	,
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		Total	32	\$ 7.6	294		6.6	59	3.2	651	686	1.00	92.	907) as	

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

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Appendix Table II-4 (cont'd.)

(1,000 MT)

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	realy		1.0		127		15.5		17.6		1:07
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S.E.	Asia										
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Appendix Table II-5 Export of Ingots & Semis from UK by Destination

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		Sweden		1.2		d.2		4.2		5.8		53
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		Germany, tra		3.4		2.6 1.9		15.5 2.62		3.6 51.D		.6 47.5
		France		19		1.5				1.0 2.5		6.7 25.6
		f - Bel/Lux		2.1		2.0	,	2.8 ; 4.3		1 61		9 [2:
		Negher-		66.1		936						
1	re Europe			5.E.T &		v 8.0		6.7 124.5		4.6 146.1		1.5 202.6
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		a Japan	والمراجعة	224		5.0		4.9		4.6		2.1
	S E		and the state of t	245.5} 2	-the field - are an experience from a second process	1948	. Angles and the state of the s	2248		526.9		2593
	Con Con			2.4	a na kananana kanan ing mga na			2.5	and the state of t	52		2.
	Destination	//	Import, undignary area; Billians billions, ordinary views: (Silvan, sheet ball). Other space. Ordinary steep.	Total	Progues, architato, abent Ditoma, billera, architata, brace ditata, shoret bare, architata steel architata, seela, shoulet, seela, shoulet, seela,	Total	tagoth, actionary steel, Slooms, billeta, ordinary steel Sloom, damet barn, sloom, damet accidenty steel, steel, appendal steel,	Total	fagors, ordinary sine, Blooms, bilints, ordinary stoul Jishy, there care, ordinary stool Other seeis, ordinary stool Emptos, powse,	Total	Indo:s, ordinary stee; Slooms, billers, reddinary stee! Slabs, short bars, ordinary steel Other serss, Other serss, shorts, semis, special steel	Total
		Products	27.9 C	·	5. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19		2797 2797 279 279 279 279 279 279 279 27		1975 ord 512 ord 512 ord 513 ord 513 ord 713 ord 714 ord 715 o		1976 1976 1976 1970 1970 1970 1970 1970 1970 1970 1970	<u> </u>

Appendix Table II-5 (cont'd.)

\int	Destination	2	in in		Midalle	Middle Europe									Worth America	ezica	ration he	America		
Products		10001	Asia	Japan	East		Methor-	18-17/10X	France	Germany, FR	Italy	X	Sweden	Austria	<u>L</u>	USA	!	Brazal	80012	87 CR 800
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	Total	4163	20	l	7.0	32.55	6.4	2.55	265	51.2	81.5	1	5.4	80	73.9	7:5	5.1	1	C.26	
State 8/21 State S	topoca, audinary stoci. Ricemi, bilista. Codanary utoni. Codanary utoni. Codanary stori. Codan santi. Codan santi. Codan santi. Codan santi. Codanary stori. Codanary stori. Supora, sect. Supora, sect.																			
	Total	552.1		í	re.	19.45	1.6	181	7.7 7.7 7.7 7.7	49.1	7.17	}	3.8	1.5	11.37	1085	5.7	1	972	6.3
Special Strain Control	ingoth, actimary area, Sleam, billeta, cathary seed, actimary seen, actimary seen, actimary sees, actimary sees, seedingy steel, seedingy steel, seedial, seed,											,					*	and the same of th		
	Total	\$2.55	\$7.5	÷	1.0	209.5	173	50.	42.1	4:6	7.6.4	ì	Ü	75	089	60.3	22	ı	55	3
1988) 1188 1988 (1988) 1188 1188 (1988) 1188 1188 (1988) 1188	Ingers, profitory stool blooms, blinder, ordinary stool codeony stool		and the state of t												والمراجعة					
	Total	18.54			90	7:21	0.2	22	126	2.5.5	75.1	ı	3.6	0.1	18.5	1.38	0.6	l	0:	ਬ
2016 2016 2016 2016 2016 2016 2016 2016	Togoth, octionsy stool plower, billing, sublancy stool sublancy stool system was, speined, souls, speined, souls, speined aspect	3						· · · · · · · · · · · · · · · · · · ·							aman'ny araka mandrina na dia ampika pantapak didikita yang par		a diametria, ngay pungit njuntiti ngay punjaka, ni ni nang diametria na na na			
]	Total											l			-					

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

/	Destination		ta O		Middle Burope	Burope									North An	America	5555	America		1
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	Total	2180				2082	-	66.5	2.3	11.54		•		2.1	3.4	97	c.	1	27	
1993 Goden, Science Blocker, Science Science Area, Science Area, Contractor at each Contractor at each at each Contractor at each at e	Addring and construction of the construction o																			
	Total	1494	4) C	i	<u>.</u>	14.52	•	5,1 %	25.9	15.5	1	3	•	3		•	17:		2.5	1
Trajecto, Sisomet, Sisomet, Sisomet, Sisomet, October, October, Prejecto, Prejecto,	Togata, embinary shabi Sloome, billome, andiancy stem; orbinary stem; orbinary stem; orbinary stem; france, sems, presied argan;	and a firm and a plan and the firm from a great and a subsequences.									,,			100 in , , , ,	A managed plan.		Park and the second sec			
•	Total	9161	1.2	ļ	69	159.5	•	รหร	14.8	7.1	1	0.2	•	. 5.4	•	1	62	•	23.91	1
1975 Dickons. Stabs. Ordinar Ordinar Ordinar Ordinar Ordinar Ordinar Ordinar	Apport, actionary area; Alecas, hilles, ordanary sees, ordanary steel Other sees, ordanary scent ordanary scent ordanary scent																			
	Total	5580	22	1	143	14 5.0	•	8%	8.5	8.5	1	- 	1	3.0	1 5.5	ë	1736	1.1.5	9,6	1
Inguis, ordin Blooms, billo cathings steer Uses, shore ordinary steer Other seess, ordinary steer ingots, beens special areas	Impose, ordinary stret Blooms, hillote, ordinary steel Slabs, short bace, ordinary steel Other sees; ordinary steel																			
	Total	1233	1		40	628	-	10.0	102	10.5	į	0.1	0.2	52		-	39.8		147	

Appendix Table II-6 (cont'd.)

	ಕ್ಷ್ಮಿಂದ್ರಾ	The second section of the sect	,		•		j		j		,
··	801718 0	1	1.80		16		15.2		2.2	i i	Y.
	Brazil	,	50		l		ı		•		
Latin America			7,4		300	-	970		8.1	and death and the company of the com	3 . 6
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	Austria		5.2		5,5				5'0		, , , , , , , , , , , , , , , , , , ,
	Sweden						•		70		30
	š		5		SC		2.3		2.2	ment very aller i legaziga para kada a sessi in versionali le in apara ka alaba ka	000
	realy		1		ŧ.		1		}		-
	Cermany, FR	<u> </u>	6.3		28		1.1.7		12.5		7.7
	France 6		851	,	3 7.4		¢0.9		505		0,1
	Fel/Lux				-				•		C
	Nether-		•		0.1		•		0.6		č
Europe			540		1945		65.1		75.8		4.4
Middle	East		6.6		4.50		525		580		64.04
	Japan East		;		:	agenggapang ya adamada 1998 Prang ayak Adda Pran 1999 -	1		ì	a makanin nganga ayang aying kangkan tang agama gang ayan ya	
S.E.	Asia		-		113		ឧភ		0.2		3
£ .	T 8 3 5 7		999		15:59		1522	و در	1834	e 1950 in te transporter projek het mit 1950 tillingsprace og sykster i	6 2 1 5
Destination	Products	imputa, madamate street flooms, billets, cettining steep! catilaba, above bars, cettinary steet cettinary steet floors, semis, special steet	Total	Inspers, excloses, blooms, blooms, blooms, blooms, steen as slade, where harm, ordinary steen and other seems, beddinary steen; finders, feems, species, feems, species, feems, species, feems, finders, feems, feem	Total	Import, cellinary alocal Blooms, billies, Sichar, steel Sichar, steel bare, ordinary steel Other eers, cellinary steel import, seel,	Total	fajoks, vedenary stad: Nicons, hillers, ordinary sted: Cohes faces: ordinary sted: faces faces: fac	Total	Appeta, ordinary steel Blowes, Dilleta, Sidinary steel Back, alveel back, patinary steel Back sense, patinary steel Back sense, patinary steel Back sense, protein steel	, 63.05
/	prod	2.251		0 6 5		6261		085		886	

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

	ET	**************************************	2.5			A 44 Managan (18 M	4		•		ī
1		The hand of the first of the second of the s	6.1	and the property of the commence of the contract of the contra	25		8.8		225		4 27 4
America	Brazil		1		192		5.5		1		-
Latin	,		42		262		2.39		5252		1174
America	USA	· · · · · · · · · · · · · · · · · · ·	3		2,5		1.2		3.4		3
North	.		8		2 50		(3		26.7		0,
	Austria		77		\$73		5.8		5.5		* ? .
	uapars				2.0		0.6		•		
	35		11.8		.2,9		4.52		74.9		247
	" tealy		70.5		12.1		550		15.7		212
	Germany,		172,1		564.1		560.5		289.9		5109
	r Srance		1347		219.7		2457		17.12		2.57.1
	T Rel/Lux	art til 1970 at flikt folks från kalenderin symmersem gamma gamma, gammå, det som	9		1		;		1		
ň	Nether-		7 2286		3.03.0		4156		117.4		22.55
Middle Surope		-4	9 7879		1,044.5		1,165.0		951.4		8735
Middl	Japan East		87		58.7		39.5		96.7		65.8
	L	White - are required to consider a second	1		t				1		;
			051		2.4		15.5		4,4		85
, (الله الله الله الله الله الله الله الله	8178	i to a straight and a sign of the state of t	1,1184		1259.6		1,406.8		1.071.7
Destination	// sp	Dejecta, octionary stanti Stanta, politery, octionary power Glaba, proce base, ceditably stock obtains stanti figora, comiss, procial stock	Total	Ingoth, ordinary state; blocks, billets, andinary stee! arginary stee! arginary stee! flows serie; flows serie; flows serie; flows serie; flows serie; flows serie;	Total	Appore, ordinary condi- Blooms, Millers, Calanary Breel, Calanary Breel, Octor way, ordinary Breel, ordinary sivel, Topore, sense,	Total	Ingoth, ordinary armel inform, hillers, ordinary steel Slabs, where torn, ordinary steel other seels, ordinary steel ingots, seens, special armel	Total	ingota, ordinacy step blooms, billets, blooms, billets, cathany steel stable steel ordinacy steel fryots, smeak, special kinel	[# + VF
	Products	27.91 50.0 50.0 50.0 50.0 50.0 50.0 50.0 50.	l	200 200 200 200 200 200 200 200 200 200		27/2 Seed of 197/2 Seed of 197		1975 sed ord		197 6 254 197 6 254 254 254 254 254 254 254 254 254 254	

Appendix Table II-7 (cont'd.)

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	2011111	<u> </u>	65.7		29.4		727		913		72.4
merica	Brazil		}		1		1		ļ		777
Latin America			214		5.		-		0.7		1245
Marth America	USA	, wax year	07		2.1		908	water and a self-dependent of the self-depen	5	4 44 44 44 44 44 44 44 44 44 44 44 44 4	59:
Moreh 3			270		2.1		80	APPLICATION OF THE PROPERTY OF	0.2		169
	Austria				1		87		1		
	Sweder.		5 D		9 0.8		2.9		2 0.4		5 0.6
	ž		5 542		57.9		28.1		5 282		1.5.5
	"Italy		7 7.5		197		701 0		9.5 1046		5 64.1
1	Germany, FR		285.1		30.79		5 3550		17		1345
	x Prance		1767		222.4		2585		- 273.5		1756
	- tel/latx		5.1		1 81		8		- 02		00
	Nether- lands										
Middle Burope			5 529.1		505.4		774,4	<u> </u>	4 20 0 0		4227
			17.5						1		
	Japan		8.4		5.4		25	nga gang gan sahi dindagga gayan pilabih bibih papanganan s	30 f<	appendiction and appendiction to the contraction of	1981
	Asia										
400	2		644.5		642.8	te remajor kristin i timoreme ukanamekinan felletik asepape m	8503	amenterista de la casa de Alfre de la casa de casa de casa como de como de como de casa como de casa como de c	2002	pyrimining y Wagagas, dawnery y reenam yn anddad dadabab.	595.1
Destination	icts	Instry, exclinaty steed options, evillates, options, evillates, obtions, evilates, options, even evilates, steed options, senio, deptinaty steed inpote, senio, expected steed	Total	Ingoth, ordinary treel Blooms, billets, claimary steel Sinbt, sheet barr, ordinary steel (they mens, cedinary steel inysts, wenta, special steel	Total	ingot. ordinary aten'l Dicom. billets, eddinary stee'l Slabs. Wheel bart, ordinary stee'l Orbar samis, ordinary stee'l ingots, seenix, special vees	Total	impots, ucilinary steel Moces, alifors, Stabar steel Stabar steel Orber steel Orber steel Moces at west.	Total	theory, bullets, steel s	Total
	Products	5.5		82.5		0.0	است	1980 1	L.	To the	 .

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

	Oce 271.28		 		1				1		T ,
	Africa		1	TO COMPANY AND AND AN AREA AND AN AREA AND AND AN AREA AND AN AREA AND AND AND AND AND AND AND AND AND AN	j		15.1		•		,
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	usa		5 25		c 2.0		51		600		323
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	n Austria		-		1		1		!		'
,	Seeden		122		5.4		- 88		43 -		-
	3		7,5				9		0.1		0.1 3 3.1
	any, Italy	1 :	2 1.7		42.7		83.5		20		0'99
-	France Cermany,	¥.	67		7.0		32 6		3.5		40 6
	Fel/Lux Fra		1.0		t.a		5.0		ļ		0.2
	Nother Fel	ก บ	121		5.8		5.0	i	0.5		
		8	86.3		1013		185.9		123.1		152.6
	Middle Furope		j		i e		ı		1	1.7	
	Japan 3		 !		ਲ		{		ı		-
-	S. E.		970		2.0		6.2		2.9		
-	Total	and the second s	898		1043		2013		127.6		1859
	Vestination /	Tomore, ordensey area) Blooms, billors, critish system critish system critish your columny orea! ("Thore ammen, actions write! special seek	Total	Indots ordinary sceed Blogma, billies, ordinary steed ordinary steed Ordinary steed Ordinary steed Ordinary steed	Total	Ingote, ordinaty site: Blooms, blilets, ordinary wheel slibar, aheet barn, ordinary else; ordinary else; ordinary meel special sene!	Total	Ingoza, ordinacy strul Bloces, blints, ordinacy steel ordinacy steel ordinacy steel ordinacy steel ordinacy steel streets, senks, whechal steel	Total	Injoca, ordinary steel Blooms, billetn, ordinary steel stellary steel ordinary steel ordinary steel ordinary steel injoca, smele, special steel	Total
	Products	F # O W G T G K K	L	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	l	7 6	L	7975		1976	<u> </u>

Appendix Table II-8 (cont'd.)

(I,000 MT)

Products Destination Total S.E. Middle Europe hether nel/Lux	S.E. Middle Europe Asia Japan East hether-	Japan Eust Rurope Rether-	Middle Europo Bast Dether-	le Europe Bether-	Nother-	Nother-	1/12	l	France G	Germany,	Italy	ž	Sweden	Austria	Horeh America	ng tros USA	Datin America Brazil	T.,	Africa 0	90ean; #
70	Ingott, ordinary accel- Blows, billgin, ordinary strei stabs, shore bare, ordinary accel- ordinary accel- ordinary accel- ordinary accel- ordinary accel- shyte, somes,		The state of the s																	
L	Total	27.25	2.7	1	12.5	1752	0.7	13.6	9.4	4.8.1	2.9	60.1	!	1	44.4	777	-	,	5.7.7	1
85 65 65 4 8 1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	ingers, orchancy accol Blooms, hiller, orthangy stend Slaba, sheet burg, ordinary stend Other sumis, ordinary accel program scouls, agecial steel								· · · · · · · · · · · · · · · · · · ·										A commence was before and by management and the state of	
	Total		ļ	{	ţ	1.0.1	1	i	\$	12	1	. 15.4	!	ì	ı	1	1	1	-	ı
0: 0:	Inques, ordinary state Blown, billers, ordinary state ordinary state ordinary state ordinary state ordinary state andreas, state applies, state applies, state													The second of th		a gamen gangga (maren dina oʻra kabililik da ga ganga gavangiy bayligi.	namely and the state of the sta		and the second and the second standards and the second sec	
	Total	\$2.04	1218	1026	483	256.5	1.8	9.7	2.8	1037	1 0.6	65.8	I	1	77.8	7.7.7	2.2	50	35.6	1
8	inguica, oculinary acest Blooms, billets, ceclinary acest oculinary acest Other servin, oculinary acest candidaty acest inguisa, benes, epecial acest							AND ASSOCIATION OF THE PARTY OF				And an include case of the contract of the con	han, manaya aray aray aray katalah katalan aray aray aray			·		 заправання заправня подправня на подправня рамент. 		
	Total	1034	1365	C'9 &	ì	2405	0.5	2.6	20	9.5.6	345	51.9	***	1	:27	:23	23	0.1	282	ì
Ø	tanozw, otd.nazy werel bloom, billets, dettaner oboli dettaner oboli dettaner serel edtaner serel edtaner serel otdiner series otdiner series otdiner series otdiner series	AMERINA (C. A. C.		And the second s				, within And aggregate company to accompany of the Andrew Section 1 A Springers				and all the first of a suppose purpose over the second control to the first second control to the first second		and the state of t			nde manderstandigen sejen oppgen in engeneral visualista.	**************************************		
1	Total	2588	,	,	ì	216.1	0.2	10	52	59.5		3.70	*	1	305	Sta 2.	2	22	57.)

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

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Latin An			3		S)		5	çi		
America	USA			New Printer and Americans and American State of	,			9		
North A			25		•			5.0		0.
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	Sweden				1		30	2		0.1
	ž		,		,		0.2	10		
	75319	,	29		9 0		152	5.8		2.5
	Germany, FR			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	22		6.6	97		7.7
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urope	*		ंत	The same of the sa	90		865	16.72		5.27
Middle Europe	East		 ;		:			i		
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5 E 400			(4.5		1.55		87.5	161.9		540
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	Products	2.	l	*A Pa		1974	٠	2761	97.6	.1_

Appendix Table II-9 (cont'd.)

(1,000 MT)

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America	Brazil		,		•)		1		
Latin M					•		1		l		
portes	บรล		3.2		0.		SC				
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	Austria		ii.		i		1		ļ		
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	Š		0.2		5		9.1		0		
	Italy		0.5		10		0Z		en Ci		9.0
	Germany, FR		9:		3		5.5		æ;		2.1
	France		0.5		2.0		6.3		3.2		
	Pe 1/130x				î				{		
	Sether- Lands		:		*? C)				:		
Middle Burope	`		4.0		0; -¥		4.2		0- 62		3.15
Middle	ලියනර්		*		!		ł		*		Ö
	Japan				,		ţ		;		
S.E.	Asia				!		1			·	1
Total			4.5		53		0.7		"; 33		1.
Destination	Products	Injour, ordinary strel Blowns, billets, Solomy stabil Solomy stabil Other same, Other same, Tracel areas, argets, stems,	Total	Ingers, scalnary steel Micros, billets, ordinary steel stabs, speet bars, ordinary steel Other smax, ordinary steel objects, senis, special, steel	Total	Impora, ordinary about blooms, billors, confinery steel confinery steel ordinary steel ordinary steel ordinary steel impora, steel impora, asses, special steel	Total	Jupers, cedanary steel Blewer, Dallels, redinary steel octionary steel Other steel Other steel Other steel Other steel Other steel Insoft, steel	Total	Unjoir, unlinary steel Blours, billois, Cedinary steel Clabs, sheet pare, cedinary steel Cher sense, Unjoirs, steel Special steel	20,00
/	Pro	1977		60 64 64	-1	9.		() go e	_	6. 100	

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

(1,000 ME)

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_,,	Cestination	Total			A					1	-k			***************************************		
71	Products		Rep. o.	Tarken	Singapore	Nongkong :	Malaya	Philip-	Indo-	India	Thatland	China	Burna	Iraq	Other	Total
,	ingote, ordinary tree.	2.60	.A. 17 10)	686		1,757		5,457							5668	15,349
6.		7 3 3 3 3 3 3 3	**************************************	3.4.45	**			12299		1125	9 6	90			V 4 6 7 7	55,150
	State, those para, ordinary stori	0.555.5	2:267		~											2.267
, _,	Spart Apple	-														,,,
	Control of the Contro	3055	1775						61	(14		र धा				3.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00
. 1	Total	284311	52233	484	14	1321		15.756	2	1327	9.5	151			20,544	75.964
	Tegota, ordinary steel	64 83 5)	17.	="												732
H)		144,776	\$65.5g.	in Su Tu			- Ks	3,105	~-	5,325	****				9528	353.7
	States, chees care.	624275	513,535			· · · · · · · · · · · · · · · · · · ·		· · · · · · · ·	чэ		71.		*****			31558
	Cather against								_ ,,		*-~-					
	Indiana season	8:70	8130	1967		5.5										2:22
	Total	779,103	540,775	1571		55	157	3,165	S	5025					9559	558709
L	Ingote, ordinary steel	5,41,5	0050	59					593		5			ς. Ω		4,861
1974		137757	0129:	22.52	6666	•		5,772	23,579		1,788		8608		31,248	88,635
	Glaba, cheer bare, ordinary streil	18327	118632	ţ.J.				•	·		9.0					118229
	Orbhor sease,	-											*******	-		
	Appeter comits.	12253	9,284	1,074												10,359
	Total	628917	147,855	5,846	6662			5.772	24,481		1,894		3,998	10	31.248	222083
L	Ingots, ordibary theel	1166	2,150	7.6									220	165	-	2,630
1975		586862	33,885	27.653	42497	7.856	37.75	9,218	36,852	;- ;-	9,629		4748		115.831	508545
	Glabs, sheet hars, ordinary steel	1,372,979	98.594		\$	-61		505		Ö	5.399	••••			35.168	157,581
	Grher scals, brdinary steel	•		-					·	· · ·	^	•		***************************************		
	Ingots, senit, special steel	15,067	2,631	1,742						166				111		11,650
	Total	1,889,946	142,040	29,672	47,497	7,967	2,775	9,727	36,852	187	12,428		4,968	274	153,999	460,406
	Ingota, ordinary stant	16,849	1,286	215					15,003							16.504
1976		286,279	75.946	29,670	11807	6.957		4.966	28,754	90	486,9	2032	17.9		19,960	169.235
	stabs, short bath, ordinary steel	742,362	1,432	3,547	10			37			96:				*7	5.236
	Other semis, ordinary stee!	128		*								•			22.5	125
	Ingota, comia, special arcel	14,459	11,072	717	1.1					Ŷ	4		٠,٥		7	11,824
	Total	1,060,057	89,750	54,155	11,828	8,957		4,945	45,758	72	7,184	2:03	165		20,101	222,925
j															7	

Appendix Table II-10 (cont'd.)

(I,000 MT)

Descripation	-			-											
. υ. υ.	France	Germany, FR	Ω¥	Sweden	Other Turope	Total Europe	Canada	USA	Sraza1	hrgeotina other latin	Other latin	Total	fotal. Africa	Cocenia	Orbers
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ļ	-	() ()	<i>t</i> ~		79	150		385				38.55		.7	
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									54290	198579	25,407	278.076	77,179		•
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			an an er	-//-	2590	30.75		8.495	27,581	65453	11.839	1:2,566	74233		
					710.037	716,657		2969	81,259	285.840	103791	47 5,859	44,902		
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	.,				25,157	25,157		2045	101 - 100		47.497	56,540	15,347		
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Appendix Table II-10 (cont'd.)

(IN 000 KI)

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	ordinary story	281,943	128993	3.086	• 27				1/4	47 140	270	60	and the second			152345
	Other emily,	*1	•?		,,	- 1 · A · A ·						Areston ar un	-Charach v			
	Together Ages.	15,483	2. 2. 3. 3. 4.	88.6		-	N7				o.	(E) C)				12,460
	Total	427361	184948	5883	7;	-	N°)	24,755	37.851	89	:352	5020			99	251,663
	fedors, ordanasy start	5,518	3,552	٥.						1~		, ~				3548
90		3884.	91 21 2-	558			8,101	674	(B)		ų,	80.	+			11,470
	Shabs, chees bers, ordenary sees?	83 to 25 to	6,194	272		105			62		-0 -0	75,527				82556
	Contra same.	147	5-								·e	***********				0.0
	tagett, gents.	861.2	1975	724					***************************************	593	υ	62				3,362
	Total	157,256	12610	2261		105	8,101	074	819	609	80 80	75,491				101,046
	Ingota, organisty ates?	1,763	1,738													1,738
1979		101,446	30,928	667	61	20	4.562	4.562	35.55					•	35,297	75698
	ordinary steel	565%	2824	250		5.5	4 00	\$			165	4,375				7,733
	Other semin, ordinary steel	6	-7	21	a)	-				10						7.0
	Indors, seaso,	10,519	27.14	\$ 44	47				3.	4.7 4.7 4.7 4.7 4.7	\$	4.4.00				6.886
	Total	123295	55.208	1,214	\$;	191	4,610	4,080	348	1,148	179	6.861			35.297	94,125
	inguit, arthuary steel	480%	5,447	2,593												8508
1980		139,460	22,592	18,709		169	20,401	23,084	12225		8	292			15,828	112391
	ordinary steel	38,621	659	7.50	-	166	15 15	L/1			3.65	543			297	5,113
	ordinacy steel	85 85	7.0		2.5											9
	Indots, semis, apecial steel	8,648	3,544	647	1	10		2		1,327	8	398	23		D-	3,94.9
	Total	188,933	28392	55769	92	545	20,446	25,791	12223	1,307	176	1,235	23 [14,634	125,495
	Ingots, ordinacy steel	8.034	7,913	109										23		8021
1981		83,850	12,425	20.37	4.942		34870	22246	4,192	4.5	1.7		86		564	81,647
	ordinary steel	13,927	7,529	1,169		114	4,560			14	 -			•••	162	15556
	ordinary steel	7 00		4	10							-				22
· · ·	ingota, menia, special steel	12,104	2,669	1,804	4.512	32		2	3.2	1,841	۲.					10,899
	Total	112,993	50,533	5,125	9.464	257	\$9.450	22248	4224	1,888	7.2		φ. Θ.	61	826	115,937

Appendix Table II-10 (cont'd.)

(I,000 MT)

P.COBLOUES P.C																	
1.00 1.00	Pro	ducts	France	Germany, FR	ž		Other Burgge	Total Europe	Canada	บรล		Argentana		Total America	Total	Seeania	Others
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Control Cont	120						69	69		168			2,593	2261	10,403	4	
Total Tota		Ordinary scool											142618	149,618			
The control of the		erduraty steel															
Total		Ingota, wants, apocial stork		6	40		988	\$ 1.5		1,897			282	2263	2	٠٠	
1.00 1.00		Total	4	0.	10		676	1,039		27.90			151,895	154683	10,424	52	
Comparison Com		Ingota, ordinary stop;	-					-		69				69			
Section of the control of the cont	1978						×	O-		2.5.5			8/.:	K)	5,075		-,
State Stat		Sinus, sinet pars, ordinary strei	~				en en en	552		- * 7						500	
Total 1 1 1 2 2 2 2 2 2 2		other seals ordinacy stee!								55			47	47			.
Total 1 58 26 669 774 1605 61 192 1656 1920		ingota, sumae, apocial steel		58	2.6		528	412	± ~	1,348	**			1,469		V1	
1.0 1.0		Total	1	58	2.5		889	974		1,605	63		192	1,856	5,075	265	
Application 1		Jante Sagarant recor						-		17				1.7	ļ 	10	
1.00	1876			*-	'n		2500	666	· -	34				ধ	24715		
Coltant No. 10 19 75 125 125 126 1264 12		Slabs, wheet burn, ordinary accel		90' E4				328		837				88.7		601	
Proposity street, 10 19 75 129 1203 1503 1504 1505 1204 111	demo.	Other seams, ordanary steel															
TOCAL 1 346 86 1014 1457 2391 1 2292 24 24 24 25 24 25 24 25 24 25 25		ingots, senik.	9	0.	3.5		1.4 20	129		305.			• •	1,504			
Page 12 Page 12 Page 13 Page 14 Page 14 Page 15 Page		Total	-	3.48	38		1,018	1,457		2.59:				2352	24,715	909	
1,000, series 1,000, serie		Todata, grassage areas	64		25			2.5	and a second sec	2:				2:		+63	
State Stat	1980			٨	90		583	5,75		0.9			596	1,025	25,459		
Colored Services		States, angel Ross.				-										55511	
1982 1984 1985		Cuber sants.													a er moningar		-1-,- 6-14
TOLAL 20 124 651 797 665 665 1651 25 25 25 25 25 25 25		Indoor, south,		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ic)		67	20		582				53 53 53	a ngg quyak yak kak	3.	
100 100		Total	eq.	26	2.5		. 5.9	797		599			995	1.6 51	25,25	\$5,55	
1.028			• *					v		3				8)			
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52 9 15 76 406 691 1.297 1.297 1.5 2.508 1.45 2.508		declarate attention	of Fatour a							522				522		, i	
15 76 406 691 15.97 15.97 15.09 15 251 413 2558		Griner sones.						***		66				5.5			
2 25: 413 2558		lessons, seeds.		ty u)	0		. e.	25.	404	169				10.93		32	
		Total	4,7	3.0	47.		1.5	25:	4,14	2,508				272:	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

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[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:

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

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	11	
Cobalt		4-12	3,400	. #	
Manganes	e:	0.3-0.6	5,400,000	11	

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)

		<u> </u>	. (million MT)
	In situ amount		coverable at ficiency of:	Estimated land
	· ·	20%	40%	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%.