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WORKSHOP ON STEEL TRADE ISSUES

**STEEL TRADE AND GLOBALISATION:
STATEMENT BY MR. RODNEY BEDDOWS**

The Workshop will be held in Paris on 27-28 May 1998.

Contact: Mr. Wolfgang Hübner, Head of DoT and the Steel Unit, STI; tel.: (33 1) 45 24 91 32;
fax: (33 1) 45 24 88 65; Internet: Wolfgang.Hubner@oecd.org

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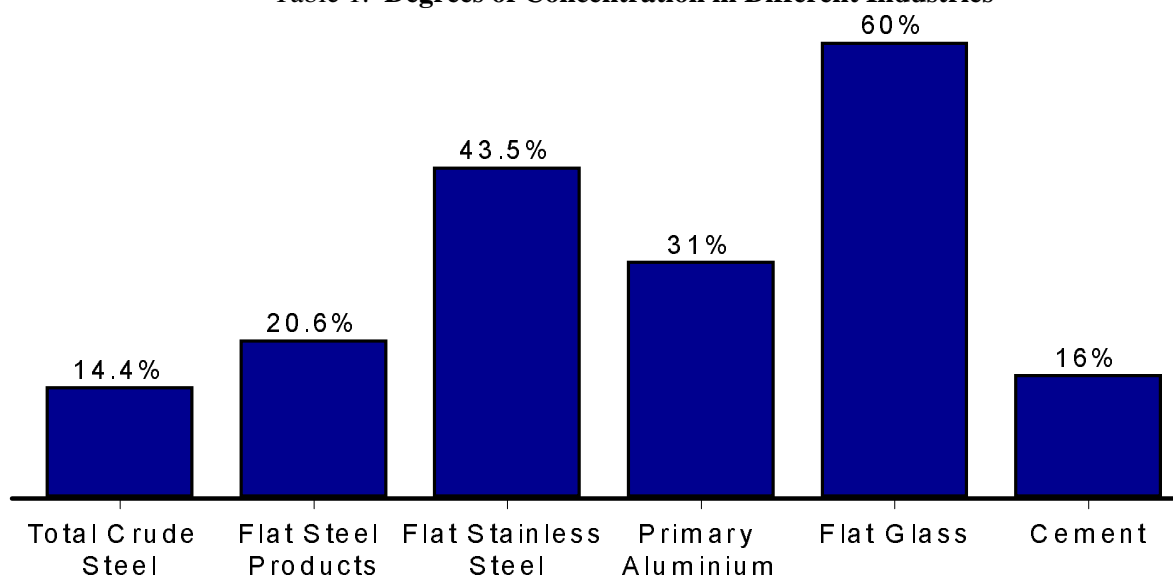
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**WORKSHOP ON STEEL TRADE ISSUES
STEEL TRADE AND GLOBALISATION
STATEMENT BY MR. RODNEY BEDDOWS
BEDDOWS AND COMPANY
PARIS, 27-28 MAY 1998**

The Position in General

1. Globalisation can mean many things and take many forms. It can mean concentration of production in terms of ownership or in terms of physical location of production and size and scale of plants, it can mean patterns of world trade and inter-dependence in the market place.
2. In this paper, I shall be considering the degrees and ways in which the steel sectors of countries and regions are becoming more integrated: this is my meaning of globalisation today.
3. Concentration in ownership for steel products in general is less than in other major materials sectors. For example, the market share of the five main producers for different steel and non-steel materials is as follows:

Table 1. Degrees of Concentration in Different Industries



% production by the five largest companies

4. Steel then, with the exception of stainless steel, is less concentrated than several other major material sectors. But concentration is still significant with five producers having nearly 15 per cent of world production and the top twenty producers approaching 35 per cent of world steel production. This is significantly more concentrated than 20 years ago. We would expect the concentration to continue such that in 15 years time the top twenty producers may well have between 50 and 60 per cent of world production. What is driving that concentration, I shall return to later.

5. Another way of looking at concentration of ownership is to look at the percentage of steel production which is under foreign company control in different regions of the world. This is a better measure of globalisation as meaning integration than simple concentration of ownership, for most of the concentration of ownership takes place within regions rather than inter-regionally. This is illustrated by Table 2.

Table 2. Local Steel Production Under Foreign Company Control (1995)

	Production (Mt/y)	Foreign owned production	
		per cent	of which out of the region
Western Europe	170.0	9.5	1.1
Eastern Europe and Former USSR	113.0	2.8	2.8
North America	121.0	11.3	10.6
South America	35.0	12.6	12.6
Asia - Oceania	290.0	0.5	-
Middle East - Africa	22.0	0.0	-
Total	751.0	5.1	3.0

6. As can be seen only 5 per cent of world crude steel production is owned by companies outside the country in which that steel is produced and only 3 per cent is owned by companies outside the region in which the steel is produced. By this measure of globalisation the steel industry is not even a regionalised industry and far from being a global one.

7. Patterns of trade show inter-regional trading activity at the same level in terms of percentage, as level of concentration in ownership. Table 3 shows the import and export volumes for different regions of the world in relationship to their overall finished steel products production. As can be seen 90 million tonnes of finished steel product is traded inter-regionally out of a total production of 655 million. This is approximately 15 per cent. If trade between countries in regions is taken into account then the trading levels more or less double to between 25 and 30 per cent. However, much of that trade is in Western Europe which in its current incarnation as the European Union can effectively be treated as one market. The level of inter-regional trade has remained approximately constant for the last ten years. While its product mix will change, given the importance of transportation costs it is unlikely that the overall volume of inter-regional trade will rise substantially.

Table 3: Inter-Regional Trade in All Carbon Steel Products (1995)

Country	Production	Export	Import	Balance
Asia	250.0	7.0	35.0	-28.0
Western Europe	148.0	28.0	20.4	7.6
North America	96.0	5.0	21.3	-16.3
South America	41.0	15.0	1.8	13.2
Former USSR	63.0	20.0	0.5	19.5
Eastern Europe	29.0	10.0	2.0	8.0
Others	28.0	5.0	9.0	-4.0
Total	655.0	90.0	90.0	0.0

8. Taking some representative products and the cost of transportation between Antwerp and Asia in a standard 20 000 ton vessel load, then the cost of transportation as a percentage of sales price varies from; 25 per cent for carbon steel slab to 20 per cent for carbon wire rod to 10 per cent for galvanised coil or tin plate. Only in the case of stainless product is transport essentially a marginal cost element between 3 and 5 per cent.

9. On the other hand transportation costs represent a smaller percentage of the selling price of most steel products than the difference in production costs between the highest cost and the lowest cost producers. For example, with hot roll coils costing \$325 per tonne then transport costs from Antwerp to Asia would be approximately 18 per cent of selling price. The differences in production cost however between the 10th and 90th percentile producers by cost is well in excess of 18 per cent in fact is between 35 and 40 per cent. It is therefore cost effective for a low cost hot roll coil producer to ship intercontinentally. He can still deliver products profitably even absorbing transportation costs into a high cost producer's market.

10. In a market with multiple producers the price of a commodity will, in the long run, match the cost of the last marginal unit produced. This will be higher, say for hot roll coil, than the cost of low cost global production plus transportation. However, the last 10-15 years have seen a gradual but persistent trend towards cost equivalence as technology is more readily and easily available, as best practices transfer more quickly and easily and as the capital market conditions for producers converge towards deregulated free market capitalism.

11. However, the costs of transportation are substantial for all carbon steel products and this in itself represents a significant restraint on anything other than incremental changes in patterns of finished steel trade from today's level. Globalisation as it affects the steel industry will not be based on massive increases in inter-regional shipments although we will examine one emerging and growing pattern later.

The Situation in Particular

12. Whilst globalisation of crude steel production is restricted to something around 14 per cent individual product/market sectors vary considerably. Table 4 illustrates this.

Table 4. Concentration By Product/Market Sectors (1995)

Category	Total Production world-wide	Largest Producer	Largest Customer	Shipments vs Requirements	
				Top 5 Producers	Top 5 Customers
Crude Steel	749mt	Nippon Steel 27.8mt	-	14 per cent	-
Carbon Long Products	240mt	Riva 5.5mt	1.7mt	10 per cent	3 per cent
Non Coated Carbon Flat Products	205mt	Posco 13.8mt	2.4mt	21 per cent	4 per cent
Automotive Sheet	34mt	Nippon Steel 4.3mt	4.4mt	41 per cent	41 per cent
Engineering Steels	22mt	Kobe 1.73mt	1.2mt	30 per cent	18 per cent
Stainless Sheet	9.3mt	KTN 1.12mt	0.2mt	38 per cent	5 per cent
Tin Plate	16mt	Nippon Steel 1.4mt	2.5mt	30 per cent	32 per cent
All Galvanised Sheet	58mt	Nippon Steel 4.5mt	2.0mt	25 per cent	11 per cent
DRI/HBI (Alternative Iron Units)	31mt	Ispat 4.7mt	-	-	-

13. For a number of individual steel sectors for example carbon long products, non-coated carbon flat products etc. Total world-wide production is shown and related to the size of the largest producer, the size of the largest customer and then the percentage of concentration in the shape of the top five producers and the top five customers is shown. As can be seen in most sectors customer concentration is less than producer concentration. For example in carbon long products the top five producers represent 10 per cent or total production world-wide compared to the top five customers representing only 3 per cent. The situation is replicated but more dramatically in non-coated flat carbon products.

14. However, in some sectors the balance is strikingly well matched. In automotive body sheet for example, approximately 34 million tonnes is produced. The largest producer Nippon Steel produces 4.3 million tonnes, while the largest consumer general motors, consumes 4.4 million tonnes. Likewise the top five producers and the top five customers each represent 41 per cent of their groups. A similar pattern exists in the area of tin plate. The single area that shows the biggest disparity between producer concentration and customer concentration is stainless sheet where the top five producers represent 38 per cent of production, whereas the top five consumers represent only 5 per cent of consumption.

15. Tin plate is an area of substantial concentration on both the customer and the producer side. Concentration in the production sector is being driven largely by customer behaviour. The packaging producers have internationalised and globalised very rapidly over the last 10 years and tinplate producers have followed suit to the extent of regionalising largely to retain some equivalence in market power versus customers. In addition the sector is relatively small representing only 16 million tonnes of production and it is difficult to be cost efficient at under half a million tonnes of production per year. Where concentration has occurred in production it has so far occurred on a regional basis. There are as yet no intercontinental or global producers of tin plate although we would fully expect that in the next five years a number of European and Japanese producers will be producing in Asia and in 10 years time there will be producers operating in three or more continents.

16. In stainless sheet the concentration has been driven by economies of scale. Here the total production is less than 10 million tonnes and the economy of scale in hot rolling is now at three quarters of a million tonnes. This is in most cases larger than any single country market and requires international operations. It is also significant compared to any continental market and has led to intercontinental ownership structures in order to achieve economies of scale and to avoid excessive market concentration in any individual country which could run into cartel and monopoly concerns. Some large producers such as Ugine and Avesta Sheffield are now active in production in Europe and North America and are actively considering ventures either in Eastern Europe and/or in Asia.

17. Finally, as an example is the highly specialised area of tool steel. Tool steel is a small segment of the market representing only half a million to a million tonnes of production (the range depends on one's exact definition of tool steel) economies of scale are around 100 000 tonnes per year for the full melt shop and finishing facility complex and individual national markets are normally, with only four exceptions, less than 50 000 tonnes of consumption. Both from economies of scale and from the requirements to distribute the product over many national markets to achieve anything like full production, the industry has been global for some time and will continue to concentrate and operate on a global basis.

Drivers for Globalisation

18. There are three major drivers which I will discuss briefly for globalisation in steel production and ownership these are namely:

- customer requirements
- economics of scale
- inter-regional inter-dependence

19. Certain key and major customer sectors have themselves globalised in terms of their patterns of production, ownership structures, and product specification. In particular the automotive and domestic appliance enter this category. The automotive industry is relatively concentrated with the top ten producers representing over 50 per cent of world-wide production. It has for some time been international and is rapidly becoming global. Companies such as General Motors produce in North America, Western Europe, Eastern Europe, Brazil and now Asia. They seek economies of scale to achieve economic production runs and the best utilisation of brand name and effective purchasing. They require product to be specified internationally and delivered to the same terms and conditions and with the same metallurgical and other product characteristics to all and any of their plants world-wide. They require the same service levels. The same dynamic applies in the domestic appliance sector and this is leading to

pressure on producers to be able to meet their customers requirements intercontinentally in order to defend their market shares locally.

20. The pattern of response from steel suppliers varies. Companies such as Inland Steel in North America, who are short of capital and management skills to be able to contemplate steel making investments outside their home country are seeking to position themselves in the processing and distribution chain, so as to be able to meet their automotive customers requirements in China as well as North America.

21. The Japanese have led the way through investing in North America and later in Asia. We would expect some of the larger producers of automotive flat roll steels such as Usinor or Thyssen to become involved downstream in developing countries in at least galvanising ventures focused on automotive product requirements. Certainly Thyssen has recently announced this in Brazil and Usinor has considered becoming involved in galvanising and further downstream investments in North America and is thought to be considering it in Asia. The pattern of response by individual steel makers will depend upon capital availability and technical and managerial resource. All producers who wish to remain major participants in the automotive supply chain will at least become involved in processing and distribution capabilities, to be able to handle their global automotive customer service and technical requirements on an intercontinental basis.

22. Customer requirements can also operate indirectly. In the case of coated flat rolled for the construction sector many of the developing countries, particularly in Asia, are witnessing the emergence of a two tier product market structure. Local product demands are for light gauge, thin coated products of low quality, whereas inward investment being led by developed world corporations is demanding product quality specifications similar to those found in their home countries. This requires better quality steel, thicker coatings, heavier gauges and overall better quality. These qualities are difficult for indigenous steel makers in developing countries to produce and represent an opportunity for inward investment, technology transfer and market development by steel makers in developed countries. There are opportunities for the steelmakers to become involved in developing global downstream coating and processing and distribution businesses servicing common customer and market specifications and standards on a world-wide basis.

23. Customer requirements and market developments in general therefore will tend towards standardisation in many steel product market sectors. The pattern of this standardisation will vary and the pattern of response available to steelmakers again will vary. It will not always be necessary to be involved in primary steelmaking to be able to respond successfully and exploit the business opportunities represented by these customer developments.

24. Economies of scale drive certain product market sectors towards patterns of globalisation. I have already talked about tool steel and stainless flat products where economies of scale is a key driver together with requirements for global distribution. Other specialty sectors will have similar characteristics. In the engineering steel sector there are a great many sophisticated application areas such as bearing steels where customers are concentrated, applications standards and technical requirements are high and demanding and economies of scale of plants are such that world-wide patterns of supply and intercontinental patterns of ownership are likely to make sense.

25. Very importantly there are areas of the world which will have a long term comparative advantage in certain parts of the steelmaking process. For example, Brazil is a very high quality low cost ore producer. West Australia is likewise as are parts of South Africa. Where infrastructure can be developed to make access to coastal port locations cheap and easy, and where iron ore can be brought together with

other raw material effectively and at low cost, it will make sense to produce carbon slabs and hot rolled coil in those locations rather than transport the raw material in a un-processed state around the world. The hot coil producers will then supply cold rolling and further processing facilities in many different, largely coastal, sites in diverse countries. Networks of ownership are likely to arise with very large scale front end facilities feeding partially owned finishing operations. These networks will tend to concentrate on a sector, such as construction, where grades and widths can be simplified reducing the quality control and logistics problems.

26. This will not apply to all steel production but only to specific areas. For example, in the developed world such as North America and Western Europe where environmental laws are particularly tight, and capital maybe in short supply to steel producers, there will be a reluctance to re-invest in the front end of the manufacturing process. These front ends may be dismantled and closed down and semi-finished product sourced in from specific parts of the world which have long term comparative advantage. Certainly the cost to produce slabs, billets and other semi-finished products in Brazil is up to \$75 per ton cheaper than to make these products around the Great Lakes of North America. This is significantly less than the cost of transportation and therefore particularly for the commodity end of the production spectrum it would make sense to have front end capacity in Brazil and a deficiency of front end capacity in the Great Lakes. Patterns of inter-regional inter-dependence based upon international comparative advantage, represents another likely pattern of international development and globalisation within the steel sector over the next 20 years.

Two Case Examples

27. I would like to briefly discuss two particular companies who have become the most International Steel Companies over the last few years. These are POSCO and ISPAT International. Table 5 gives a chart demonstrating the overall growth of POSCO over the last 20 years and this clearly has been driven by and related to Korean industrialisation. POSCO was perceived as a strategic investment by the Korean Government to develop steel and heavy industry intensive business in Korea to drive Korea's economic growth. In that sense it has been very successful. POSCO is now the second largest steel company in the world. Over the last few years it has internationalised aggressively, it now has 18 ventures outside Korea and these are identified with their partners and geographical location in Table 6.

Table 5. POSCO Growth

Over its first 20 years of existence, Posco invested over US\$ 12bn in its two facilities for a capacity of approximately 21mt. Expansion plans will lift capacity up to 28mt by 1998

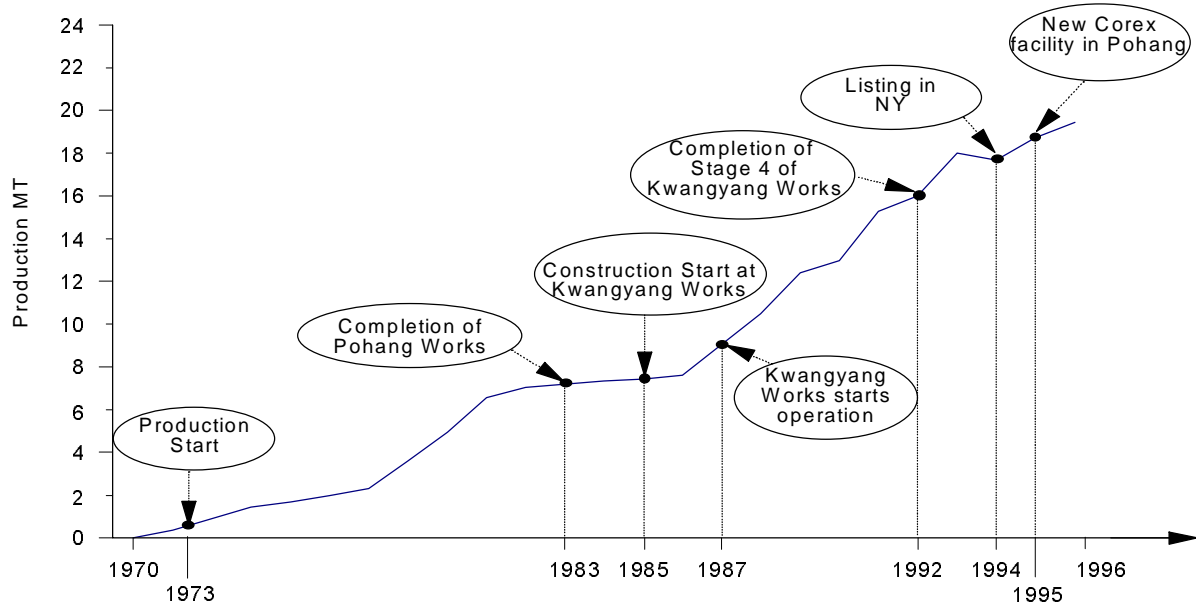


Table 6. POSCO goes global

Posco has stepped up their overseas investments recently. JV's are either formed in up - or downstream operations with the Indonesian operation being the only steel making facility outside Korea

Start up Date	Company Name	Location	Products	Capacity	Participation	Comment
1986	USS - Posco	US	Cold Rolling/Coating	1 mt	50%	Posco supplies 50% of HRC to the venture
1995	POS - Tianjin Centre Co	China	CRC	100 kt		
1997	Dalian Posco CTM Coated Steel	China	HDG	100 kt	40%	Posco supplies 100 kt HR to the venture
1997	VSC Posco Steel Co	Vietnam	Rod & Bar	200 kt	35%	Posco, Daiwoo and Vietnam Steel plans for 2 mt flat facility
1998	Kobrasco	Brazil	Pellets	4 mt	50%	2.3 mt feed for Kwangyang No.5 blast furnace
1998	Zhangjiang Pohang Stainless	China	Stainless CR		80%	Combined facility with Zhanjiang Posco Steel
1998	Zhangjiang Posco Steel	China	HDG	100 kt	90%	One Chinese partner holds the rest 10%
1998		Myanmar	HDG	30 kt	70%	
1998	Coil Service Centre	Thailand	SSC	120 kt	18.5%	
1998	Posven	Venezuela	HBI	1.5 mt	55%	500 kt feed for Kwangyang Mini Mill
1999	PT. KS - Posco	Indonesia	HR	1 mt	40%	Extension by 1 mt possible, EAF Thin slab route
?	Sunde Pohang Coated Steel	China	HDG	100 kt	80%	JV with two Chinese partners
?	Posvina	Vietnam	HDG	50 kt		
?	Vinapipe	Vietnam	Pipe and Tube	30 kt		

28. ISPAT International has likewise established a network of steel companies in 7 different countries and this is demonstrated in Table 7.

Table 7. ISPAT growth

Ispat's steemaking facilities have grown from 1976 from 60kt (Ispat Indo) to 14.5mt in 1997, comprising eight facilities in three continents

Name	Steel Products	Capacity kt	Cum. Capacity kt	Other Products	Location
PT. Ispat Indo	Billets, Wire Rod	700	700	-	Indonesia
Ispat Mexicana	Slabs, Pipe	2,200	2,900	Pellets, DRI	Mexico
Ispat Karmet ISC	Slabs, Long, Flat,	6,000	8,900	Cool, Coke, Sinter	Kazakstan
Sidbec-Dosco	Slabs, Long, Flat	800	9,700	DRI	Canada
Caribbean Ispat Ltd	Billets, Wire Rod	1,000	10,700	DRI	Trinidad & Tobago
Hamburger Stahlwerke	Billets, Wire Rod	1,000	11,700	DRI	Germany
Irish Ispat Ltd	Blooms, Sections	500	12,200	-	Ireland
Ruhrort-Hochfeld Ispat	Billets, Wire Rod	2,300	14,500	-	Germany

29. What has driven these developments? In ISPAT's case, they have bought businesses from Governments when those businesses were in significant disarray. Some were in worse states than others. In all cases they have bought them for very low capital commitments, in other words they have got assets whose value is significantly in excess of the equity paid to purchase them and they have developed those assets by boosting capacity to full utilisation and utilising their international marketing expertise to sell the product, and by transferring best practice aggressively across and between the companies. The key driver for ISPAT's growth has been a very low cost of capital. Where the assets significantly exceed the price paid for them the cost of capital is obviously reduced from its nominal price. ISPAT however has recently listed itself in New York and the cost of capital will now rise to a North American industry average. The value to be created from the International Network of ISPAT's companies is clearly residing in the world-wide knowledge base for sales and the ability to cross-fertilise different businesses with best management practice developed wherever, either within the ISPAT companies or indeed anywhere else in the global steel industry.

30. POSCO's internationalisation has likewise been driven by the cost of capital. POSCO's cost of capital given lending rates from Korean banks has historically been extremely low. This means that the returns needed on capital investments are correspondingly low and the risk premium associated with investing in places such as China, which is significant, when added to the cost of capital still leaves them with a total cost and risk premium lower than companies in deregulated capital markets such as London or New York. POSCO's ambition therefore is to internationalise and become the largest steel company in the

world, which cannot be effectively fulfilled in Korea given the size of the market, has been facilitated by a very low cost of capital. POSCO's strategy is likely to flounder.

31. This is likely because the cost of capital is rising in Korea. The chaebol system is breaking down, the cost of lending is rising as massive bad debts are generated through the bankruptcy of major chaebol groups, and the capital markets will have to be freed up and deregulated to approximate more to those found in normal industrially developed nations. This will radically change the cost structure for capital investments of POSCO and it is likely that many of its investments will prove to be poorly founded.

32. On the other hand, ISPAT may well survive the change in its cost of capital because it has an added value creation mechanism through the transfer of best management operating practice. Indeed in a world where the technology available to steel companies is ubiquitous and available world-wide instantaneously for the same price, and where raw materials are a major element of cost and these are priced as world commodities; then the major differentiating factor between successful and unsuccessful steel companies is the quality of their management and operating practices. Those companies that can develop better practices than others and then can utilise those practices across a much larger total business, in the long run will succeed and grow at the expense of others.

The Importance of Best Operating Management Practice

33. As the cost of capital gradually equalises across the world with capital markets becoming homogeneous in their characteristics then the differentiating factors between steel companies will become fewer. In particular, such things as the price of electricity and other bought-in consumables will vary from country to country and be a significant difference in cost and profitability. Factors such as raw materials are international commodities, and labour will increasingly be a smaller and smaller percentage of total costs, so the cost of labour differences between countries will become increasingly of minor importance. In this environment, the most important difference will be management and operating practices and those companies which are able to develop and exploit this will achieve superior performance in return on capital terms to others; they will exploit this advantage to take over poorer performing companies and improve their performance. This will inevitably lead to an increased international and global ownership structure in the steel industry and an increasing degree of concentration, particularly in the primary and upstream end of the business.

34. One should not under-estimate the economic benefits and results of significant differences in management and operating practices. It is regular and common to find steel businesses in very similar circumstances producing returns on sales which vary by up to 5 per cent. This is solely due to the quality of their management and operating practices. If that is translated across their total sales and calculated as an impact on return on capital, then with a one to one ratio of capital to sales they have a 5 per cent return on capital superiority. In the case of mini mills which are much less capital intensive the difference in return on capital can be up to 10 per cent. This difference is well in excess of the risk premium associated with operating in foreign countries with cultural, legal, political and other risks which need to be factored in to investment decisions.

What are the Implications for India?

35. In my view the case for increased integration in the steel industry intercontinentally is proven. It will take different patterns in different product sectors due to market characteristics, economies of scale and the international factor cost differences. Those countries or regions which create a wider industrial

and economic environment which is not conducive to the free-flow of capital and behind it the free-flow of improved management and operating practices will suffer. The pain will be in slower development of the industry, higher product costs, lower product quality and poorer service and price levels to consuming industries, which will themselves be further disadvantaged.

36. It is common sense to suggest that in a developing country the size of India, it would be wise to take advantage of the technological and managerial skills of other steel companies particularly in highly demanding product sectors such as tin plate, stainless, automotive sheet etc. To take advantage of these skills requires that they be exploited for a return. Companies from outside India will not transfer these skills and technologies without generating an adequate return on their "investment" whether this is hard fixed capital investment or investment of their time.

37. At the moment, most steel companies in North America, Western Europe and even Japan, in other words the developed parts of the world with highly sophisticated steel industries, are showing reluctance to invest except very marginally in developing areas of the world such as India. The reasons for this are the perceived risk premiums attached to investing in such a country.

38. The risk premium attaches to the long period of time it takes to work through the administrative and bureaucratic structure at state and central government levels to achieve permission to create fixed asset investments. In addition, there are risks perceived to attach to a degree of instability in the central government and the possibility for significant policy shifts in tariff regimes, licencing procedures, ownership structures and the possible repatriation of profits. Finally, there is the anxiety that locally owned firms will be advantaged in government policy.

39. If these difficulties were alleviated then there would be a very significant inflow of capital technology into a region with the size and future growth potential of India. There are many other fundamental aspects of the Indian situation which are attractive and make it a more attractive region than other large areas such as China. The legal system is stable and patterned in many ways after a UK one. There is a large educated population which includes high levels of engineering skill. There is common use of the English language and a stable and well developed banking system together with relatively well developed and dynamic capital markets.

40. Given Indian consumption levels of 20 kg per head of the population compared to a developed world average of 300 kg there is no doubt that even at today's GDP levels, India has artificially constrained the demand for and production of steel products. Inward investment and the transfer of soft as well as hard technologies in this sector would do a great deal to ensure the continued growth and dynamism of the Indian economy.