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GLOBAL IRON AND STEEL INDUSTRY
SOME REFLECTIONS AND PROJECTIONS*

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INTRODUCTION

The growth pattern of global steel industry has followed a varied pattern during the last 2 decades whilst maintaining a steady growth and spectrum in preceding decades. World steel production doubled from 360 million tons in 1960 to 710 million tons in 1974 - a positive progressive growth particularly in the advanced/developed steel producing countries. The picture has changed visibly since 1974 after which the growth of the steel industry in the developing countries has risen gradually whilst the developed countries, particularly of the western world, have depicted a depressing steel industry with production dropping off the peak of 1979 figures. Such a pattern may be adjudged from the following tabulations (Table I and Table II).

TABLE I

WORLD raw steel production set a new record of nearly 720m tonnes in 1985, beating the previous best of 747m tonnes reached in 1979. Significant increases were recorded in developing countries as well as China and North Korea last year. Brazil moved up the world league table to seventh place. China increased output by 7% to 46.5m tonnes. Turkey's production rose 15% taking it to 25th place in the world. In major industrialised countries, output was mostly stable, although there was a 4.3% decline in the USA. The USSR, the world's largest producer, managed a 0.6% increase.

	1984	1985	% change		1984	1985	% change
USSR	154.2	155.21	+0.6	North Korea	6.51	8.41	+29.2
Japan	105.6	105.2	0.3	East Germany	7.6	7.91	+3.7
USA	83.9	80.4	-4.3	Mexico	7.5	7.3	-2.8
China	43.4	46.5	+7.2	Australia	6.1	6.4	+4.3
West Germany	39.4	40.5	+2.7	Netherlands	5.7	5.5	-3.8
Italy	24.1	23.7	-1.3	Taiwan	5.0	5.11	+1.8
Brazil	18.4	20.5	+11.3	Turkey	4.3	5.01	+15.2
France	19.0	18.8	-0.9	Sweden	4.1	4.8	+17.0
Poland	16.5	16.11	-2.0	Austria	1.1	1.1	0.0
UK	11.1	11.1	0.0	Yugoslavia	4.1	4.41	+6.5
Czechoslovakia	14.8	15.21	+2.7	Luxembourg	4.1	4.1	0.0
Canada	14.7	14.71	+0.1	Hungary	3.8	3.71	-2.7
Romania	14.4	14.41	+0.3	Venezuela	2.8	3.0	+9.6
Spain	13.5	14.2	+5.4	Bulgaria	2.9	3.01	+2.5
South Korea	13.0	13.5	+3.9	Argentina	2.8	2.9	+3.6
India	10.5	11.1	+5.6	Finland	2.4	2.4	0.0
Belgium	11.3	10.7	-5.4	Other countries	14.9	16.4	+9.7
South Africa	7.7	8.61	+11.3	World total	709.9	719.9	+1.4

Source: ISI Estimate

TABLE II

PRODUÇÃO MUNDIAL DE AÇO BRUTO
WORLD CRUDE STEEL PRODUCTION

PAISES/COUNTRIES	Unid. / Unit: 1.0										
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	
URSS / USSR	130,2	141,3	144,8	140,7	181,4	149,1	147,9	148,5	147,2	152,0	
Japão / Japan	117,1	107,3	107,4	102,4	107,1	111,7	111,4	101,7	99,5	97,2	
Estados Unidos / USA	132,2	104,8	118,1	113,7	124,3	123,7	101,5	100,6	71,0	70,0	
China / China	21,1	23,9	20,5	23,7	31,8	34,5	43,8	36,0	37,1	30,9	
República Democrática Alemã / F.R. of Germany	53,2	40,4	42,4	30,0	41,2	40,0	41,5	35,7	35,9	30,7	
Itália / Italy	23,6	21,9	23,5	23,3	24,3	24,2	26,5	24,8	24,0	21,7	
Francia / France	27,9	21,5	23,2	22,1	22,8	22,4	22,2	21,2	19,4	17,0	
Polónia / Poland	14,6	15,0	15,0	17,8	19,3	18,2	19,5	15,7	14,8	10,4	
Tchecoslováquia / Czechoslovakia	13,6	14,3	14,7	16,1	15,3	14,8	14,9	15,3	15,0	15,1	
Reino Unido / United Kingdom	22,3	20,1	20,3	20,4	20,3	21,5	11,3	15,8	13,7	15,0	
Países Baixos / Holland	7,5	8,3	8,2	11,2	12,1	13,9	15,2	13,7	13,0	14,7	
Escandinávia / Scandinavia	8,0	11,0	13,5	13,6	11,8	12,9	13,2	13,0	13,1	13,5	
Canadá / Canada	13,6	13,0	13,3	13,6	14,0	16,1	15,0	14,8	11,9	12,9	
Estados / States	11,5	11,1	11,0	11,2	11,3	12,2	12,6	12,9	13,1	12,7	
Coreia do Sul / Rep. of Korea	1,9	2,0	2,5	4,3	6,9	7,8	8,6	10,8	11,8	11,9	
Índia / India	2,1	8,0	9,4	10,0	10,1	10,1	9,5	10,8	11,0	10,3	
Bélgica / Belgium	10,3	11,7	12,3	12,7	12,7	13,5	12,4	12,4	10,0	10,2	
Alemanha Ocidental / F.R. of Germany	6,2	6,8	6,7	6,8	7,0	7,0	7,3	7,5	7,2	7,5	
África do Sul / South Africa	5,8	6,8	7,1	7,3	7,9	8,9	9,1	9,0	8,2	7,1	
Áustria / Austria	5,1	6,3	6,3	6,8	6,8	7,1	7,1	7,0	7,1	7,0	
Coreia do Norte / D.R. of Korea	3,2	2,9	3,0	4,0	5,1	5,4	5,8	5,5	5,8	5,5	
Arábia Saudita / Saudi Arabia	7,8	7,9	7,8	7,3	7,9	8,1	7,5	7,6	6,4	5,0	
Países Baixos / Netherlands	6,9	4,9	6,2	4,9	6,0	6,0	6,2	6,5	4,4	4,5	
Áustria / Austria	4,7	4,1	4,5	4,1	4,2	4,9	4,8	4,7	4,2	4,4	
Bélgica / Belgium	6,0	6,1	6,1	4,9	4,3	4,7	4,2	3,8	2,9	4,2	
República da Alemanha / F.R. of Germany	3,8	2,9	3,4	3,2	3,5	3,6	3,0	4,0	3,8	4,1	
Hungria / Hungary	3,5	3,7	3,7	3,7	3,9	3,9	3,8	3,0	2,7	3,8	
Yugoslávia / Yugoslavia	1,8	1,8	2,0	1,8	2,2	2,4	2,5	2,4	2,8	3,1	
Luxemburgo / Luxembourg	6,4	4,6	4,6	4,3	4,8	4,9	3,8	3,8	3,5	3,3	
Argentina / Argentina	2,4	2,2	2,4	2,7	2,8	3,2	2,7	2,9	2,9	2,9	
Bulgária / Bulgaria	2,2	2,2	2,5	2,6	2,3	2,6	2,7	2,5	2,8	2,8	
Finlândia / Finland	1,7	1,8	1,8	2,2	2,3	2,5	2,5	2,4	2,4	2,4	
Vietnã / Vietnam	1,1	1,1	0,9	0,9	0,9	1,5	2,1	2,0	2,2	2,2	
Irã / Iran	0,6	0,6	0,6	1,8	1,3	1,4	1,2	1,2	1,7	1,7	
Outros Países / Other Countries	8,6	6,7	9,6	10,9	13,3	14,6	15,0	14,4	15,3	17,8	
TOTAL / TOTAL	292,5	343,4	374,4	374,8	516,9	446,7	516,2	507,7	544,8	648,9	

The global recession in the steel industry is not universal. The Socialistic block (Planned Economy) countries are maintaining a low yet steady increase in their steel production/capacity as also some of the developing countries such as South Korea, Brazil and other Latin American countries besides others. Some countries are in the process of establishing new/additional steel capacity such as the gas based sponge/steel plant at Alexandria in Egypt, assisted by the World Bank and technical/financial assistance from developed countries including Japan. Fairly good recovery from steel recession now appears to be dawning and in some quarters, it is expected that by the year 1990, global steel industry could well be operating at over 90% capacity utilization. This would imply that steel producers will have to plan for increases in steel capacities and the increased investment could lead to higher steel prices. Such a relative prosperity/recovery will not be shared by all countries; the latter will differ significantly in the extent to which they will benefit.

From the global steel production annual tabulations, it is obvious that steel production in the developing countries is steadily on the increase as also their steel consumption and installed steel capacities. UNIDO's Lima Declaration and Plan of Action is under actual implementation through the co-ordinated efforts of UNIDO's technical assistance programme, System of Consultations, co-operation amongst the developed and developing countries and last but not the least amongst developing countries themselves based on the UN concepts of TCDC/ECDC (Technical/Economic Co-operation amongst developing countries).

An analysis of the steel production of the developing countries, including China and other Asian CPE countries, vis-à-vis the global steel output during 1985 shows their share to be about 18-19%. The developing countries and their industrial promoter viz UNIDO, which is now a newly-emerged specialized agency of the United Nations, can take justified satisfaction at their joint co-operative efforts.

Over the past 100 years, the rise in the world's output of steel has been spectacular. In 1870, it was just short of 10 million metric tons. A half-century later, in 1920, it had increased nearly eightfold to 75 million metric tons. By 1974, it had climbed to 710 million metric tons.

As a nation starts to industrialize, a first surge of steel demand is likely to reflect heavy investment in its economy's infrastructure - the development of a transportation and communications network, electric-power generation and distribution and other essential facilities. A broader impetus to steel consumption comes from the industrial expansion itself, which is both a cause and a prime beneficiary of the infrastructure improvement. As economic growth takes off and affluence starts to spread, demand escalates for key consumer durables such as cars and major appliances which in turn, boosts the use of steel.

The country's demand for steel is likely to be satisfied at first by imports. But as its requirements increase, it will attempt to shift to domestic production - initially, perhaps only for large-volume items. The establishment of a domestic steel industry will be recommended increasingly on grounds that it will stimulate supplier and use industries, provide employment and save scarce foreign exchange. It will seem attractive, too, for reasons of self-sufficiency and defence and at times because of the prestige surrounding steel mills.

When a country enters the rapid-growth stage, the "steel intensity" of its economy usually rises. Steel intensity is measured by the quantity of gross national product, GNP, measured in real, non-inflationary terms. The rapid growth phase is often defined as the stage in which real GNP per capita is between \$400 and \$2000 at 1963 prices.

A booming automobile market, trade in capital goods, rapid increase in investment in fixed assets and building up of a high level of inventory throughout the developed world largely enabled the steel industry to perform at its peak in 1974.

And then came the recession and the economies of many developed countries are still receding albeit somewhat slowly and hesitatingly whilst many of the developing countries are continuing to expand their steel industry in the midst in some cases, of heavy inflation and mounting international debt; the latter's interest payments are being met/balanced against steel exports. The overall steel map of the world is slowly changing through the applications of better techno-economic blends/packets such as:

- a) Import of continuously cast steel slabs such as from Brazil to US steel mills for rolling to finished flat steel products yielding economic returns to both the parties.
- b) Joint equity capital investment between developed and developing countries such as the recently joint capital formation between USA and South Korea for steel plant installation/operation in USA.
- c) Joint equity capital investment between two developed countries such as USA and Japan for steel industry/plant expansion in USA; such joint capital formations have recently been reported.

CAPITAL INVESTMENT

At the current prices, the capital investment costs per ton of installed steel capacity is reportedly of the order of 2000.-US\$. However, much depends upon the ingenuity and negotiation skill of the steel equipment buyer and he takes into account the fact that capital equipment/good industry in the advanced countries is depressed as much as their steel industry is and that they need capital goods in order to keep their capital goods industry at economic capacity operating levels. And look at the results in the case of South Korea which shows the figure reportedly as low as 700-800 \$/per ton installed steel capacity vide the following:

"POHANG IRON AND STEEL CO. said construction began end 1985 on South Korea's second integrated steel mill on the Bay of Kwangyang on the southern coast. Posco said the mill, with an initial crude steel production capacity of 2.7 million tons a year, is scheduled for completion in June 1987 at a total cost of 1,465 billion won (\$1.7 billion), including \$ 498 million in foreign loans. For the project, Mitsubishi Corp. of Japan, Voest Alpine AG of Austria, West Germany's Mannesmann Demag AG, Britain's Davy McKee PLC and several other foreign makers have formed consortia with Korean makers to supply plants, Posco officials said. (AP-DJ)".

From the actual analysis of the bids received in 1985 for establishing a 50,000 tpy capacity steel re-rolling mill (only rolling imported steel billets), the capital equipment costs quoted by well established equipment suppliers range from over 25 million US\$ to as low as 2.4 million US\$. And here comes the catch catch as you catch can. These are not hypothetical estimates; these are based on actual bids received and under scrutiny/study. These illustrations can be multiplied, the multiplier effect is multiplied depending upon who is bidding for whom. Identical criteria will apply when a developing country is "buying" the capital investment funds; the rate of interest levied for such capital investment loan have been as low as 2.5% with loan payments covering 25 years and with 10 years grace period. One has to keep an alert and roving eye on the current developments. Capital costs for a 4 million tons/year capacity pelletizing plant which has gone into operation during 1985 is of the order 50-55 US\$/ton installed capacity whilst there are examples where this figure has been multiplied by 3, the infra-structure and supporting facilities being the same in the two cases.

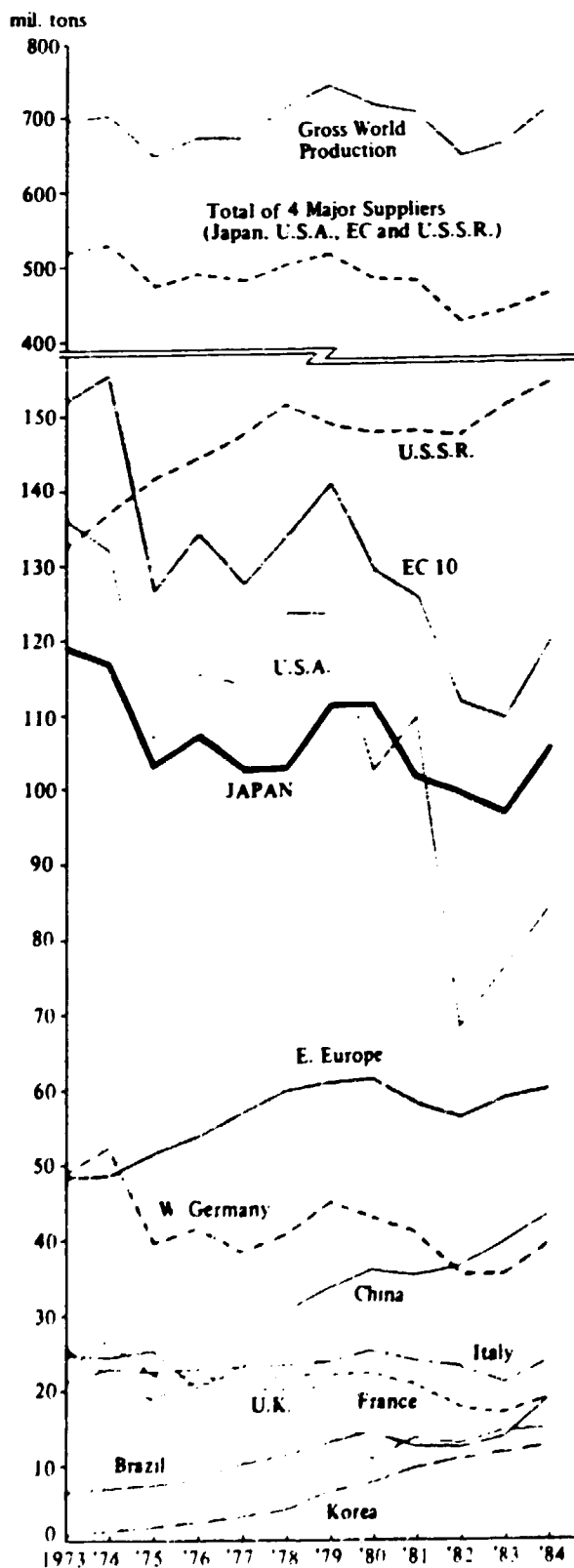
- 2 -

JAPANESE SITUATION/MIRACLE

Let us refer to the above subject with a reference to the following graphs:

FIG. 1

Crude Steel Production by Country, 1973 - 1984



Steel Exports of Major Countries, 1973 - 1984

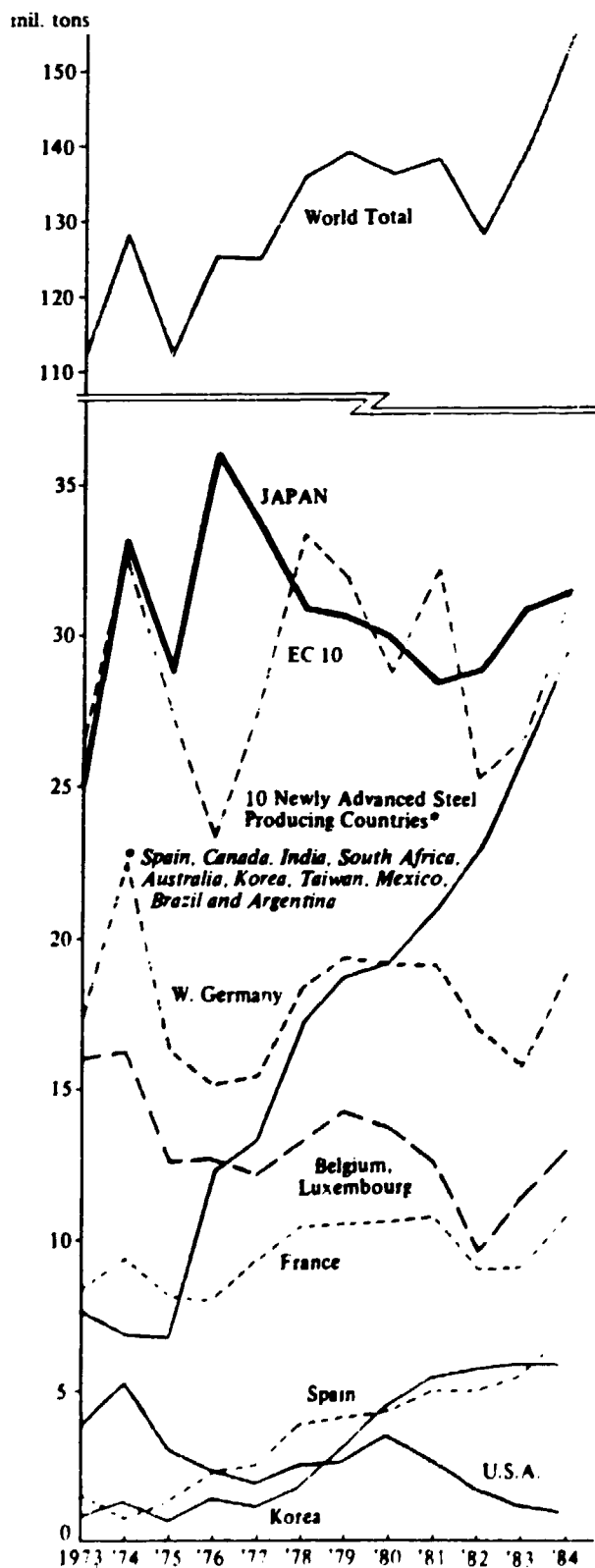
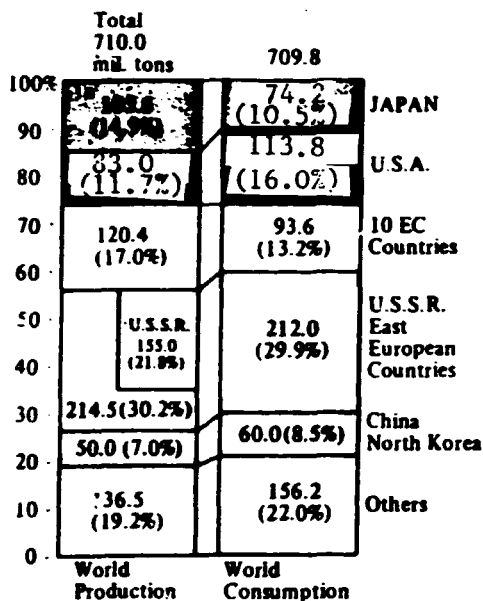


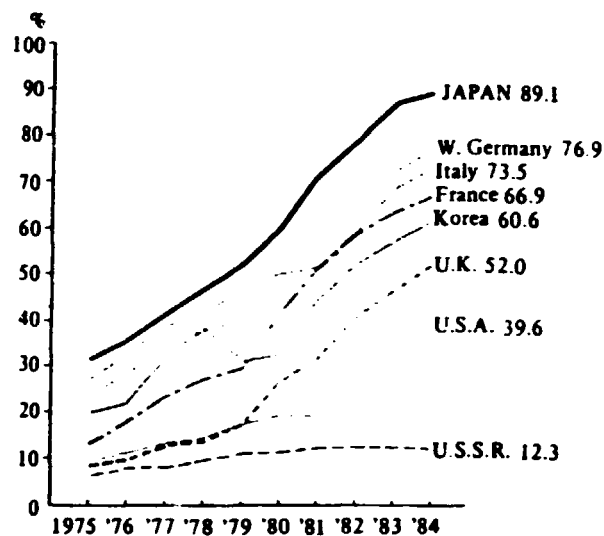
FIG. 2

World Steel Production and Consumption, 1984



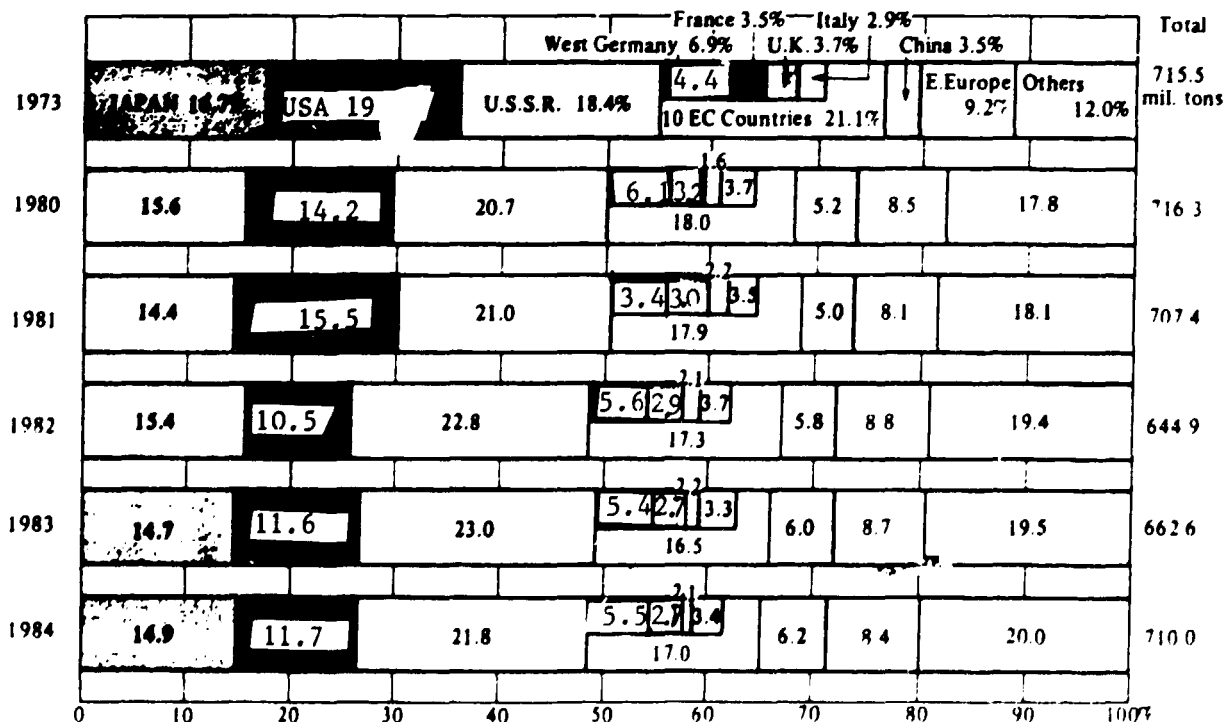
Note: World consumption figures were reported at IISI Annual Meetings and Conference in Chicago in October 1984.

Continuous Casting Rates of Major Countries, 1975 - 1984



Note: Continuous casting rate = $\frac{\text{Continuous castings}}{\text{Crude steel}}$ (IISI calculation formula)

Percentages of Principal Countries in World Crude Steel Production, 1973 - 1984



Amplifying these figures, let in the 1985 scenario; it costs about 2 US\$/labour hour to produce a car in South Korea whilst it now costs 12 \$ an hour in Japan and 24 \$ an hour in the USA.^{1/} With this differential in costs, international interest in car and parts production in South Korea is expected to be very keen and beneficial to the nations' future technological growth and industrial development

Installed Steel Capacity

Tables 3, 4 and 5 depict the world crude steel production in 1937 on to 1984 and estimated capacity set up by the end of 1985.

^{1/} I.A.M.I 2/1985 - p. 32

TABLE III

WORLD CRUDE STEEL PRODUCTION IN 1937 AND FROM 1980 TO 1984

AND ESTIMATED CAPACITY IN 1985

(THOUSANDS OF TONS)

REGION AND COUNTRY	1937	1980	1981	1982	1983	1984	ESTIMATED CAPACITY A) 1985
AFRICA							
ALGERIA	-	530	540	550*	560*	570*	...
NIGERIA	-	20	22	100	184 M	187	...
SOUTH AFRICA	360 B)	8976 B)	8971 B)	8271 B)	7066 B)	7863 B)	...
TUNISIA	-	180	168	105	144	159	...
ZIMBABWE	-	806	691	550	647	800	...
OTHERS	-	130	130	130	130	130	...
TOTAL	360	10644	10522	9706	8729 M	9679	...
MIDDLE EAST							
EGYPT	-	800	900	950	950	850	...
IRAN	-	1200 *	1200 *	1200 *	1200 *	1200 *	...
ISRAEL	-	110	87	83	83	94	...
QATAR	-	400	469	495	469	478	...
SAUDI ARABIA	-	-	-	-	400	864	...
OTHERS	-	170	180	200	200	200	...
TOTAL	-	2680	2863	2932	3302	3664	...
FAR EAST							
CHINA	454	37121	35608	37110	39660	43700	...
INDIA	910 C)	5512 C)	10765 C)	10997	10217	10549	...
JAPAN	5801	111395	101676	99548	97179	105586	...
KOREA, DEM. PP. REP.	103	5800	5500	5500	6100	6300	...
KOREA, REP.	-	8558	10754	11756	11915	13014	...
PHILIPPINES	-	420	350	350	200	250 *	...
OTHERS	-	6055	5002	6019	7286 M	7572	...
TOTAL	7260	178861	169651	171592	174957 M	186991	...
OCEANIA							
AUSTRALIA	1100	7589	7635	6371	5693	6302	6925
NEW ZEALAND	-	230	221	249	234	280	...
TOTAL	1100	7819	7856	6620	5927	6582	...
LATIN AMERICA							
ARGENTINA	2	2725	2586	2897	2943 M	2622	...
BRAZIL	76	15325	13213	12998	14671 M	18394	...
CENTRAL AMERICA	-	100	100	43	60 M	102	...
CHILE	19	712	634	487	618 M	688	...
COLOMBIA	-	405	395	409	482 M	499	...
CUBA	-	300 *	300*	300*	300*	300 *	...
ECUADOR	-	16	26	27	23 M	20	...
MEXICO	106	7065	7605	7028	6977 M	7543	...
PANAMA	-	6	50	50	50 *	50 *	...
PERU	-	471	360	273	289 M	323	...
TRINIDAD AND TOBAGO	-	-	45	250	240 M	186	...
URUGUAY	-	15	14	19	66 M	66	...
VENEZUELA	-	2077	2029	2528	2367 M	2702	...
TOTAL	203	29217	27357	27259	29047 M	33476	...
NORTH AMERICA							
UNITED STATES	53242	101690	100784	66137	75640	83037	120838
CANADA	1425	15902	14811	11072	12832	14926	19203
TOTAL	54667	117600	123595	78009	88472	97963	140041
WESTERN EUROPE							
AUSTRIA	650	4624	4656	4258	4411	4870	4751
BELGIUM	3884	12321	12283	9896	10156	11300	14700
DENMARK	20	734	612	560	492	548	850
FINLAND	48	2508	2428	2414	2416	2624	2650
FRANCE	7920	23176	21258	18402	17502	19000	27300
GERMANY, FED. REP. OF	19817	43838	41610	35880	35729	39389	54000
GREECE	10	1000 *	909	933	802	898	4200
IRELAND	-	2	32	61	142	167	330
ITALY	2087	26501	24777	24003	21811	24008	37100
LUXEMBOURG	2510	4619	3791	3510	3294	3988	5450
NETHERLANDS	49	5272	5472	4353	4483	5741	8000
NORWAY	70	866	847	768	876 M	915	950
PORTUGAL	-	659	555	502 M	674 M	690	803
SPAIN	166	12842	13021	13450	13282 M	11379	17500
SWEDEN	1122	4237	3770	3900	4210	4705	5450
SWITZERLAND	17	929	966	835	835	978 *	1032
TURKEY	-	2536	2425	3183	3835	4240	4900
UNITED KINGDOM	13192	11278	15573	13697	14979	15441	21883
YUGOSLAVIA	169	3634	3977	3840	4134	4244	4800 D)
TOTAL	51731	161576	158862	144445 M	144202 M	156843	215450
SOCIALIST COUNTRIES OF EASTERN EUROPE							
BULGARIA	-	2567	2483	2584	2825	2878	...
CZECHOSLOVAKIA	2300	15275	15270	14894	15024	14811	14950 D)
GERMAN DEM. REP.	-	7308	7467	7168	7219	7573	...
HUNGARY	665	3767	3645	3703	3617	3750	...
POLAND	1458	19485	15719	14795	16236	16533	...
ROMANIA	237	13175	13025	13055	12593	14437	14500 D)
USSR	17730	147931	148517	147153	152511	154210	155000 D)
TOTAL	22390	209458	206126	203450	210025	214434	...
TOTAL WORLD (ROUNDED FIGURES)	138000	718000	707000	644000	662000 M	709000	...

SOURCES: For production figures, unless otherwise stated: United Nations, Economic Commission for Europe, Annual Bulletin of Steel Statistics for Europe; United Nations, Monthly Bulletin of Statistics and Statistical Yearbooks.

NOTES: Unless otherwise specified, estimated capacity figures are based on official statements and secretariat estimates.

- A) At the beginning of the year.
- B) Finished castings are included.
- C) Ingots only.
- D) Exported production.

TABLE IV
 PRODUCTION AND SHARE OF TOTAL PRODUCTION OF CONTINUOUSLY CAST STEEL IN EEC COUNTRIES, 1980 TO 1984
 (THOUSANDS OF TONS AND PERCENTAGE)

COUNTRY	1980		1981		1982		1983		1984	
	1000T	%	1000T	%	1000T	%	1000T	%	1000T	%
BELGIUM	3170	25.7	3789	30.8	3239	33.3	3902	40.4	5297	49.5
DENMARK	538	73.3	586	95.8	542	96.8	480	97.4	545	99.5
FRANCE	9561	41.3	10918	51.4	10769	56.5	11218	63.8	14708	66.9
GERMANY, FED. REP. OF	20182	46.0	22319	53.6	22214	61.9	25654	74.8	30294	76.9
GREECE	...	...	909	100.0	932	99.9	858	97.5	895	99.7
IRELAND	...	...	32	100.0	61	100.0	141	99.3	166	99.4
ITALY	13218	49.9	12578	50.8	14056	58.6	14886	68.3	17604	73.3
LUXEMBOURG	0	.	265	7.0	680	19.4	794	24.1	2943	73.8
NETHERLANDS	0	.	1159	21.2	1350	31.0	1610	35.9	2220	48.7
UNITED KINGDOM	3059	27.1	4958	31.8	5333	38.9	6986	46.6	7858	52.0
EEC (ABOVE-LISTED COUNTRIES)	49708	38.9	57513	45.5	59336	53.2	66529	60.7	80828	67.3
AUSTRIA	2367	51.2	2906	62.4	3296	77.3	3862	87.6	4326	89.0
FINLAND	2261	90.2	2230	91.8	2255	93.4	2259	93.5	2485	94.4
NORWAY	0	.	0	.	0	.	0	.	0	.
PORTUGAL	281	42.6	212	38.2	236	47.0	291	43.2	278	40.3
SPAIN	4602	35.8	4575	35.1	5583	41.5	6001	45.3	6609	49.4
SWEDEN	2077	49.0	2465	65.4	2945	76.0	3367	80.0	3744	79.6
SWITZERLAND	0	.	0	.	0	.	0	.	0	.
TURKEY	183	7.2	324	13.4	1772	55.7	2428	63.6	3087	74.8
YUGOSLAVIA	1329	36.5	1720	43.2	1826	47.6	2133	51.6	2215	52.2
TOTAL WESTERN EUROPE	62808	38.9	71945	45.3	77163	53.4	86880	60.2	103584	86.1
BULGARIA	0	.	0	.	0	.	0	.	0	.
CZECHOSLOVAKIA	227	1.5	228	1.5	375	2.5	766	5.1	1077	7.3
GERMAN DEM. REP.	1038	14.2	1180	15.8	1233	17.2	1307	18.1	1927	25.6
HUNGARY	1338	35.5	1290	35.4	1243	33.6	1420	39.3	1757	46.9
POLAND	772	4.0	605	3.8	635	4.3	653	4.0	1987	12.0
ROMANIA	2379	18.1	2690	20.7	2927	22.4	3280	26.0	4388	30.2
USSR	16400	11.2	18100	12.2	18600	12.6	18900	12.4	19100	12.4
TOTAL EASTERN EUROPE	22354	10.7	24093	11.7	25013	12.3	26326	14.5	30224	14.1
TOTAL EUROPE	85162	23.0	96038	26.3	102176	29.4	113206	32.0	133808	36.1
CANADA	4073	25.6	4771	32.2	3894	32.8	4837	37.7	5647	37.8
UNITED STATES	20596	20.3	23004	21.4	18222	27.6	24652	32.6	32400	39.0
JAPAN	66271	59.5	71843	70.7	78377	78.7	83819	86.3	93889	86.9
GRAND TOTAL	176102	29.3	195656	33.1	202669	38.6	248514	42.0	285722	46.2

SOURCES: Annual Bulletin of Steel Statistics for Europe, United Nations, Economic Commission for Europe.

TABLE V

TREND OF APPARENT CONSUMPTION OF STEEL IN SELECTED REGIONS AND COUNTRIES IN 1960 AND FROM 1979 TO 1984
(THOUSANDS OF TONS OF CRUDE STEEL EQUIVALENT AND KILOGRAMS PER CAPUT)

REGION AND COUNTRY	1960		1979		1980		1981	
	1000T	KG/C	1000T	KG/C	1000T	KG/C	1000T	KG/C
OCEANIA	6639	300	6801	301	6913	302	7900	307
AUSTRALIA	4076	396	5781	401	6085	410	7120	479
NEW ZEALAND	499	210	893	200	607	222	764	200
OTHER OCEANIA	66	21	127	23	141	27	96	18
FAR EAST	36709	21	165575	64	165490	63	157987	60
CHINA	8502	12	44487	47	43262	45	39401	39
INDIA	4776	11	11847	10	9514	10	12616*	19
JAPAN	19456	209	73209	637	73442	629	65445	561
KOREA, REP. OF	157	6	7007	187	5045	140	5354	130
OTHER FAR EAST	3818	8	29025	36	43161	53	35171	27
MIDDLE EAST	2283	30	16455	126	15891	119	16169	118
AFRICA	3915	16	11606	28	10534	36	13925	32
SOUTH AFRICA	2165	123	5890	207	6746	211	6961	220
OTHER AFRICA	1750	6	5716	22	7788	20	7064	19
LATIN AMERICA	8750	41	32399	91	33180	92	36875	101
ARGENTINA	1575	90	3601	127	3610	133	3201	116
BRAZIL	2812	33	12720	107	16202	115	14231	115
CHILE	405	47	657	60	712	64	755	67
COLOMBIA	392	19	972	37	1023	38	903	32
MEXICO	1728	36	8474	122	7065	98	11701	164
VENEZUELA	539	104	3055	226	3301	237	3160	119
OTHER LATIN AMERICA	1299	24	3120	35	3267	36	2946	32
NORTH AMERICA	95485	481	155943	639	128530	511	143204	563
UNITED STATES	90016	490	140906	640	115591	508	129730	565
CANADA	5591	312	15037	635	12939	502	13474	553
EUROPE GRAND TOTAL	181262	272	...	...	...	...	...	...
WESTERN EUROPE	93726	265	143406	345	138377	331	123901	290
AUSTRIA	1896	260	2696	359	2706	360	2260	301
BELGIUM-LUXEMBOURG	2410	255	3848	376	3197	324	3256	319
DENMARK	1216	265	1833	358	1759	344	1770	300
FINLAND	1045	235	1594	335	2125	405	2051	427
FRANCE	13689	300	21137	395	20468	371	17545	325
GERMANY, FED. REP. OF	28804	521	16912	602	13783	549	10989	503
GREECE	412	49	1562	167	1988	207	1524	157
IRELAND	154	54	724	219	420	126	500	171
ITALY	8989	181	22660	400	26307	458	19743	345
NETHERLANDS	3271	285	4323	300	4033	320	3069	272
NORWAY	969	270	1412	347	1821	445	1525	372
PORTUGAL	403	46	1046	106	1216	122	1459	167
SPAIN	1738	57	7841	216	8931	239	8049	216
SWEDEN	4100	540	4380	528	4139	497	3430	422
SWITZERLAND	1585	296	2382	376	2734	429	2560	397
TURKEY	611	22	3057	69	3295	72	3365	74
UNITED KINGDOM	20650	393	20530	368	13783	247	14900	267
YUGOSLAVIA	1702	92	5541	250	5604	254	5030	223
SOC CTRS OF EAST EUROPE	87692	28	...	...	...	...	...	...
BULGARIA	857	108	2695	305	2792	312	2829	319
CZECHOSLOVAKIA	6493	676	10982	720	11154	729	11253	735
GERMAN DEM. REP.	6032	351	9906	591	9752	583	9604	561
HUNGARY	2079	200	3621	330	3533	330	3609	337
POLAND	6286	212	19316	545	19293	542	15427	429
ROMANIA	2425	132	12432	563	12115	546	11441	513
USSR	63520	296	...	...	...	...	...	...

TABLE V (cont'd.)

REGION AND COUNTRY	1982		1983		1984		APPARENT CONSUMPTION PER INHABITANT (INDICES 1984)	
	1000T	MC/C	1000T	MC/C	1000T	MC/C	1968=100	1979=100
OCEANIA	6649	283	5837	258	...	...	...	...
AUSTRALIA	5566	367	4885	318	...	...	...	...
NEW ZEALAND	968	396	846	264	...	...	...	...
OTHER OCEANIA	115	22	186	22	...	...	...	...
PAC EAST	151144 R	60 R	156872	61	...	...	...	...
CHINA	42167 R	41	51732	50	...	...	...	...
INDIA	13568 R	19 R	12066*	16	...	...	...	...
JAPAN	63733	538	59642	586	68818	567	271	89
KOREA, REP. OF	7458 R	194 R	8877	222	...	...	...	...
OTHER PAC EAST	24346 R	19	20888	37	...	...	...	...
MIDDLE EAST	18842 R	128 R	18623	128	...	...	...	...
AFRICA	11968 R	28 R	11681	25	...	...	...	...
SOUTH AFRICA	5576	186 R	4576	169	...	...	...	...
OTHER AFRICA	6394	15 R	7025	16	...	...	...	...
LATIN AMERICA	29842 R	78	25434	66	...	...	...	...
ARGENTINA	2442 R	84 R	3551	120	...	...	...	...
BRAZIL	18728 R	85 R	7961	61	...	...	...	...
CHILE	545	47	643	57	...	...	...	...
COLOMBIA	945 R	35 R	955	35	...	...	...	...
MEXICO	8545 R	117 R	7520	100	...	...	...	...
VENEZUELA	3482 R	213 R	2582	158	...	...	...	...
OTHER LATIN AMERICA	2435	26 R	2212	26	...	...	...	...
NORTH AMERICA	93488	364	105560	411	126461	483	186	76
UNITED STATES	84275	363	94529	404	113278	479	96	75
CANADA	9133	371	11031	408	13183	525	160	83
EUROPE GRAND TOTAL	...	...	...	...	...	...	...	...
WESTERN EUROPE	122707 R	293	111863	264	121629	285	108	83
AUSTRIA	2112	281	1986	263	1943	257	96	72
BELGIUM-LUXEMBOURG	4786	468	5269	534	4516	354	139	96
DENMARK	2278	443	1334	261	1826	357	135	100
FINLAND	2153	46	1844	379	2188	444	189	113
FRANCE	17246	318	15837	476	15188	276	92	70
GERMANY, FED. REP. OF	26847	436	29835	486	49937	489	94	81
GREECE	1673	158	2038	283	1477	169	366	89
IRELAND	568	161	444	128	691	139	257	63
ITALY	20489	356	18158	328	20873	366	202	74
NETHERLANDS	3783	258	3488	237	4258	295	184	98
NORWAY	1738	421	1338	324	1513	365	135	105
PORTUGAL	1485 R	171 R	1274	126	1284	118	257	111
SPAIN	8777	232	9343 R	244 R	6599	171	300	81
SWEDEN	3523	423	3493	419	3661	439	88	83
SWITZERLAND	2114	327	2035	321	2254	365	117	94
TURKEY	3977	86	4154	98	5065	105	477	154
UNITED KINGDOM	14197	254	14062	249	14424	256	85	78
YUGOSLAVIA	5225	238	5269	238	4972	217	236	87
SOC CMTYS OF EAST EUROPE	...	...	...	...	...	...	...	...
BULGARIA	3887	337	3156	366	2898	323	289	108
CZECHOSLOVAKIA	11129	724	11893	718	10824	708	147	97
GERMAN DEM. REP.	9524	569	9193	558	8934	536	151	94
HUNGARY	3482	344	3511	328	3226	302	145	89
POLAND	14438	398	14866	487	15344	416	196	78
ROMANIA	11615	512	10862	479	11523	509	186	98
USSR	...	...	...	...	...	...	...	...

SOURCES: United Nations Economic Commission for Europe, Annual Bulletin of Steel Statistics for Europe; United Nations Economic Commission for Europe, Statistics of World Trade in Steel.

NOTES: Including trade in finished steel forgings and castings. For developing countries, the 1980 and 1979 to 1983 series are calculated according to the trade data bank of the United Nations Statistical Office.

Top steelmakers of the world in 1984 are depicted in:

TABLE VI

Top steelmakers of 1984

MB's annual compilation of raw steel production figures by company for 1984 shows that Nippon Steel Corp remained far and away the largest producer last year. The most notable feature of 1984 is the jump in output by Brazil's Siderbrás, which with 11.39m tonnes last year is now the world's sixth largest producer, overtaking Sumitomo Metal Industries, Kawasaki Steel, Bethlehem Steel, Arbed and Thyssen. Among the other developing country producers, South Korea's Posco rose one place to 13th, Sidermex went up two places, but China Steel and Sidor both fell back. For the first time, the 1985 list includes all companies known to us to be producing 2m tonnes or more, 41 companies in all.

	1983		1984	
	Ranking	Output million tonnes	Ranking	Output million tonnes
Nippon Steel Corp	1	26.85	1	29.42
US Steel	2	13.42	2	13.70
Finsider	4	12.17	3	15.52
BSC	3	12.71	4	12.74
NKK	5	11.41	5	12.50
Siderbrás	11	9.12	6	11.39
Sumitomo	7	10.34	7	11.30
Kawasaki	6	10.26	8	11.28
Bethlehem	8	9.71	9	11.07
Arbed group	9	9.74	10	10.89
Thyssen	10	9.27	11	10.85
Ulsanor	12	8.80	12	9.40
Posco	14	8.44	13	9.19
LTV*	15	6.98	14	9.07
Sector	13	8.47	15	8.30†
Kobe	16	6.46	16	6.62
Sail	17	6.14	17	6.29
BSP	19	5.61	18	6.11
Inland	18	5.71	19	5.90
Iscor	20	5.44	20	5.77
Hoogovens	23	4.28	21	5.53
Armaco	21	5.26	22	5.35
Cockeril-Sambre	22	4.72	23	4.84
Vöest Alpine group	24	4.23	24	4.66
Krupp	27	3.80	25	4.40†
National Steel (USA)	26	4.17	26	4.35
Sidermex	29	3.80	27	4.30
Küchler	25	4.20	28	4.30
Eiswerke	29	3.80	29	4.1
Hoescht	27	3.80	30	4.0
Italcis	31	3.65	31	4.07
Dofasco	34	3.36	32	4.05
Mannesmann	32	3.65	33	3.99
Perini-Salspiger	36	3.12	34	3.63
China Steel	33	3.41	35	3.34
Nasahon	37	2.58	36	2.96
SSAB	38	2.59	37	2.89
Wheating Pittsburgh	40	2.02	38	2.54
Sidor	38	2.15	39	2.50
Algoma	39	2.09	40	2.29
Tata Iron & Steel	41	1.94	41	2.06

* Includes former Jones & Laughlin and Republic Steel. † Provisional. ‡ Financial year to Sept 30. Includes acquisitions during 1984.

Top steelmakers of 1985^{1/}

Metal Bulletin's compilation of raw steel output figures by leading steelmakers shows that Nippon Steel retained its significant lead in 1985, even though output fell slightly. Brazil's Siderbras moved into fifth place in the table, overtaking NKK and almost catching up with BSC; this followed its dramatic jump from eleventh to sixth place in 1984. Mexico's Sidermex, however, dropped four places last year, while Taiwan's China Steel Corporation fell two places. Two new additions were Weirton Steel, now an independent concern, and Rouge Steel. The 1985 list includes all companies known to be producing 2 million tons or more.

TABLE VII

	<u>Million tons</u>			
	<u>1984</u>		<u>1985</u>	
	<u>Ranking</u>	<u>Output</u>	<u>Ranking</u>	<u>Output</u>
Nippon Steel	1	29.60	1	28.56
US Steel	2	13.68	2	15.15
Finsider	3	13.52	3	13.45
BSC	4	12.74	4	13.35
Siderbras	6	11.39	5	13.23
NKK	5	12.50	6	12.10
LTV*	14	9.07	7	11.90
Thyssen	11	10.85	8	11.07
Sumitomo	7	11.30	9	10.99
Arbed Group	10	10.99	10	10.97
Kawasaki	8	10.28	11	10.86
Bethlehem	9	11.07	12	9.47
Posco	13	9.19	13	9.26
Sacilor**	15	8.30	14	8.75
Usinor**	12	9.40	15	7.22
Sail	17	6.29	16	6.82
Iscor***	18	6.19	17	6.81
Kobe Steel	16	6.62	18	6.46
BRP	19	6.11	19	6.32
Inland	20	5.88	20	5.51
Hoogovens	21	5.53	21	5.49
Armel	22	5.36	22	4.85
Klöckner****	29	4.27	23	4.59
Stelco	24	4.67	24	4.53
Cockerill-Sambre	23	4.84	25	4.50*****
Voest-Alpine Group	25	4.66	26	4.46
Mannesmann	33	3.99	27	4.40
Ensidesa	30	4.11	28	4.40
National Steel (USA)	27	4.36	29	4.35
DeFasse	32	4.06	30	4.37
Krupp	26	4.46	31	4.29*****
Sidermex	28	4.35	32	4.16
Hoesch	31	4.16	33	4.16

^{1/} Source: Metal Bulletin, 11 March 1985.

TABLE VII (cont'd.)

	<u>Million tons</u>			
	<u>1984</u>		<u>1985</u>	
	<u>Ranking</u>	<u>Output</u>	<u>Ranking</u>	<u>Output</u>
Peine-Salzgitter	35	3.63	34	3.82
Nisshin	36	2.96	35	3.29
China Steel	34	3.75	36	3.20
SSAB	38	2.86	37	3.01
Tokyo Steel	37	2.90	38	2.78
Sidor	40	2.50	39	2.72
Rouge Steel	39	2.66	40	2.50
Algoma	41	2.27	41	2.45
Weirton	-	-	42	2.41
Tata Iron and Steel	42	2.06	43	2.06

- * Includes Republic Steel from July 1984
- ** Output for Unimetal and Ascometal not included in 1985 figures
- *** Includes Dunswart
- **** Financial year ended 30 September
- ***** Provisional

POSCO speeds up Kwangyang^{2/}

The Republic of Korea's Pohang Iron and Steel Company says it plans to speed up development of its second integrated steel plant which is now under construction at Kwangyang. Originally the expansion was not due to start until March 1987, but it has now been brought forward by four months to November.

The first stage of construction at Kwangyang, costing \$1,660 million, is due to be completed in June 1987 and will give the plant a capacity of 2.7 million tons per year, which amounts to capital cost per annual ton crude steel capacity of \$615. By the time the expansion has been completed in December 1988, capacity will be doubled. Posco cited rising steel demand as the reason for speeding up its expansion plans.

^{2/} Source: Metal Bulletin, 4 April 1986.

A consortium of Voest-Alpine and Hyundai Heavy Industries has been awarded an AS900 million contract for the construction of a second sinter plant at Kwangyang. Voest also won the contract to supply the first sinter plant.

Latin American record 1985^{3/}

Latin American raw steel production reached an all-time high of 35.67 million tons in 1985, up by 7.3% in 1984, and 25% higher than in 1983, announced Anibal Gomez, General-Secretary of ILAFA. Capacity utilization grew to some 80%. The region's steel consumption rose only marginally to 28.9 million tons, up from 28.5 million tons in 1984, while exports rose 7.7% to a record of 9.6 million tons, due mainly to increased purchases from Asian countries. Gomez highlighted the dramatic increase in iron and steel products export since 1980, when Latin America exported 2.2 million tons.

Brazil, Argentina and Venezuela achieved large percentage increases in output last year of 11.3%, 11.1% and 10% respectively. Mexico's production fell 3.8%, and decreases were also registered in the Central American-Caribbean zone, Chile, Ecuador and Uruguay. The four biggest producers, Brazil, Mexico, Venezuela and Argentina, together produced 33.6 million tons of steel, or 94.5% of the region's total output.

Continuing export growth was the main reason for higher output last year, said ILAFA. The 9.6 million tons of exports represented more than 13 million tons of raw steel, or some 36% of total regional output, and earned \$2,200 million in foreign exchange.

Brazil, with a 1.6% increase in exports, continued to be Latin America's biggest exporter. Argentina and Venezuela also recorded fair increase in exports. Mexico's exports slumped due to restricted entry to the US market and production problems.

^{3/} Source: Metal Bulletin, 23 March 1986.

US imports curbs forced Brazil, Argentina, Venezuela and Mexico to diversify their markets, with considerable increases achieved in sales to China, Japan, Africa and Arab countries. Chinese purchases of Latin American steel rose to some 2.5 million tons last year (more than 25% of the total), compensating for reduced sales to the USA.

World crude steel production in 1985^{4/}

World crude steel output rose to 720 million metric tons in 1985, 10.0 million metric tons or 1.4% higher than in 1984, according to preliminary figures issued by the International Iron and Steel Institute. The figure is 74.8 million metric tons or 11.6% above the 1982 trough, and 26.5 million metric tons or 3.6% below the previous peak of 746.5 million metric tons reached in 1979. Much of the increase came from developing countries.

For the western world as a whole, 1985 was a year of stabilization. Estimated production was 449.4 million metric tons, 0.9% better than in 1984, and 9.5% below 1979 figure. United States production at 80.4 million tons (+) decreased 3.5 million tons or 4.3% compared with 1984, and was 35.0% below 1979 figure. The European Community's (10) output was stable at 120.7 million metric tons or 14.5% below the 1979 level. Japanese production of 109.2 million tons was 0.3% below the 1984 figure and 5.8% below the 1979 output.

Taken together, all industrialized countries of the western world produced 374.4 million metric tons, a 0.3% drop from their 1984 output.

IISI estimated that the 43 countries in which it has members accounted for 44.3 million tons in 1985, or 98.6% of the western world total. The 39 reporting countries whose output is included in IISI's monthly crude steel production statistics produced 436.4 million tons, or 97.1% of the western world total.

^{4/} Source: IISI Irons Information, 27 January 1986.

1985 steel production outside the western world showed mixed results. The USSR and other eastern Europe COMECON members increased production by 1.2 million tons or 0.5%. The People's Republic of China and the Democratic People's Republic of Korea, however, showed a 10.0% rise compared to 1984 and a 37.3% gain compared with 1979.

TABLE VIII

Crude steel production
(million metric tons)

	<u>1985</u>	<u>1984</u>	<u>1979</u>	<u>1985/1984</u> (%)	<u>1985/1979</u> (%)
World	719.9	709.9	746.5	1.4	-3.6
USSR and eastern Europe	215.4	214.2	209.4	0.5	2.8
China and other CPEs	55.2	50.2	40.2	10.0	37.3
Total CPEs	270.6	264.4	249.7	2.3	8.4
Western world	449.4	445.6	496.8	0.9	-9.5
Developing countries	75.0	70.0	54.3	7.0	38.1
Industrialized countries	374.4	375.5	442.5	-0.3	-15.4
USA	80.4	83.9	123.7	-4.3	-35.0
Japan	105.2	105.6	111.7	-0.3	-5.3
EC (10)	120.7	120.2	141.1	0.4	-14.9
EC (12)	135.5	134.4	154.0	0.8	-12.0

Notes: Western world excludes USSR, mainland China and other centrally-planned economies (CPEs) in this particular table.

Developing countries include Latin America, Africa (excluding South Africa), the Middle East, and Asia (excluding Japan, mainland China and other Asian CPEs).

Industrialized countries comprise western Europe, United States, Canada, Japan, South Africa, Australia and New Zealand.

The United States figures include adjustments not shown in the monthly figures.

EC (10): Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, Netherlands and United Kingdom.

EC (12): EC (10) plus Portugal and Spain, which became EC members on 1 January 1986.

Conclusions

The foregoing data provide the insight into the current situation of the global steel industry. The most remarkable development which has indeed emerged only during 1985-1986 is the dynamic recovery which the West German steel industry has staged in the recent past and achieved significant profitability mainly due to the use of highly modernized and up to date equipment and highly innovative facilities for steel production. Krupp's 140-150 tons capacity electric arc furnace, for example, turns out 140 tons of high quality steel every 90 minutes. Such developments and recovery of the steel industry in one of the most advanced western steel producing countries are indeed a breakthrough and bid well for the future.