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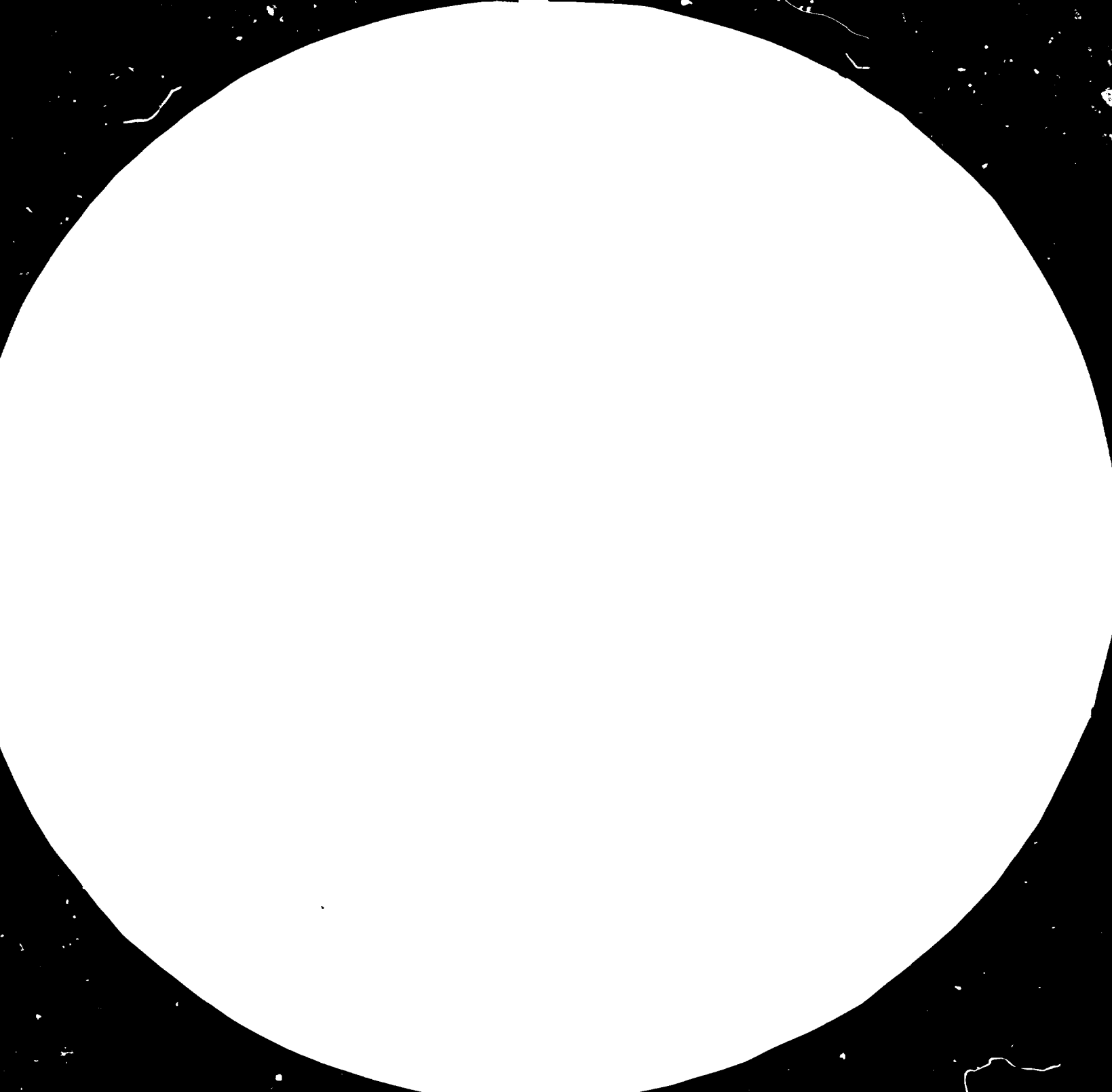
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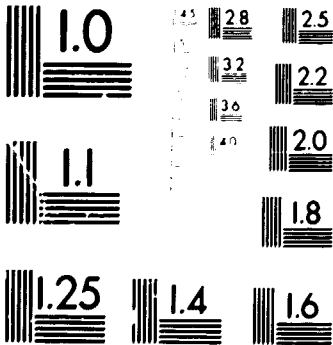
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January 1984.

Republic of Korea.

SPECIFIC CONSUMPTION OF STEEL .

Questionnaire on the Republic of KOREA prepared by
Mr Kwi Sob YOON, consultant to UNIDO, as a contribution
of the Sectoral Studies Branch, Division for Industrial
Studies, to publication ECE/STEEL/45 of the Economic
Commission for Europe.

restricted

3682

STUDY ON THE EVOLUTION OF THE
SPECIFIC CONSUMPTION OF STEEL

A. General

1. How do you measure the steel consumption of a steel-consuming sector in your country and how is it defined?

There are no official statistics about steel consumption of steel-consuming sectors in our country. So the figures of steel consumption in this questionnaire were calculated from the I-O tables of Korea.

Because I-O tables cover consumption of steel not only purchased outside but also produced and consumed by its own industries, we can estimate all steel consumption from the tables. Steel consumption value from I-O transaction tables was converted to a weight basis using Domestic Production & Import by Commodity Tables which are I-O supporting tables and cover domestic production and import on both a value and weight basis. The sector classification of Korean I-O tables can be directly linked with that of ISIC and there are no difficulties in sector classification.

Korean I-O tables were compiled in 1960, 1963, 1966, 1970, 1973, 1975, 1978 and 1980. So in intermediate years when I-O tables were not compiled the steel consumption figures were extended, under the assumption that input coefficient is constant during the intermediate years, using the industry production indexes of steel consuming industries.

2. How is the production of the steel-consuming sector measured in your country and how is it defined?

The production of steel-consuming sectors was also calculated from I-O transaction tables in billions of Korean Won. So they are equal to the total amount of intermediate

input and value added. In estimating the I-0 production figures on 1975 constant producers' prices, the GNP deflators of related sectors were used.

The production figures of intermediate years when I-0 tables were not compiled were extended by the industry production indexes of related industries.

3. Which combination of measures and definitions of the steel consumption and production of a steel-consuming sector is, in your opinion, the most accurate approach to analysing the evolution of the specific consumption of steel?

I think the most accurate approach is to estimate the steel consumption and the production of steel-consuming sectors from the I-0 tables.

Because I-0 tables are compiled on an activity basis and we find the input structure by industry and distributive structure of every product simultaneously in the tables, we can effectively analyse steel consumption of steel consuming sectors in connection with their production activities. Also, from the inverse matrix of I-0 tables it is possible to analyse the evolution not only of direct steel consumption but also of indirect steel consumption, which other industries consumed to produce the input materials.

4. Are there any studies available in your country on specific consumption of steel, measured in terms of intensities or in any other way.

I am sorry that I couldn't find any studies available on specific consumption of steel in terms of steel intensities. For reference, however, I should like to recommend two books which cover the demand analysis and progress pattern of the

Korean steel industry.

- (1) Demand analysis of the Korean steel industry
-- published by Korea Development Institute,
in Korean, 1976 --

- (2) Progress of Korean steel industry
-- published by Korea Development Institute,
in Korean, 1976 --

B. Steel Production

6. Secondary refined steels in ladles are special, high quality steels which are refined twice.

* 2) Total steel production means that of primary iron and steel products. It covers hot rolled steel plates and sheets, steel bars, and steel tubes etc.

Curde steel consists of steel ingot and continuous casting steel which cover ordinary steel and alloy and high carbon steel.

C. Global steel consumption

18,19,20,21. It is impossible to answer the questions because of data shortages.

D. Steel consumption by sector

23,25,27,29,31,33,35. There is no official data about steel losses of steel consumption in these industries. The figures in these columns are from the specialists' opinion in related industries.

43 There is no official data about the evolution of steel weight in machinery containing steel. The figures in these columns are from the specialists' opinion in the automobile industries.

44 Another steel-consuming sector selected for its particular importance in our country's economy is ship building and repairing sector.

45 There is no official data about steel losses of steel consumption in ship building and repairing industry. The figures in these columns are from the specialists' opinion in the industry.

STUDY ON THE EVOLUTION OF THE
SPECIFIC CONSUMPTION OF STEEL

QUESTIONNAIRE

Please return this questionnaire to the Sectoral Studies Branch, IS, of UNIDO by 10 January 1984.

Country	Republic of Korea	Name and function of official responsible for reply	Kwi Sob Yoon Chief, Banking Statistics Division Bank of Korea
Date sent	Jan. 5, 1984	Official address (in full)	3-110, Namdaemoon-ro, Joong-Ku Seoul, Korea
Signature	<i>Kwi Sob Yoon</i>		

Before starting to answer the questions, please read the entire questionnaire and the explanatory notes.

Introduction

In view of the difficulty of providing the extremely detailed data for this type of study, the ad hoc meeting on the evolution of the specific consumption of steel on 19 and 20 October 1981 decided that "the questionnaire should cover one sector common to all countries and another sector selected by each country for its particular importance in that country's national economy".

Countries are therefore asked to select another steel-consuming sector and make an analysis similar to that which is requested for the non-electrical machinery industry (Part D of this questionnaire), using all the types of information which are available but which cannot be collected in a systematic way by means of a general questionnaire.

Further, countries are asked for a qualitative assessment and explanations of the trends observed in steel consumption.

A. General

1. How do you measure the steel consumption of a steel-consuming sector in your country and how is it defined (see footnote 6)? Please provide the relevant data for each individual steel-consuming sector according to the ISIC (International Standard Industrial Classification), Statistical Papers, N. No.4, Rev.2, Add.1, UN, 1971 (see footnote 3 (b)).
2. How is the production of a steel-consuming sector measured in your country and how is it defined (see footnote 3 (a) and (b))? Please provide the relevant data for each individual steel-consuming sector, and formulate your answer as for question 1.
3. Which combination of the measures and the definitions of the steel consumption (question 1) and of the production of a steel-consuming sector (question 2) is, in your opinion, the most accurate approach to analysing the evolution of the specific consumption of steel?
4. Are there any studies available in your country on specific consumption of steel, measured in terms of steel intensities or in any other way? (Compare the measure of specific steel consumption given in question 43).

B. Steel production

Item	Unit	Actual data in unit indicated <u>1/</u>																							
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
5. The share of alloy steel in total steel production <u>2/</u>	%	-	-	-	-	-	1.8	2.1	2.1	2.1	2.3	2.3	2.5	2.5	2.0	2.0	2.0	2.1	2.3	3.3	2.2	2.1	1.8	1.8	
6. The share of secondary refined steels in ladles in total steel production, and an indication of which steels are secondary refined <u>2/</u>	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	1.9	2.0	2.2	2.3	2.4	

1/ It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year.

2/ Kindly define the coverage of "total steel production" and give the definition of crude steel which is in use in your country.

C. Global steel consumption

Item	Unit	Actual data in unit indicated 1/																							
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	E 1983
Production of the steel-consuming sectors which are defined in terms of ISIC: 3/																									
7. 381 - Manufacture of fabricated metal products, except machinery and equipment	value ←→ 1 000 t	18	21	24	28	26	35	40	45	56	59	63	75	72	105	126	162	228	302	366	365	361	391	430	
8. 382 - Manufacture of machinery except electrical	(in billions of Metric tons)	18	24	34	30	31	37	35	48	52	48	46	55	79	123	130	175	243	279	378	399	305	330	363	
9. 383 - Manufacture of electrical machinery, apparatus, appliances and supplies	"	6	9	14	20	25	28	41	52	73	105	116	162	252	445	618	636	1014	1171	1694	2000	1734	1925	1960	
10. 384 - Manufacture of transport equipment	"	18	28	31	46	35	52	75	107	146	184	165	151	149	224	373	425	452	658	949	1013	847	1029	1278	
11. 500 - Construction	"	149	159	200	247	253	325	405	478	681	900	954	919	852	1145	1209	1362	1560	1930	2445	2505	2521	2374	2649	
Steel consumption of the steel-consuming sectors which are defined in terms of ISIC: 4/																									
12. 381 - Manufacture of fabricated metal products, except machinery and equipment	1 000 t	28	35	33	37	32	39	64	105	120	180	203	219	196	245	356	427	649	888	1208	1206	1193	1292	1421	
13. 382 - Manufacture of machinery except electrical	1 000 t	21	30	39	31	28	36	52	61	81	77	77	92	110	150	175	217	351	555	913	883	827	1028	1119	
14. 383 - Manufacture of electrical machinery, apparatus, appliances and supplies	1 000 t	15	20	36	47	53	39	22	21	25	40	48	61	80	92	102	125	217	240	248	263	228	247	251	
15. 384 - Manufacture of transport equipment	1 000 t	14	21	24	44	46	60	79	105	123	154	160	202	193	314	416	498	536	744	1038	1198	1130	1349	1474	
16. 500 - Construction	1 000 t	98	105	132	163	189	243	303	358	510	698	740	765	710	954	801	873	1000	1658	2100	2152	2166	2040	2276	

1/ It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year. Metric tons should be given throughout.

3/ (a) The preferred measure of production of a steel-consuming sector is the product value at constant producers' prices (use 1975 as the year of reference); if you can provide data in the total product weight of the end product, please give both. If you cannot provide the data in the form of the above given measures, please give any other available data, such as:
- the number of units of the end product, their breakdown and their average weight;
- some production indices based on value added;
- any other measure (please specify it).

(b) It is desirable to define the steel-consuming sectors according to the ISIC (International Standard Industrial Classification), Statistical Papers, N. No.4, Rev.2, Add.1, UN, 1971, but since the nomenclature of the sectors is often different in different countries, it will be sufficient to give the existing national data obtained from the steel-consuming organizations. In this case, please indicate the coverage of each sector and its corresponding production by weight or volume, specifying the unit of measurement used.

4/ Data on steel consumption of the sectors are requested for any single year to serve as weights for calculating an index of the evolution of the sectors. The year chosen should be one of the years given in the other tables. Please supply the tonnages of actual direct or final steel consumed, as explained in footnote 5, even if they are approximate. Kindly specify to which series of steel consumption the supplied data refers.

Item	Unit	Actual data in unit indicated ^{1/}																							
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Total actual consumption of finished steel products in the whole country ^{5/}																									
17. Direct actual steel consumption, total	1 000 t	375	408	449	549	419	603	850	1255	1796	2387	2689	2997	2870	4628	5223	4689	6214	9269	11239	11628	9798	1537	11981	
- of which alloy steels	1 000 t	5	6	8	10	10	12	16	18	26	30	32	46	50	78	95	106	146	202	324	326	354	390	412	
- of which non-alloy steels	1 000 t	250	270	282	342	250	354	516	810	1089	1459	1611	1787	1749	2784	3134	2857	3821	5694	6907	7131	5747	7089	7212	
- of which heat-treated steels	1 000 t	1	1	1	1	1	2	2	3	3	4	5	6	7	10	20	25	36	50	81	81	86	97	100	
- of which hot-rolled flat products	1 000 t	12	14	16	24	13	22	20	32	60	67	94	106	115	297	294	188	234	362	460	447	412	373	329	
- of which cold-rolled flat products	1 000 t	24	29	31	24	25	42	40	64	112	131	182	206	222	569	560	356	435	621	571	705	497	696	442	
- of which heavy long products	1 000 t	65	68	87	115	98	127	199	266	417	566	652	709	616	718	894	835	1126	1719	2327	2321	1964	2156	2760	
- of which light long products	1 000 t	18	20	24	33	22	44	57	62	89	130	113	137	111	172	226	322	416	621	569	617	738	736	726	
18. Final actual steel utilization	1 000 t																								
19. Final actual steel consumption	1 000 t																								
20. Indirect imports, total ^{5/}	1 000 t																								
- of which final steel products	1 000 t																								
- of which products of first transformation and other intermediate goods	1 000 t																								
21. Indirect exports, total ^{5/}	1 000 t																								
- of which final steel products	1 000 t																								
- of which products of first transformation and other intermediate goods	1 000 t																								

^{1/} It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year. Metric tons should be given throughout.

^{5/} The data on actual consumption covers the total consumption of finished steel products on the consumer side. It must not be confused with the direct apparent steel consumption which is calculated by adding imports to and subtracting exports from the domestic production of finished steel products. The actual consumption of finished steel is defined as follows:

- Direct actual steel consumption is calculated by subtracting the increase in merchants' and users' stocks of finished products and semis from apparent steel consumption;
- Final actual steel utilization is equal to the direct steel consumption minus the balance of indirect trade of products of first transformation and the other intermediate goods (such as forgings, engines, ball-bearings, etc.). This final use of steel includes consumption of transformed finished steel products, those sub-contracted and components from other industries, as explained in footnote 6. If it is possible to obtain a series relating to the final use of steel, these data are preferable to the series of direct actual consumption only.
- Final actual steel consumption is calculated by algebraic subtraction of the balance of indirect trade of steel in final goods from the figures for final actual utilization or by algebraic subtraction of the balance of indirect trade of steel in all goods from the figures for direct actual consumption.

Please differentiate between steel industry products and products of first transformation in accordance with the ISIC definition (International Standard Industrial Classification, Statistical Papers, M. No.4, Rev.2, Add.1, UN, 1971).

D. Steel consumption by sector

Item	Unit	Actual data in unit indicated 1/																							
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Steel and iron consumption of the steel-consuming sector: 6/ ISIC - 382 Non-electrical machinery																									
22. Total	1 000 t	21	30	39	31	28	36	52	61	81	77	77	92	110	150	175	217	351	555	913	883	827	1028	1119	
- of which flat products	1 000 t	7	9	11	9	9	11	15	20	24	24	24	32	43	66	69	86	134	165	267	290	290	360	393	
- of which long products	1 000 t	4	7	9	7	6	8	10	14	19	21	21	25	27	35	53	65	99	123	187	213	225	280	306	
- of which tubes	1 000 t	-	-	-	-	-	-	1	1	3	3	3	4	7	11	11	11	17	19	42	59	69	86	94	
- of which steel castings	1 000 t	5	6	8	6	4	8	12	12	8	4	4	4	5	5	5	7	11	14	21	17	11	14	15	
- of which forgings	1 000 t	-	-	-	-	-	-	3	4	4	5	5	4	4	9	9	3	5	4	4	6	5	6	6	
- of which cast-iron products	1 000 t	5	8	11	9	9	9	11	10	23	20	20	23	24	24	28	45	85	230	392	298	227	277	300	
23. Steel losses as a percentage of steel consumption	%	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7-8	7-8	7-8
Steel and iron consumption of the steel-consuming sub-sector: 6/ ISIC-3821 Engines and turbines																									
24. Total	1 000 t	3	4	5	4	4	4	8	9	15	13	13	14	10	9	10	13	24	62	109	156	203	252	275	
- of which flat products	1 000 t	1	1	1	1	1	1	2	3	4	3	3	4	2	3	4	2	3	5	8	21	35	44	48	
- of which long products	1 000 t	1	1	1	1	1	1	1	1	2	2	2	2	1	2	2	4	6	14	23	49	83	103	112	
- of which tubes	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8	13	16	17	
- of which steel castings	1 000 t	-	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	3	6	6	5	6	7	
- of which forgings	1 000 t	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	
- of which cast-iron products	1 000 t	1	1	2	1	1	1	2	2	7	6	6	6	5	2	2	5	12	39	70	71	66	77	85	
25. Steel losses as a percentage of steel consumption	%	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7-8	7-8	7-8

1/ It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year. Metric tons should be given throughout.

6/ The preferred measure of steel consumption of a steel-consuming sector is steel delivered to the sector by weight, which is defined as direct purchases of finished steel. Direct purchases of finished steel by a steel-using industry must comprise direct deliveries by the domestic steel industry + direct deliveries by the sector of first transformation, if not included in the domestic steel industry + deliveries by steel traders + direct imports by the steel-using industry + deliveries by assembly plants, foreign subsidiaries, or other steel-using industries.

If you cannot provide the data on direct purchases of finished steel defined as above, please give any other available data about the measure of input of steel, such as: steel used in production of the end product of sector; steel contained in the end product; any other measure.

If you use any other unit of measurement than tonnage, please specify it. Kindly define the product coverage of "total steel and iron consumption".

Item	Unit	Actual data in unit indicated 1/																							
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1991	1992	1993
Steel and iron consumption of the steel-consuming sub-sector: 6/ ISIC-3822 Agricultural machinery and equipment																									
26. Total	1 000 t	3	4	5	4	3	3	4	4	4	11	11	13	18	28	28	37	54	64	93	112	123	153	167	
- of which flat products	1 000 t	1	1	1	1	1	1	1	1	1	4	4	5	7	11	12	19	30	30	32	42	43	53	58	
- of which long products	1 000 t	-	1	2	1	-	-	1	1	1	5	5	6	8	12	10	10	12	13	18	24	23	25	32	
- of which tubes	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	8	23	29	32	
- of which steel castings	1 000 t	1	1	1	1	1	1	1	1	1	-	-	-	1	1	2	-	-	-	-	-	-	-	-	
- of which forgings	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
- of which cast-iron products	1 000 t	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	7	11	20	42	38	34	42	45	
27. Steel losses as a percentage of steel consumption	%	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9-10	9-10	9-10
Steel and iron consumption of the steel-consuming sub-sector: 6/ ISIC-3823 Metal and wood working machinery																									
28. Total	1 000 t	2	3	4	3	2	2	4	5	8	8	8	9	12	17	14	15	23	62	111	95	75	93	102	
- of which flat products	1 000 t	1	1	1	1	1	-	-	-	2	2	2	3	5	6	5	4	6	7	9	13	12	15	16	
- of which long products	1 000 t	-	-	-	-	-	-	-	-	1	1	1	1	1	2	3	4	7	10	15	16	15	19	21	
- of which tubes	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	2	1	1	1	
- of which steel castings	1 000 t	1	1	2	1	-	1	2	3	1	1	1	1	1	1	-	1	1	1	3	3	1	1	1	
- of which forgings	1 000 t	-	-	-	-	-	-	-	-	-	1	1	-	-	2	2	-	-	-	1	2	2	2	2	
- of which cast-iron products	1 000 t	-	1	1	1	1	1	2	2	4	3	3	4	5	5	4	6	19	44	81	59	44	55	61	
29. Steel losses as a percentage of steel consumption	%	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8-9	8-9	8-9

1/ It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year. Metric tons should be given throughout.

6/ The preferred measure of steel consumption of a steel-consuming sector is steel delivered to the sector by weight, which is defined as direct purchases of finished steel. Direct purchases of finished steel by a steel-using industry must comprise direct deliveries by the domestic steel industry + direct deliveries by the sector of first transformation, if not included in the domestic steel industry + deliveries by steel traders + direct imports by the steel-using industry + deliveries by assembly plants, foreign subsidiaries, or other steel-using industries. If you cannot provide the data on direct purchases of finished steel defined as above, please give any other available data about the measure of input of steel, such as: steel used in production of the end product of sector; steel contained in the end product; any other measure.

If you use any other unit of measurement than tonnage, please specify it. Kindly define the product coverage of "total steel and iron consumption".

Item	Unit	Actual data in unit indicated ^{1/}																						E	
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981		1982	1983
Steel and iron consumption of the steel-consuming sub-sector: 6/ ISIC-3824 Special industrial machinery and equipment (except 3823)																									
30. Total	1 000 t	11	16	21	16	15	19	25	27	28	22	22	26	31	42	42	52	83	127	202	187	149	185	202	
- of which flat products	1 000 t	3	5	7	5	5	5	6	8	8	7	7	9	11	13	13	19	30	32	60	49	37	46	50	
- of which long products	1 000 t	2	3	4	3	3	5	6	8	7	6	6	7	9	13	13	17	27	36	53	62	58	72	79	
- of which tubes	1 000 t	-	-	-	-	-	-	-	-	1	1	1	1	2	4	4	3	5	6	8	9	6	7	8	
- of which steel castings	1 000 t	3	3	4	3	2	4	6	5	4	1	1	1	1	1	1	2	3	5	9	4	1	1	1	
- of which forgings	1 000 t	-	-	-	-	-	-	2	2	2	2	2	2	2	5	5	1	2	1	1	1	1	1	1	
- of which cast-iron products	1 000 t	3	5	6	5	5	5	5	4	6	5	5	6	6	6	6	10	16	47	71	62	46	58	63	
31. Steel losses as a percentage of steel consumption	%	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6-7	6-7	6-7
Steel and iron consumption of the steel-consuming sub-sector: 6/ ISIC-3825 Office computers and accounting machinery																									
32. Total	1 000 t	-	-	-	-	-	1	1	1	1	1	1	2	2	2	2	2	2	3	5	8	10	12	13	
- of which flat products	1 000 t	-	-	-	-	-	-	1	1	1	1	1	2	2	2	2	2	2	3	5	8	3	10	11	
- of which long products	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
- of which tubes	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	
- of which steel castings	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
- of which forgings	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
- of which cast-iron products	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33. Steel losses as a percentage of steel consumption	%	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5-6	5-6	5-6

^{1/} It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year. Metric tons should be given throughout.

^{6/} The preferred measure of steel consumption of a steel-consuming sector is steel delivered to the sector by weight, which is defined as direct purchases of finished steel.
Direct purchases of finished steel by a steel-using industry must comprise direct deliveries by the domestic steel industry + direct deliveries by the sector of first transformation, if not included in the domestic steel industry + deliveries by steel traders + direct imports by the steel-using industry + deliveries by assembly plants, foreign subsidiaries, or other steel-using industries.
If you cannot provide the data on direct purchases of finished steel defined as above, please give any other available data about the measure of input of steel, such as: steel used in production of the end product of sector; steel contained in the end product; any other measure.
If you use any other unit of measurement than tonnage, please specify it. Kindly define the product coverage of "total steel and iron consumption".

Item	Unit	Actual data in unit indicated ^{1/}																					E 1993		
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980		1991	1992
Steel and iron consumption of the steel-consuming sub-sector: ^{6/} ISIC-3829 Machinery, non-electrical, not elsewhere classified																									
34. Total	1 000 t	2	4	4	4	4	8	10	15	25	22	22	28	37	53	79	98	155	237	393	325	268	333	364	
- of which flat products	1 000 t	1	1	1	1	1	4	5	7	8	7	7	9	14	31	33	40	63	88	153	157	155	193	211	
- of which long products	1 000 t	1	2	2	2	2	2	2	4	8	7	7	9	8	6	25	30	47	50	78	62	46	57	62	
- of which tubes	1 000 t	-	-	-	-	-	-	1	1	2	2	2	3	5	6	6	7	11	12	30	32	24	30	33	
- of which steel castings	1 000 t	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	3	5	5	3	4	4	5	5	
- of which forgings	1 000 t	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	
- of which cast-iron products	1 000 t	-	1	1	1	1	1	1	1	5	4	4	5	6	8	13	17	27	80	128	68	37	46	46	
35. Steel losses as a percentage of steel consumption	%	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7-8	7-8	7-8

^{1/} It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year. Metric tons should be given throughout.

^{6/} The preferred measure of steel consumption of a steel-consuming sector is steel delivered to the sector by weight, which is defined as direct purchases of finished steel.

Direct purchases of finished steel by a steel-using industry must comprise direct deliveries by the domestic steel industry + direct deliveries by the sector of first transformation, if not included in the domestic steel industry + deliveries by steel traders + direct imports by the steel-using industry + deliveries by assembly plants, foreign subsidiaries, or other steel-using industries.

If you cannot provide the data on direct purchases of finished steel defined as above, please give any other available data about the measure of input of steel, such as: steel used in production of the end product of sector; steel contained in the end product; any other measure.

If you use any other unit of measurement than tonnage, please specify it. Kindly define the product coverage of "total steel and iron consumption".

Item	Unit	Actual data in unit indicated 1/																				Σ		
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979		1980	1971	1972	1973
36. 3821 - Engines and turbines	value of 1 000 in billions of Korean Won	2	3	4	3	3	5	5	6	9	7	7	8	12	18	26	29	46	80	105	95	72	79	96
37. 3822 - Agricultural machinery and equipment	"	2	2	3	3	3	3	3	4	7	6	6	7	13	19	23	31	39	34	37	40	35	36	40
38. 3823 - Metal and wood-working machinery	"	1	1	1	1	1	2	2	3	3	3	4	5	7	10	13	12	12	12	15	20	25	26	25
39. 3824 - Special industrial machinery and equipment (except 3823)	"	3	4	6	5	5	7	11	12	13	13	12	15	24	32	28	31	37	50	67	61	46	50	50
40. 3825 - Office computers and accounting machinery	"	-	-	-	1	1	1	1	1	1	1	1	1	1	2	2	2	3	5	8	10	11	13	12
41. 3829 - Machinery, non-electrical, not elsewhere classified	"	10	14	20	17	18	19	13	22	19	18	16	19	22	42	44	70	106	98	146	173	116	126	140
42. 382 - Total	"	18	24	34	30	31	37	35	48	52	48	46	55	79	123	130	175	243	279	378	399	305	330	363
43. Evolution of steel weight in certain types of machinery containing steel 2/ (automobiles)	% or kg/kg	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	67%	67%	67%	67%	67%	65%	65%	65%

1/ It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year. Metric tons should be given throughout.

3/ (a) The preferred measure of production of a steel-consuming sector is the product value at constant producers' prices (use 1975 as the year of reference); if you can provide data in the total product weight of the end product, please give both. If you cannot provide the data in the form of the above given measures, please give any other available data, such as:
- the number of units of the end product, their breakdown and their average weight;
- some production indices based on value added;
- any other measure (please specify it).

(b) It is desirable to define the steel-consuming sectors according to the ISIC (International Standard Industrial Classification), Statistical Papers, M. No.4, Rev.2, Add.1, UN, 1971, but since the nomenclature of the sectors is often different in different countries, it will be sufficient to give the existing national data obtained from the steel-consuming organizations. In this case, please indicate the coverage of each sector and its corresponding production by weight or volume, specifying the unit of measurement used.

7/ It is desirable to give any available data about the evolution of conversion coefficients for converting actual weight of steel contained goods of the ISIC-382 group of products into finished steel equivalents.

If you cannot provide these data, please give evolution of steel weight in kg per kg of total weight of any other types of goods, such as automobiles, tractors, etc.

Please use additional space for a qualitative assessment and explanation of the trends observed in your country's steel consumption.

Item	Unit	Actual data in unit indicated ^{1/}																							
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1971	1972	1973
Steel and iron consumption of the steel-consuming sub-sector: ^{6/} ISIC-3841 Ship Building and Repairing																									
44. Total	1 000 t	1	2	3	5	5	8	10	14	18	27	29	43	46	96	254	350	353	359	399	402	794	1091	1218	
- of which flat products	1 000 t	1	2	3	5	5	7	9	12	15	21	22	33	32	79	211	290	291	295	310	305	624	820	924	
- of which long products	1 000 t	-	-	-	-	-	1	1	2	3	5	6	7	7	9	24	38	39	40	54	56	100	154	171	
- of which tubes	1 000 t	-	-	-	-	-	-	-	-	-	1	1	3	6	7	17	20	21	21	30	33	58	97	101	
- of which steel castings	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
- of which forgings	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
- of which cast-iron products	1 000 t	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	3	5	8	12	20	22	
45. Steel losses as a percentage of steel consumption	%	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9~10	9~10	9~10

^{1/} It would be preferred if investigation were undertaken of long time series from 1960 to 1980 in absolute figures and covering every year. However, if this is not possible, countries are requested to provide data for every fifth year. Metric tons should be given throughout.

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