COMMISSION DECISION

of 30 October 2001

declaring a concentration to be compatible with the common market and the functioning of the EEA Agreement

(Case COMP/M.2420 — Mitsui/CVRD/Caemi)

(notified under document number C(2001) 3363)

(Only the English text is authentic)

(Text with EEA relevance)

(2004/270/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to the Agreement on the European Economic Area, and in particular Article 57(2)(a) thereof,

Having regard to Council Regulation (EEC) No 4064/89 of 21 December 1989 on the control of concentrations between undertakings [1], as last amended by Regulation (EC) No 1310/97 [2], and in particular Article 8(2) thereof,

Having regard to the Commission's decision of 26 May 2000 to initiate proceedings in this case,

Having regard to the opinion of the Advisory Committee on Concentrations [3],

Having regard to the final report of the Hearing Officer in this case [4],

Whereas:

(1) On 31 May 2001, Mitsui and Companhia Vale do Rio Doce (CVRD) notified to the Commission a concentration pursuant to Article 4 of Regulation (EEC) No 4064/89 whereby Mitsui and CVRD would acquire joint control over Caemi Mineração e Metalurgia SA (Caemi) by way of a purchase of shares.

(2) After examination of the notification, the Commission concluded on 3 July 2001 that the notified operation fell within the scope of Regulation (EEC) No 4064/89 and that it raised serious doubts as to its compatibility with the common market and the EEA Agreement. On 29 August 2001, the Commission issued a statement of objections, which was followed by an oral hearing of the parties on 24 September 2001.

I. THE PARTIES

(3) Mitsui is a Japanese company conducting worldwide trading in various commodities and other products, including iron ore, and having minority and controlling stakes in a number of Australian and Indian iron ore mining companies, including a significant minority stake in the world's second largest iron ore mine, Robe River. Mitsui also arranges financing and other project support for the trading activities of other companies.

(4) CVRD, based in Brazil, is a diversified mining company and the world's largest iron ore producer. It already jointly or solely controls most of Brazil's iron ore production, with the principal exception of Mineração Brasileiras Reunidas SA (MBR), a subsidiary of Caemi. CVRD recently acquired Ferteco Mineração SA (Ferteco), Brazil's third-largest iron ore producer. It is also active in commercial transport (railways, port operations and shipping). Apart from iron ore, CVRD also manufactures a number of other products including fertilisers, kaolin, metallurgical bauxite, pulp and paper.

(5) Caemi is a publicly held company organised under Brazilian law which holds equity investments in companies active in the production and sale of iron ore

[1] OJ L 395, 30.12.1989, p. 1 (corrected version in OJ L 257, 21.9.1990, p. 13).
[2] OJ L 180, 9.7.1997, p. 1.
[3] OJ C 79, 30.3.2004.
[4] OJ C 79, 30.3.2004.

in Brazil and Canada, of kaolin and refractory calcified bauxite in Brazil, and in related logistics businesses (railway and port operations in Brazil). In the iron ore sector it is active through its 84,6 % controlling participation in MBR (Brazil), and through its 50 % joint controlling interest in Quebec Cartier Mining Company (QCM) (Canada), the other controlling shareholder being Dofasco, Canada's largest integrated steelmaker. MBR is Brazil's second-largest iron ore producer (behind CVRD) and the fourth iron ore producer worldwide (behind CVRD, Rio Tinto and BHP).

II. **THE OPERATION**

(6) Mitsui currently owns 40 % of the voting shares of Caemi. The remaining 60 % of the voting shares of Caemi are owned by 'the Frerings' (two brothers of the Frering family and […] (*)). For the purpose of the acquisition Mitsui has created a wholly owned subsidiary 'the Mitsui Holding Company' (MHC); this entity will ultimately be jointly controlled by Mitsui and CVRD (see below).

(7) The acquisition of joint control over Caemi by Mitsui and CVRD will be effected in two stages as described below:

[The first stage of the concentration involves Mitsui's exercise of its pre-existing]* right of first refusal in respect of the Frerings' holding. The second stage involves CVRD's purchase of 50 % of Caemi's voting shares from Mitsui]*:

(i) […]*

(ii) […]*

(8) Accordingly, within a legal instant Caemi's voting shares will be jointly controlled by CVRD and Mitsui. According to the parties, the MHC/Frerings purchase agreement and the strategic alliance agreement are conditional upon each other in a manner such that stage one of the concentration could not happen without stage two also taking place. Therefore, the necessary end result of the set of transactions as notified is the acquisition of joint control by the notifying parties over Caemi. Consequently, this staged operation would constitute a single concentration within the meaning of Article 3(1)(b) of Regulation (EEC) No 4064/89.

(*) Parts of this text have been edited to ensure that confidential information is not disclosed; those parts are enclosed in square brackets and marked with an asterisk.

III. **COMMUNITY DIMENSION**

(9) The undertakings concerned have a combined aggregate worldwide turnover of more than EUR 5 billion (Mitsui: EUR 78 billion in its financial year ending on 31 March 2000; CVRD: EUR 5,5 billion in its financial year ending 31 December 2000; Caemi: EUR 560 million in its financial year ending on 31 December 2000). Each of them has a Community-wide turnover in excess of EUR 250 million (Mitsui […]*; CVRD: EUR […]*; Caemi EUR […]*, but they do not achieve more than two-thirds of their aggregate Community-wide turnover within one and the same Member State. The notified operation therefore has a Community dimension.

(10) None of the undertakings concerned by the operation is active in the production or distribution of iron ore in the territories covered by the ECSC Treaty, but are engaged in such activities in third countries. Therefore, those aspects of the present concentration do not fall within the scope of Article 66(1) of the ECSC Treaty.

IV. **GENERAL DESCRIPTION OF THE IRON ORE INDUSTRY**

(11) The only affected markets will be in the iron ore sector. Iron ore is a raw material, sold almost exclusively to the steel industry. It is sold to steel producers by iron ore mining companies in three principal forms: sinter fines, lump, and pellets. A detailed explanation of why the Commission considers these three forms of ore as constituting distinct relevant product markets is given in section V below.

A. **The supply of iron ore**

Iron ore mining

(12) Iron is the second most commonly-occurring metal (after aluminium) and makes up around 4,6 % of the earth's crust. Despite the large variety of mineralogical forms in which iron naturally occurs, only a few are commercially important, principally the ferrous oxides magnetite, hematite, limonite and ilmenite. In the iron making process, the first step in producing steel, the oxygen is removed by a process known as 'reduction'. Other forms of iron ore that are also mined include carbonates such as siderite, sulphides and silicates.

(13) Iron ore deposits vary considerably in chemical composition throughout different parts of the world. The largest resources of iron ore are found in what are known as banded iron formations (BIFs), also known as taconites and itabirites. These BIFs can be hundreds of metres thick and thousands of kilometres wide. The

most commercially important are found in Brazil, Western Australia, the Lake Superior area of Canada, Krivoi Rog in Ukraine and Kursk in Russia.

(14) World reserves of iron ore are currently estimated at around 140 000 Mt ([5]). The largest reserves of ore (measured by iron content) are found in Ukraine, China, Australia, Russia, United States, Brazil and Kazakhstan respectively. The iron content of iron ore varies considerably between countries: Chinese ore, for example, is very low in iron content (approximately 32 %), whereas Brazilian ore is high in iron content (approximately 63 %).

(15) In excess of 95 % of all iron ore is mined using open pit methods, because of economies of scale and the relatively low unit value of iron compared to other metals. The only iron ore mining company producing significant amounts of ore from an underground mine is Sweden's LKAB. In open-pit mining, the initial process involves stripping the 'overburden' from the layers of ore. Blasting is often then required to reduce the ore to a size that can easily be loaded by shovels and/or front-end loaders into trucks, railcars or onto conveyor belts for transportation to a crusher for primary crushing and sizing.

(16) Almost all iron ore is then 'beneficiated' ([6]), which involves the crushing, grinding, separating, screening, and sizing of the ore. These processes remove impurities such as silica and alumina from the ore, and reduce it to the form and size desired by the mining company. The degree of beneficiation depends on the nature of the iron ore deposit, the levels of impurities present in the ore and on customer specifications. Lump and fine ores are usually produced after the crude ore has been crushed and ground. Further beneficiation may also produce an iron ore concentrate which is usually pelletised (turned into iron ore pellets) at a pelletising plant located close to the mine.

(17) Every mine produces both lump ore and fine ore as the inevitable result of the mining process. However, the ratio of fine and lump production of each mine is determined by the nature of its iron ore deposits (such as hardness). Many mines produce relatively little lump, owing to the tendency of its ferrous material to break into small particles upon extraction and handling. (This tends to be the case for much of the Brazilian ore, for example.) As a result, much of the lump ore imported into the Community comes from Australia, South Africa and India. Brazilian and Venezuelan mines do produce some lump ore, but it represents a comparatively much lower percentage of their overall ore production. Mines containing ore with low ferrous content (of the order of 30 to 35 %), such as those in the United States, Canada and China, sell little or no lump ore, as it is necessary to crush the ore finely in order to produce iron ore concentrates with a commercially viable iron content.

(18) Similarly, it appears that not all ores can adequately and economically be used for the production of pellets. Pellets have traditionally been produced in the Americas and in Europe, with most of the pellet plants intended to serve the export market being built in Sweden, Canada, Venezuela and Brazil. One of the reasons is that pellet feed is produced by grinding and concentrating natural fines, and not all ores are well suited for concentration. In particular, the parties have indicated that, although pelletising has been tried in the past in Western Australia, it was not a success.

(19) Another important consequence of the geology of the mine is the quality of the ore. Quality is principally measured in terms of ferrous content (which should be maximised) and level of impurities (which should be minimised). Particular attention is given to the loss on ignition ('LOI', mainly crystal water) and to the presence of silica, phosphorus and alumina, which have adverse effects on the blast furnace operation.

(20) According to the data provided by the parties, there are significant variations in the quality of the ore produced in the different regions. Generally speaking, it can be said that (i) Brazilian ore is a high grade product; (ii) Australian ore has also traditionally been considered a high quality product, but these mines are being progressively depleted, and they are replaced by newer mines (Yandi, Robe River, etc.) with higher silica and LOI contents […]*, (iii) South African ore has a high level of alkalis, limiting its use in the blast furnaces; (iv) Swedish ore is a good quality sinter feed of high ferrous content, and produces a very pure pellet with excellent performance; and (v) as indicated above, iron ore found in Canada, the United States or China has a low ferrous content (of the order of 30 to 35 %, compared with more than 60 % in Brazil or in Australia).

(21) As noted above, iron ore pellet plants are generally located adjacent to mine sites or exporting ports because pellets do not disintegrate during transport. The highest quality pellets are produced from Brazilian,

([5]) The Economics of Iron Ore, fourth edition 2000 (Roskill).

([6]) Ore sold directly from a mine without beneficiation is known as 'run-of-mine' or direct shipping ore.

Canadian and Swedish ore. Most mines located outside Australia could, at least in theory, make the investments necessary to engage in the production of iron ore pellets. In general, pellet production can be achieved by constructing a pellet plant, at a cost of approximately USD 50 to USD 60 per annual tonne of capacity, provided that the fine ore production is of an appropriate quality.

Forms of iron ore

(22) Approximately 99 % of all iron ore is used in steel production, mostly in those steel mills which produce iron through the blast furnace method. A blast furnace converts iron ore into pig iron, which is then fed into a basic oxygen furnace (BOF) and converted to steel. The types of iron ore and their percentage usage are defined (and modified from time to time) by the steel maker as a function of technological and metallurgical considerations and market conditions (availability and price of iron ore, and demand for steel products).

(23) When extracted from the mine, iron ore comes in two forms: lump (6 to 30 mm in diameter) and fines (less than 6 mm in diameter). For technical reasons, only lump ore can be directly loaded into a blast furnace (fines are too small and tend to block the reduction process undertaken in the blast furnace). In earlier times, the only type of iron ore marketed was lump ore, and the fines which were mined were considered waste materials.

(24) In order to take advantage of the fines, two agglomeration processes were subsequently developed: sintering and pelletising. Sintering agglomerates fines (or sinter feed, with diameter between 1 and 6 mm), whereas pelletising agglomerates super fines (or pellet feed with diameter of less than 1 mm) into pellets. Steel mills usually have their own sintering plants since sinter tends to disintegrate during transportation. In contrast, pellets do not disintegrate in transport, and pelletising plants can therefore be located at or near the mines. Certain European steel mills have thus shifted a portion of their imported ores to pellets, rather than make the investments necessary to improve the performance of their sintering plants from an environmental perspective (sintering is environmentally costly). This same trend has not occurred in Japan, where the steel mills have elected to invest instead in improvements in their sintering plants.

(25) As a result of the development of sintering and pelletising, blast furnace operators gained the ability to select between fines (to be sintered by the blast furnace operator), lump and pellet. For complex reasons related to the fine-tuning of the blast furnace operation to maximise overall efficiencies and minimise costs, most blast furnaces operate using a mix of the three.

(26) Owing to such considerations, the percentage of sintered fines used in a blast furnace tends to vary from mill to mill. However, subject to certain exceptions, steel mills within one region tend to face the same conditions of supply and therefore to procure comparable proportions of each form of iron ore. As a result, the parties estimate that sintered fines represent approximately 60 % of the 'burden' (the feed) used by typical blast furnaces in Europe and Asia, whereas sintered fines represent less than 10 % of the burden of a typical United States blast furnace. Blast furnace operators also have differing preferences as regards the relative weighting of lump ore in their feed. In Europe, lump usage tends to be approximately 20 % of total burden, whereas in the United States it is closer to 10 %. In Asia, the usage is around 25 % (due principally to the proximity of the Australian mines, which produce a higher percentage of lump ore). Again the relative use of pellets varies considerably among the regions. In Europe, pellets tend to represent about 20 % of the feed, whereas in the United States it is about 80 % and in Asia only 5 % to 10 %.

(27) Finally, iron ore can also be produced for conversion into direct reduction iron (DRI) in a DR furnace. The DR furnace uses two main forms of DR iron ore, lump and pellets; the ore must be of a particularly high grade (high iron content and low levels of impurities such as silica, phosphorous and sulphur). The DRI can then be fed into an electric arc furnace for conversion into steel.

World production of iron ore

(28) Total world production of iron ore in the year 2000 amounted to some 931 million tonnes (Mt), up from 868 MT in 1999 and 878 Mt in 1998. Production of iron ore closely follows output of steel and so is cyclical in nature. Demand for steel is in turn largely a function of economic cycles, and particularly of the business cycles in the automotive and construction sectors. Iron ore production has grown by an average rate of 2,6 % a year since 1950, reaching a peak of 967 Mt in 1988.

Worldwide production

(in Mt)

	Fines	Lump	Pellet	Total
1998	509	141	228	878
1999	510	135	223	868
2000	540	145	254	938

Parties' estimates and data from UNCTAD.

(29) The largest iron ore producing countries in the world are (using production figures for 2000): Brazil (236 Mt), Australia (176 Mt), China (96 Mt), Russia (87 Mt), India (75 Mt), United States (63 Mt), Ukraine (55 Mt), Canada (36 Mt), and South Africa (34 Mt). However, the proportion of iron ore production that is exported from each of these countries varies very considerably (tonnage exported in 2000): Brazil (160 Mt), Australia (165 Mt), China (no exports), Russia (15 Mt), India (35 Mt), United States (6 Mt), Ukraine (19 Mt), Canada (27 Mt), and South Africa (21 Mt).

Seaborne trade in iron ore

(30) Before the Second World War, steelworks tended to be located close to iron ore mines, on account of the high cost of transporting the ore. The development of the large, high quality reserves (BIFs) in Brazil and Australia has changed the structure of the iron ore industry, however, from a preponderance of relatively small-scale producers located close to the main steelmakers, to the development of an increasing number of large-scale mines located far from consumers. This has occurred largely as a result of the economies of scale associated with very large mines of this kind. The development of these mines has caused a sharp increase in the transportation of iron ore by seaborne large bulk carriers (today about half of world production), which has in turn required investment in port facilities to handle ever larger ships which offer reductions in unit transport costs.

(31) Much of the world's production of iron ore is nonetheless still not transported to customers by sea. The most notable examples are the United States, eastern Europe and China, which still have significant domestic iron ore production, and where most of that production is still consumed domestically. Furthermore, much of this domestic production is captive; in the United States, for example, steel companies own around 60 % of domestic production capacity, and so most production there does not reach the open market. Iron ore production in western Europe (with the main exception of Sweden), by contrast, has almost disappeared.

(32) Principally as a result of the abovementioned decline in iron ore production in western Europe, and also as a result of growth in the Asian steel industry, demand for seaborne iron ore has been growing significantly in recent years. Indeed, western Europe and East Asia (Japan, South Korea and Taiwan) have become largely dependent on imported seaborne iron ore. Despite its domestic iron ore production, consumption of imported iron ore in China is also growing rapidly to meet increasing demand.

Seaborne trade

(Fearnleys estimates ([7]))

(in Mt)

	Fines	Lump	Pellet	Total
1998	260	85	72	417
1999	253	87	71	411
2000	288	85	82	455

(33) Iron ore exports are dominated by shipments from South America (mainly Brazil) and Oceania (mainly Australia), and this dominance is growing: in 1989, 60 % of iron ore exports worldwide were from Oceania or South America; in 1999, this combined share had grown to 70 %. The trend is expected to continue. Freight rates vary considerably, depending on the shipping route taken, and from year to year. These rates are particularly sensitive to oil price movements, and to the availability of suitable ships.

(34) Partly as a result of a deliberate policy of diversification on the part of Japanese steel companies (to avoid over-dependence on the two Australian suppliers), Brazilian iron ore exports are more widely distributed than those from Australia. Other reasons for this wider distribution of Brazilian ore include the wider product range of Brazilian producers (there are almost no pellets offered by Australian suppliers, for example), the fact that some Japanese steelmakers own stakes in Brazilian pellet plants, and the Japanese customers' policy of freight-sharing (described in more detail below).

Barriers to entering the iron ore market

(35) There are a number of factors which make entry into the iron ore market difficult and the costs of entry high. Indeed, there has been no significant new entry to the market in recent years. Moreover, any new entry is likely to take the form of acquisition of an existing operator.

([7]) These statistics are based on figures published by the Norwegian shipping company Fearnleys.

(36) Locating new commercial iron ore reserves with sufficient quality and economies of scale to compete on the world market involves significant exploration and feasibility study costs. Obtaining mineral rights for new mining sites and the required permits to develop and operate such sites, as well as adjacent rail and port facilities, usually require extensive negotiations with governmental authorities over a number of years. In a few countries, such as Liberia and Guinea, development of high quality ore deposits has been prevented by political instability. Moreover, many of the world's known high quality reserves are already in the hands of the three-biggest iron producers: CVRD, Rio Tinto, and BHP.

(37) Occasionally, a new mine can take advantage of the existing rail and port infra-structure of adjacent mines. Normally, however, mine, rail link and port development costs are very substantial, ranging from several hundred million to billions of euro. For these reasons, new mines need to have very large economies of scale in order to compete in worldwide trade.

(38) Most new capacity has therefore taken the form of expansion of existing mines or the opening of new pits adjacent to existing mines ('brownfield' expansion). The last major 'greenfield' iron ore mine development was CVRD's Carajas mine in northern Brazil, which was opened with an initial capacity of 35 Mt at a cost of USD 3,5 billion in the mid-1980s, and was then expanded to a capacity of 50 Mt at an additional cost of USD 500 million.

(39) Constructing and operating pelletising plants are subject to fewer obstacles. The cost of constructing a pelletising plant is currently about USD 50 to USD 60 per tonne of annual capacity. Pelletising plant capacity may range from as little as 1,5 Mt to 7 Mt or more, with total costs ranging from USD 100 million to USD 420 million.

(40) In their response, the parties submit that, although the barriers to greenfield entry are significant, they are not insurmountable. In particular, the parties indicate that certain equipment and know-how used in the iron ore industry are common to other mining sectors, and that there are no technical barriers. The Commission considers that this does not affect the above conclusion, since the main barriers to entry are not in the area of mining equipment or know-how.

High rate of capacity utilisation

(41) According to some key market participants, capacity utilisation in the seaborne iron ore industry is operating at close to 100 %, and this has been the pattern for much of the past 10 years. Moreover, iron ore does not tend to be stocked in significant quantities, either by the iron ore mining companies or by steelmakers; iron ore stocks are expensive to hold. Producers and consumers only tend to hold stocks in order to allow for short-term fluctuations in production and consumption.

(42) A forecast increase in world demand for steel has led the largest iron ore producers to invest in new production capacity, although much of this new capacity will replace exhausted mines ([8]). In addition to the expansion of existing mines, a number of new mines are planned in Brazil and Australia, by CVRD, BHP and Rio Tinto. Other expansions in capacity are planned for India and Canada.

(43) Any significant increases in capacity outside Brazil and Australia are, however, likely to be on 'brownfield' rather than 'greenfield' sites, for two reasons. First, the cost of developing new iron ore mines means that it is far more economical to expand existing operations in most cases. Second, there is increasing opposition to open-pit mining in many parts of the world, especially in developed countries.

(44) In that context, it is expected that the current situation of tight supply will continue for a number of years. In particular, data provided by the parties indicates that the capacity utilisation rate, which reached 93 % in 2000, is still expected to be in a range between 88 % and 92 % in 2005.

(45) In their response, the parties submit that excess capacity exists. First, the parties indicate that year 2000 corresponds to a year of unforeseen, all-time high demand, and that the coming years will show a very different picture.

(46) Secondly, the parties consider that the capacity figures used by the Commission (provided by the parties) underestimate the actual level of capacity in the industry. In particular, the parties rely on a study which they commissioned to be carried out by an economic consultant. In its study, the economic consultant considers that 'capability' rather than capacity is a better measure of a firm's maximum capacity to supply iron ore in the export market. More specifically, the economic consultant considers that nominal capacity may have been improved by de-bottlenecking, so that 'capability', which is calculated on the basis of the

([8]) This forecast increase in demand is likely to result in the construction of nearly 100 Mt per year of new capacity in the near future: see The Economics of Iron Ore, fourth edition 2000 (Roskill).

highest observed production levels, may therefore provide a better indication of capacity to supply. For instance, the economic consultant calculated the capability of CVRD's northern system by observing that it had reached a peak shipment rate of 4,9 Mt in March 2001 and extrapolating that figure on an annual basis (thereby reaching an annual capability of 58,5 Mt).

(47) The Commission cannot accept the parties' arguments about capacity ([9]). The Commission considers that the capability figures calculated by the economic consultant significantly overestimate actual capacity in the industry. In particular, the Commission considers that deriving annual capacity by extrapolating on the basis of the highest monthly production is not appropriate. This methodology supposes that an iron ore supplier can every month reproduce the ideal conditions which it enjoyed during the 'best' month, a scenario which seems unlikely in view of the complexity of the logistic chain (production, storage, rail transport and ship loading) and the bottlenecks at every level. In short, the economic consultant's methodology assumes that there is always the optimal production level available, the right iron ore train capacity available and the right ship present at the port. In addition, this methodology ignores seasonal factors (especially the seasonal character of demand and of weather conditions), which are significant in that industry. The Commission therefore considers that the capacity figures initially provided by the parties, which are consistent with those provided by third parties, should be those used for the assessment of the present transaction.

(48) In addition, the Commission notes that, even on the basis of the capability figures calculated by the economic consultant, capacity utilisation rates are expected to remain close to 90 % for the whole of the 2000-2005 period , which is already a high figure given the frequent disruptions caused by factors such as weather conditions (delaying ships and trains, affecting the extraction process, etc.). Given that the actual capacity utilisation rate (on the basis of real capacity) will exceed those estimates, the Commission maintains that the industry is and will continue to be in a situation of tight supply.

(49) Furthermore, the parties' arguments about lower demand in 2001 and 2002 are not confirmed by the results of the Commission's investigation. In particular, the first- and second-quarter results of CVRD in 2001 show an increase in fine and pellet sales when compared to 2000. In a presentation of those results made in May 2001, CVRD indicated that long-term perspectives are for a 1 % annual growth for all iron ore products, and 4 % annual growth for pellets; and that, in the short term, demand should remain firm, the only risk being a slowdown of current market growth (rather than a contraction in demand). Rio Tinto's half-year results show the same pattern, with demand for iron ore 'remaining quite strong'.

(50) Even a lower demand for steel, and therefore a lower demand for iron ore than that currently forecast, will not materially affect that conclusion, since it will also lead iron ore suppliers to postpone their capacity expansion schemes. As the parties explain in their response, it would be uneconomical to add capacity ahead of demand as it would reduce the industry capacity utilisation rate. No bank would finance projects on this basis.

(51) More generally, it should be noted that the arguments made by the parties in their response (significant excess capacity, presence of readily expandable capability, homogeneous products and low marginal costs) all point to the conclusion that iron ore markets are close to a situation of perfect competition. In such a scenario, one would expect iron ore producers to be experiencing very low (if any) profit margins. However, the results of the investigation show a very different reality. In particular, a presentation made by CVRD and Merrill Lynch in May 2001 indicate that all major iron ore suppliers achieve considerable profit margins (EBITDA ([10]) margins between 27 % for BHP, and 46 % for CVRD) as well as very high returns on capital (reaching 30 % in the case of CVRD). Similarly, a presentation made by BHP presents the iron ore sector as a sort of aberration among commodity markets, because, of all the commodities considered, iron ore provides the highest return on capital for (paradoxically) the lowest risk and volatility. These features demonstrate the presence of substantial rigidities in the iron ore sector, enabling the major producers to enjoy very comfortable profits.

The main suppliers of seaborne iron ore

(52) The main suppliers of seaborne iron ore to western Europe and worldwide are as follows:

CVRD

(53) As mentioned above, CVRD is based in Brazil and is the world's largest iron ore producer. It already jointly or solely controls most of Brazil's iron ore production,

([9]) It should be pointed out that the parties never questioned the capacity figures which they had provided until two weeks after the issuance of the statement of objections.

([10]) Earnings before interest, taxes, depreciation and amortisation.

with the principal exception of Mineração Brasileiras Reunidas SA (MBR), a subsidiary of Caemi. CVRD's iron ore mining operations are essentially located in two geographic regions in Brazil: the 'northern system', mines located in the Carajas region of the State of Pará (with a capacity of some 50 Mt); the 'southern system', mines located in the State of Minas Gerais (with a capacity of some 60 Mt). Both mine systems are linked by dedicated freight railways to deep-water ports, some of which facilities are owned by CVRD. Furthermore, CVRD has recently acquired controlling interests in SA Mineração da Trindade (Samitri), also located in the 'southern system' (having high grade reserves, and an estimated annual production capacity of 17 Mt), as well as in the Socoimex mining companies (having an estimated annual production capacity of 7 Mt). Each of these mines is located in Brazil and produces fine and lump ores.

(54) CVRD holds interests variously of 50 % to 100 % in nine pelletising plants, with a 10th wholly-owned plant under construction in Brazil, and an 11th 50 % owned pelletising plant in Bahrain (Gulf Industrial Investment Company). In Brazil, Nippon Steel has a 49 % interest in two of those pelletising plants, Riva of Italy and Aceralia of Spain each has a 49 % interest in one of those plants, and Posco of Korea has a 50 % interest in one of those plants. Two pelletising plants in Brazil are 50 % held through Samarco (an iron ore pellet exporter and formerly a subsidiary of Samitri), with BHP holding the other 50 % interest. Pellets produced by each of these joint venture companies are sold either to the joint venture pellet customer or to CVRD under long-term sales agreements. Profit from each joint venture company is distributed to CVRD and the joint venture pellet customer as dividends.

(55) In 2001, CVRD acquired Ferteco Mineração SA (Ferteco), then Brazil's third largest iron ore producer, based in the State of Rio de Janeiro. It has a production capacity of some 15 Mt per year of iron ore and mineable reserves of approximately 263 Mt of ores. Ferteco operates two open-pit iron ore mines located in the 'southern system', and a 4 Mt per year pellet plant, also in the State of Minas Gerais. Ferteco also holds a 10,5 % stake in MRS Logistica SA, a freight railway network serving the 'southern system' and linking it with the deep-water port of Sepetiba, Rio de Janeiro. CVRD owns the other freight railway linking the 'southern system' with the deep-water port of Tubarão, where many of CVRD's pelletising plants are located. Ferteco moreover operates a marine terminal through its wholly owned subsidiary, Companhia Portuária Baía de Sepetiba SA (CPBS), in the port of Sepetiba.

Rio Tinto

(56) Rio Tinto, is based in Australia and is the world's second-largest iron ore producer; sold some 116 Mt in 2000 (including the sales of North Limited — see below). Of this 113 Mt were sold on the seaborne market.

(57) Rio Tinto owns 100 % of the Marandoo, Mount Tom Price/Paraburdo and Yandicoogina mines and 60 % of the Channar mine in Western Australia (the 'Hammersley' mines), with total listed capacity of some […]* Mt per year, and which is to expected to increase to some […]* Mt by 2002 and to some […]* Mt by 2010. According to public sources, production of marketable iron ore from the Hammersley iron ore mines amounted to 65,7 Mt (with total sales of 67,1 Mt) in 2000, substantially all of which was exported. Sales in 2000 included […]* Mt to Japan, […]* Mt to China, […]* Mt to Korea, Taiwan and elsewhere in Asia and […]* Mt to Europe ([11]).

(58) In the autumn of 2000, Rio Tinto acquired North Limited, which held a 53 % indirect shareholding in the Robe River Iron Associates mine. Rio Tinto directly controls 65 %, and markets as sales agent 100 % of Robe River production, which amounted to some […]* Mt in 2000, all of which was exported. Robe River's annual capacity is expected to be increased by an additional […]* Mt by 2009, commencing with […]* Mt in 2003, through development of the West Angelas deposit in Western Australia ([12]).

(59) Rio Tinto also owns some 56 % of the shares of the Iron Ore Company of Canada (IOC). The IOC open-pit mine in Newfoundland can currently produce […]* Mt of fine iron ore (concentrate), of which […]* Mt are being sold in the form of pellets produced near the mine site. Ore is exported through a port in Quebec. Rio Tinto has announced that it is renovating its Sept Îles, Quebec pelletising plant, which is to reopen in 2002 with a capacity of […]* Mt to increase to […]* Mt per year in 2004. IOC's annual sales in 2000 amounted to […]* Mt of which a portion was sold to Canadian steelmakers and […]* Mt were exported. Rio Tinto also owns a mine in Brazil (Corumbá), with a current annual capacity of some […]* Mt ([13]).

BHP

(60) BHP is based in Australia and is the world's third-largest iron ore mining company, accounting for about 8 % of world production. The parties estimate that sales of iron

([11]) All figures provided by the parties.
([12]) All figures provided by the parties.
([13]) All figures provided by the parties.

ore controlled by BHP (including 50 % of Samarco's output — see below) represented some […]* Mt in 2000.

(61) BHP owns 85 % interests in the Mount Newman, Yandi and Goldsworthy joint ventures in Western Australia and 100 % interests in the Middleback Range in Southern Australia and the Jimblebar mine in Western Australia. These mines have a total listed capacity of some […]* Mt, which is expected to increase to some […]* Mt by 2003. BHP also owns the Taharoa and Waikato mines in New Zealand, with a capacity of approximately […]* Mt. Current projects under development would, according to the parties, expand capacity controlled by BHP by an additional […]* Mt for 2003 and a further […]* Mt in the following years ([14]).

(62) In 2000, BHP acquired an additional interest in the Samarco mine and pelletising plants in Brazil, bringing its total equity interest to 50 %. The remaining 50 % interest in Samarco is held by CVRD. The Samarco mine currently has a rated capacity of […]* Mt per year, which includes […]* Mt of pelletising capacity. Total sales amounted to […]* Mt in 2000 (including […]* Mt of pellets) ([15]).

CAEMI

(63) As mentioned above, Caemi is a Brazilian holding company with stakes in several iron ore mining companies in Brazil and Canada, and in related logistics businesses. Caemi controls the Brazilian mining company Mineração Brasileiras Reunidas SA (MBR), where it holds 85 % of the voting shares; MBR is Brazil's second largest iron ore producer (behind CVRD), with a seaborne export capacity of some […]* Mt per year, and is currently operating three open-pit mines producing fine and lumpy ores. Caemi also jointly controls Quebec Cartier Mining Company (QCM) (Canada), where it holds 50 % of the voting shares (the remaining 50 % are held by the Canadian steel company, Dofasco); QCM produces fine ore and pellets, and has a seaborne export capacity of some […]* Mt per year. Worldwide, Caemi is the number four iron ore producer (behind CVRD, Rio Tinto and BHP) ([16]).

(64) As regards logistics (railway and port operations in Brazil), Caemi holds, *inter alia*, a 32 % stake in MRS Logistica SA, Brazil's most important general cargo railway network serving the 'southern system' of iron ore mines, and linking it with the deep-water port of Sepetiba.

SNIM

(65) Société Nationale Industrielle et Minière (SNIM) is the only producer of iron ore in Mauritania, and has a total capacity of some […]* Mt per year. All of its production is exported, with almost all of its exports (over 90 % in 1998) going to western Europe, predominantly to France, Italy, and Belgium ([17]).

LKAB

(66) The Swedish iron ore producer Luossavaara Kirunavaara AB (LKAB) produces and sells fine iron ore and pellet and currently has a total capacity of some […]* Mt ([…]* Mt of pellets and […]* Mt in fines). Total sales amounted to […]* Mt in 2000 ([…]* million tonnes of pellets), of which approximately […]* million tonnes were exported. LKAB therefore accounted for [<5]* % of worldwide production and [<5]* % of global import trade in 2000. However, owing to its advantageous shipping costs to Europe, LKAB accounts for a much higher percent of iron ore consumption in the European Union ([18]).

ISCOR

(67) Iscor is the main South African producer of iron ore, with a production capacity of some […]* Mt per year. Just under half of its production is consumed internally by its own steelworks. The rest (around […]* Mt) is exported, mainly to Asia ([19]). Although Iscor intends to increase its export capacity in the near future, this is likely to be affected by difficulties in expanding rail and port capacity in South Africa.

Mitsui

(68) As mentioned above, Mitsui is a Japanese company with minority and controlling stakes in a number of Australian and Indian iron ore mining companies. Mitsui controls 51 % of the Indian mining company SESA Goa Ltd, which produced some […]* Mt of iron ore in 2000, some […]* Mt of which was exported to Europe. Mitsui's minority holdings include a significant minority stake in the world's second-largest iron ore mine, Robe River in Australia, whose other stakeholders include Rio Tinto and two Japanese steel companies. Mitsui has further interests in the Yandi, Goldworthy

([14]) All figures provided by the parties.
([15]) All figures provided by the parties.
([16]) All figures provided by the parties.
([17]) All figures provided by the parties.
([18]) All figures provided by the parties.
([19]) All figures provided by the parties.

and Mount Newman mines (7 % each), along with the controlling shareholder BHP (85 %). Finally, as was described in more detail above, Mitsui also currently holds 40 % of the voting shares in Caemi. As SESA Goa is the only company controlled by Mitsui, only this company's (negligible) production and sales are taken into account in the competitive assessment made below, including the calculation of market shares.

B. **Demand for iron ore** ([20])

Trends in demand for iron ore

(69) As indicated above, the demand for iron ore originates from the steel manufacturers, which use iron ore as a raw material for the subsequent production of steel products. Iron ore consumers can be divided into two types: first, the basic oxygen furnace (BOF) steel mills producing pig iron from sinter (fines), lump, pellets and, to a lesser extent, scrap, and secondly, the direct reduction segment using pellets and lump to produce direct reduction iron (DRI) for electric arc furnace (EAF) steel production.

(70) The relatively high cost of energy in the European Union means that almost all iron ore sold there is for steel production which uses the blast furnace method (DR iron ore accounts for less than 10 % of total world consumption of iron ore); the only Western European EAF production facility using DRI ([21]) is a 0,45 Mt capacity plant operated by Ispat in Germany ([22]). It is, for the same reason, considered unlikely that new EAF facilities using DRI will be constructed in the EU ([23]).

(71) In the last decade, world production and consumption of crude steel has closely followed trends in the US, Asian and European economies. From 770 Mt in 1990, world crude steel production fell to a low of 720 Mt as a result of the US and European recession in 1991-1992 and the deepening economic crisis in the CIS countries, and then gradually increased to a high of 799 Mt in 1997. As a result of the Asian crisis at the end of 1997, production again fell to 772 Mt in 1998 and then rebounded in late 1999 and 2000. The International Iron and Steel Institute estimates that total crude steel production in 2000 was over 840 million tonnes.

(72) Viewed regionally, production of crude steel in western Europe and the United States has grown only modestly during the last decade. Production of crude steel in the CIS countries fell by nearly half from 207 Mt in 1990 to less than 103 Mt in 1998, but then increased in 1999 and 2000 as a result of very aggressive export policies to offset the fall in domestic consumption. Chinese and Korean production of crude steel (and imports of iron ore) grew substantially throughout the decade. Competition from relatively cheap steel imports has placed considerable pressure on US and, to a lesser extent, European steel producers. This competition also indirectly affects Brazilian, Australian, Swedish and other iron ore producers for the seaborne trade, which furnish most of the iron ore requirements of western European steel-makers and only small amounts to eastern European steel producers.

(73) During the same period, changes in the demand for steel were mirrored in the iron ore market. Notwithstanding the Asian crisis, the demand for iron ore has grown by approximately 1,5 % per year since the 1991-1992 recession. Global iron ore production did fall from a high of 921 Mt in 1997 to slightly less than 900 Mt in 1999 and seaborne iron ore trade fell from 417 Mt in 1998 to 411 Mt in 1999. Increased steel production in 2000 was reflected by an increase in global iron ore production to over 931 million tonnes, and in seaborne trade from 411 Mt in 1999 to 455 Mt in 2000. Prices for iron ore fell sharply in 1999 as a result of the Asian crisis, and then increased in 2000 and 2001, but still did not match the record 1998 levels.

(74) World steel production has been following an upward trend since 1992. A faster than expected recovery of the steel industry after the Asian crisis is evident when the 1999 production figures are compared with those of 2000, when a record level of 847 Mt of crude steel production was reached. Looking towards 2005, CVRD expects this positive trend in steel production to continue in the future, with crude steel production reaching 890 Mt by 2005, an annual average increase of about 1 %. Analysing steel growth by region, the biggest absolute increase is likely to occur in Asia (+26 Mt), followed by Latin America (+7 Mt). European demand is forecast to remain constant.

(75) World iron ore production is expected to follow the trend of steel production although at a lower growth

([20]) The data contained in this section is based on information provided by the parties.

([21]) There are many EAF facilities in the EU which use 'scrap' iron (rather than DRI) as an input. EAF production using DRI consumes very large quantities of energy, usually gas.

([22]) This plant has been temporarily shut down, principally on account of high gas prices, but is expected to be reopened in October 2001; Ispat expresses confidence that the plant is viable long-term, in the expectation of lower gas prices following liberalisation of energy markets in Europe.

([23]) The Economics of Iron Ore, fourth edition 2000 (Roskill).

rate, since steel production which uses scrap instead of iron ore is expected to increase more rapidly than steel produced via the blast furnace route. On the other hand, international trade in iron ore is expected to grow faster than world iron ore production since a large part of the growth in steel production will be in countries which import iron ore.

Consumption of iron ore in the European Union

(76) As indicated above, steelmakers in the European Union are today almost totally reliant on seaborne iron ore. Western European steelmakers all import large quantities of iron ore from a variety of sources outside the EU, and mainly from Brazil (by far the largest exporter of iron ore to Europe), Australia, Canada and Mauritania. The table below includes a small amount of consumption that is not imported (principally, about 5 Mt of Swedish production which is consumed domestically).

	Fines	Lump	Pellet	Total
1998	95,0	18,3	34,9	148,2
1999	83,1	17,1	32,8	133,0
2000	88,6	19,6	35,7	143,9

Parties' estimates and data from UNCTAD

Limited change in the iron ore mix

(77) Iron ore cannot be regarded as a typical commodity. Indeed, as the parties have stated during the procedure, products made in different regions have highly differentiated intrinsic metallurgical properties as described above, and clients are conservative in their purchasing behaviour. As was indicated above, the demand for iron ore emanating from each customer is determined by the particular burden used by that customer. The composition of that burden defines the relative proportions of sinter fines, lump and pellets required, as well as the quality (and therefore the geographic origin) of each type of ore. Given that customers usually blend several varieties of fines in order to obtain the feedstock parameters (ferrous content, LOI content, level of impurities, etc.), the burden also determines the proportion of each quality (and therefore origin) of fines.

(78) The data provided by the parties, and the results of the Commission's investigation, indicate that customers are highly reluctant to change the composition of their burden, and that they rarely do so. In particular, the parties state that in Europe, blast furnaces run at high productivity levels by utilising high levels of pulverised coal injection and low volumes of coke. These conditions can only be achieved and maintained if all feedstock parameters are kept as stable as possible. This need for stable operating conditions limits the raw material buyer in his ability to switch between input materials on a short-term basis, and also explains why iron ore has traditionally been contracted for multi-year periods.

(79) This phenomenon operates at two levels. First, it limits the customers' ability to switch between sinter, lump and pellets. Secondly, it has also effects within each form of iron ore (namely lump, pellet and sinter fines), by restricting the customers' ability to switch between products of different origin and quality. The results of the Commission's investigation confirm this phenomenon. In particular, it appears that blast furnaces steel mills usually do not change the proportions of sinter, lump and pellets significantly (on average, by not more than 3 to 5 %). Furthermore, while some customers have clearly switched between different qualities of sinter fines (e.g. between Australian fines and Brazilian fines), it appears that most competition takes place within ores with the same quality (and therefore often with a similar geographic origin).

(80) The parties emphasise that, with respect to fines, the buyer's flexibility improves if all sinter fines are blended on-site at the steel mill, just prior to producing the agglomerate. In that situation, one component of the blend may be exchanged, removed or added, provided that the overall chemical composition and metallurgical behaviour of the agglomerate remains stable. However, they also admit that there is a trend amongst iron ore customers towards reducing the number of blend components in order to save costs in transport, handling and stocks. A consequence of this trend is a further reduction in the buyer's ability to switch suppliers in the short term.

(81) As regards the production of steel in an electric arc furnace, direct reduction iron (DRI), like pig iron and scrap iron, can be used as an input; DRI is produced, using DR iron ore, in a DR furnace. The ore comes in two main forms: DR pellets and DR lump. Depending on the type of DR furnace concerned, there are technical limitations to the intersubstitutability of DR lump and DR pellets, in that lump can be substituted by

pellets, but pellets cannot be fully substituted by lump (because lump cannot exceed 20 % to 40 % of the total burden).

C. **Concentration and joint ventures**

Concentration in the iron ore and steel industries

(82) The ownership structure of the iron ore market has been rapidly transformed over the past few years, and is now concentrated among relatively few companies. Capacity has become even more concentrated during 2000 and 2001, notably following Rio Tinto's purchase of the Australian mining company North Ltd (2000) and CVRD's string of recent acquisitions of other Brazilian mining companies ([24]). Concern over production costs has been one of the most important factors driving the current wave of consolidation. The bulk of the world's internationally traded iron ore is now concentrated in the hands of three companies: CVRD, Rio Tinto and BHP. Industry analyst Roskill Information Services Ltd notes that this consolidation tends to make it harder for iron ore consumers to negotiate price discounts ([25]).

(83) Ownership in the steel industry is considerably less consolidated than in the iron ore industry. Nevertheless, European steel producers have been pursuing rapid consolidation in recent times. Among others, in 1997, Thyssen and Krupp merged to form Thyssen Krupp Stahl (16,1 Mt of steel production in 1999); in 1999, British Steel and Hoogovens of the Netherlands merged to form Corus (21,3 Mt); in 1997, Arbed acquired 35 % of Aceralia; in 1998, Usinor acquired 53 % of Cockerill Sambre; and this year Arbed/Aceralia and Usinor (the world's third- and fourth-largest steelmakers) announced a merger to produce the world's largest steel company with 46 Mt of production capacity.

(84) The notifying parties estimate that in 1999, Usinor, Arbed, Aceralia, Cockerill Sambre and their European subsidiaries together consumed 35 to 40 Mt of iron ore or roughly 9 % of global seaborne imports. Corus (including Hoogovens) consumed 25 to 27 Mt of iron ore or roughly 6 % of global seaborne imports, and each of Thyssen Krupp and Riva of Italy consumed over 13 Mt of iron ore or roughly 3 % of global seaborne imports each.

(85) In their response, the parties submit that consolidation in the steel industry is more significant than is described by the Commission. In particular, they consider that, if one regards the Japanese steel mills as a buying bloc then, with the merger of Usinor/Arbed/Aceralia, 67 % of seaborne iron ore would be purchased by the six largest customers. The Commission does not share this view. […]*

Production joint ventures (both horizontal and vertical)

(86) There are a number of 'horizontal' mining joint ventures, notably between CVRD and BHP, who each hold a 50 % stake in Samarco, a Brazilian pellet producer. Mitsui has a significant minority stake (33 % in equity terms) in the important Australian mine Robe River, in which Rio Tinto is also a shareholder. Mitsui has further interests in the Yandi, Goldworthy and Mount Newman mines (7 % each), along with the controlling shareholder BHP.

(87) There also exist a number of 'vertical' production joint ventures between iron ore producers and steelmakers, such as the Robe River, Mount Newman, Goldsworthy and Yandi ventures.

(88) Moreover, some steelmakers own 'captive' iron mines or make minority equity investments in iron mines with long-term sales agreements for all or a portion of the production. In recent times, however, this trend has seen some reversal, as witnessed, for example, by Thyssen Krupp's sale of Ferteco. In their response, the parties indicate that this phenomenon indicates their lack of concern about 'exploitation' by iron ore producers. The Commission considers this argument to be highly speculative. There may be plenty of reasons for steel mills to sell their iron ore interests, such as the need to levy capital for investment in their core business, and/or the fact that the iron ore producers concerned no longer represent a significant part of their supplies. Furthermore, the steel mills concerned may counterbalance any risk of 'exploitation' from the purchaser of the iron ore interest to be divested, either by obtaining a higher purchase price reflecting future price expectations, or by reaching long-term contractual arrangements with the acquirer.

(89) Increasingly, steelmakers have also invested, both as majority and minority shareholders, in pelletising plants. For example, Nippon Steel, Posco Pohang Iron & Steel Co. Ltd, Riva of Italy, and Aceralia of Spain hold substantial minority interests in four CVRD pelletising plants.

([24]) In addition to the notified operation, CVRD has added substantially to its production capacity over the past year or so: it has acquired the Brazilian operators Ferteco, Socoimex, and Samitri, as well as a 50 % stake in Samarco.

([25]) The Economics of Iron Ore, fourth edition (2000).

D. **Iron ore prices: contracts and price negotiations**

(90) Supply contracts between iron ore producers and consumers have become shorter over the past 30 years. In most cases, contracts are now between three and five years in length, compared to 10 years in the 1970s. Contracts between producers and Japanese steelmakers tend to be longer-term than those between producers and European steelmakers.

Benchmark prices

(91) Although contracts may last for several years, prices are revised on an annual basis following the results of price negotiations taking place in Western Europe and in East Asia (more specifically, in Japan) at the beginning of each year. The objective of those price negotiations is to set a reference price (the 'benchmark prices') for lump, sinter fines and pellets, respectively, in each of the two customer areas.

(92) The negotiations take place through a series of meetings between the large iron ore and steel producers, normally starting at the end of the previous year and continuing for several months. The negotiations are based principally on the perceived state of demand and supply for iron ore, the financial situation of ore producers and steel mills, as well as the long-term needs of both industries.

(93) At some point along the line in the pricing negotiation season, one of the steel mills will reach an agreement with one of the iron ore producers on a percentage change above or below the previous year's free-on-board (FOB) price for the fines of that particular producer. This percentage change is then made public to the other iron ore suppliers and customers, and thus defines the new benchmark price for fines. As can be seen in the following table, the agreed price change is then normally used in both East Asia and western Europe.

Changes of the first price setters in Japan and Europe

(in %)

		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Japan	change	15,96	7,95	– 4,90	– 13,47	– 9,50	5,80	6,00	– 1,94	2,82	– 9,20	4,35	4,31
	Price setter	HSY ([26])	HSY	HSY	HSY	HSY	BHP	BHP	BHP	BHP	HSY	RR	HSY
Europe	change	15,96	7,93	– 4,90	– 11,00	– 9,50	5,80	6,00	1,10	2,82	– 11,00	4,35	4,31
	Price setter	CVRD	CVRD	CVRD	SNIM	CVRD	SNIM	CVRD	HSY	CVRD	CVRD	SNIM	CVRD

Source: The Tex report and the parties' data.

(94) As noted above, the new benchmark price is normally agreed first for fines, principally because of the lower prices and higher volumes concerned. Once the annual price adjustments for fines have been agreed, the annual price changes for lump ore and pellets are then negotiated. According to the parties, the benchmark price for lump is traditionally agreed between Japanese steel mills and Australian suppliers, while that for pellets is always negotiated in western Europe. This phenomenon reflects the different rate of utilisation of pellets and lump in those regions. In recent years, the first contracts have generally been between Australian iron ore companies and Japanese steel producers, and these have tended to be used as a benchmark for prices in Europe ([27]).

([26]) HSY = Hammersley, a subsidiary of Rio Tinto; RR = Robe River, also a subsidiary of Rio Tinto.

([27]) In 2000, this trend was upset: the first price agreed was between the Mauritanian producer SNIM and the European steel company Usinor.

(95) It should also be noted that the negotiation process is a rather transparent one. Suppliers' and customers' expectations about the state of demand and supply, and therefore 'fair' price movements, are widely advertised in the press; industry journals ([28]) report regularly on progress in the talks, describing who has met whom, and speculating on the content of discussions.

Final prices

(96) Following the determination of benchmark (or 'reference') prices, individual negotiations between producers and customers commence, before final prices are agreed. […]*

V. **PRODUCT MARKET DEFINITIONS**

(97) As indicated above, iron ore is a raw material sold almost exclusively to the integrated steel industry. It is offered to basic oxygen furnace (BOF) steel producers by iron ore mining companies in three forms: sinter fines, lump, and pellets.

(98) Steel producers feed an individually composed burden of sinter, lump and pellets into their blast furnaces to produce pig iron, which can further be converted into steel. According to the parties, in western Europe the burden consists of approximately 60 % fines, 20 % lump and 20 % pellets, but varies from steel mill to steel mill. As indicated above, while lump ore can be directly used as a feedstock to the blast furnace, sinter fines are too small to be used directly in the blast furnace and have to be further processed into sinter; this processing takes place in sintering plants almost always operated by the steel mills. Pellets are the product of further processing smaller 'super-fines' in pelletising plants, operated usually by the mines, and can be then directly used as a feedstock.

(99) The notifying parties submit that there is a single relevant product market which includes all supplies of iron ore, without distinction between the three different types of ore (fines, pellets or lump). They argue that the various forms of iron ore have a high degree of substitutability since iron ore users can, to a significant extent, switch among the three forms of ore. Prices generally move together, although their absolute levels differ significantly as a result of the differences in processing.

([28]) Principally Tex Report and Metal Bulletin.

(100) On the basis of the outcome of the, almost unanimous, views expressed by iron ore customers during the course of the Commission's market investigation, it can be concluded that each of these three types of iron ore constitutes a distinct product market, with only limited substitutability between the three products.

A. **Demand-side substitution**

Technical barriers to switching between iron ore types

(101) The three different types of ore are not significantly substitutable from a demand-side perspective. As indicated above, blast furnaces can only run at high productivity levels if all feedstock parameters are kept as stable as possible. This need for stable operating conditions limits the raw material buyer in his ability to switch between input materials on a short-term basis, and also explains why iron ore is usually contracted for multi-year periods.

(102) According to the parties, major changes usually occur when dictated by operational requirements (the re-lining of a blast furnace or the closure of a sinter plant), or when the iron ore supplier is providing a new product in substitution for an existing one which is no longer available. When such changes are contemplated, an extensive test period is planned. This starts with lab and pilot tests and is followed by full scale trials which last at least a number of weeks. These practical constraints inevitably limit the scope for any significant short-term changes in iron ore supplies.

(103) The results of the Commission's investigation confirm the very limited substitutability of the different forms of iron ore. In particular, a vast majority of steel producers have indicated that they are highly reluctant to change to any significant extent the composition of the burden fed into the blast furnace. Several customers also indicated that any significant change in the proportions of sinter, lump and pellets could take several years, and that it could in certain cases cost several million euro of investment.

Economic barriers to switching between iron ore types

(104) The results of the Commission's investigation also indicate that there are significant economic barriers to switching between sinter fines, lump and pellets. Prices

differ significantly for the three product types: sinter fines are typically priced at around 37 US-cent/fe-dmt cif; lump at around 45 US-cent/fe-dmt and pellets at around 65 US-cent/fe-dmt ([29]). That results in a differential of 22 % between sinter fines and lump, and of 76 % between fines and pellets. Fines remain the cheapest option, even if steel mills operate their own pellet plants (which is usually not the case).

No constraining effects of fines on other iron ore types

(105) First, a vast majority of customers have indicated that the ability of a steel mill to alter its use of sinter at the expense or to the profit of other forms of iron ore is limited, as steel mills tend to maximise their use of sinter fines. Since fines are by far the cheapest iron ore product and sinter plants, operated by the steel mills, have high fixed costs and low marginal costs, the steel mills usually run their sintering plants at capacity. Given that there are significant barriers to expansion of sintering capacity, it follows that neither lump nor pellets have significantly constraining effects on sinter feed prices and demand.

(106) Sinter feed prices, in turn, have little constraining effect on the prices of lump and pellets. Contrary to the parties' view, a vast majority of customers stated that steel mills cannot increase their sintering capacity in the short or medium term, both because of the substantial investment required and as a result of environmental constraints.

(107) More specifically, expansion of the capacity of the sinter plants is not a viable option. New sinter plants have not been built in Europe for at least 20 years, which implies that the maximum proportion in the blend has probably already been reached, and that the start-up of an entirely new plant (which probably could not be operated at full capacity) would be uneconomical. An expansion of the capacity of already existing plants is theoretically possible to a limited extent, but the additional output would be insufficient to influence the prices of the other iron ore types. Furthermore, costs of expanding capacity may be too great to be worthwhile, given the extremely high costs brought about by the necessary shut-down of the blast furnace and the consequent disruption in steel production. In Europe, steel mills would also face regulatory difficulties, given the release of toxic gases generated by sinter production. A capacity expansion by loading further processed, more productive feed into the sinter plant would, in turn, incur additional costs which would dilute the economic advantage of fines. In any event, the additional proportion (about 5 %) obtained would also be not sufficient to exercise price constraining effects.

(108) It should also be noted that, unlike sinter fines, certain grades of lump and pellets are also used for the production of DRI. According to presentations made by JP Morgan and CVRD in November 2000 ([30]), demand for pellets is likely to derive to a significant extent from the expected growth in DRI production. This will further dissociate the competitive conditions for pellets from those for sinter fines (only used in blast furnace processes).

No constraining effects between lump and pellets

(109) The results of the Commission's investigation also show that the scope for the interchangeability between lump and pellets is also limited. According to the vast majority of customers, steel mills procure lump and pellets to satisfy the rest of their needs, seeking to maximise the use of lump, which is about 40 % cheaper than pellets. They are, however, constrained in their capacity to use lump, because lump, being a 'natural' product with a variable quality, cannot represent a high proportion of the total iron ore mix, the primary requirement for good steel production being consistency of input. Moreover, in the blast furnace part of the lump decomposes into fines, which blocks the necessary airflow, thereby posing further risks to blast furnace productivity.

([29]) Average price for seaborne sales into western Europe, according to parties' answer to questionnaire of 15 June, question 4; cif price is the most meaningful in this context (demand-side substitutability), as it reflects the horizon of the customers.

([30]) Latin American Equity Conference.

(110) There is also little flexibility in increasing the proportion of pellets relative to lump. Owing to the high price of pellets, which are the most expensive but also the most productive option, the main incentive to use more pellets would be to increase the output of the blast furnace in times of high demand (when higher steel production costs can be passed through to the customers). Generally speaking, pellets are therefore normally considered a swing product, except obviously in those areas (such as North America) where it is the only product available, on account of the geology of domestic iron ore mines.

Conclusion

(111) In the light of the above, it is concluded that, from a demand-side perspective, each of sinter fines, lump and pellets constitutes a separate product market. A vast majority of customers have indicated that they would not change their proportions of sinter feed, lump and pellets should the price of one of these iron ore forms increase by 5 to 10 % relative to the other forms ([31]). This is so because (i) customers are reluctant to change their burden; (ii) customers cannot significantly increase their demand for sinter fines because they already operate their sintering plants at close to full capacity, and they cannot increase that capacity in the short to medium term; (iii) customers cannot significantly increase the proportion of lump, because they already try to maximise this use and because lump is in short supply; and (iv) pellets being substantially more expensive than other iron ore forms, customers use it as a swing product and would not increase their demand for pellets if they could produce the desired quantities of steel through the use of sinter and lump only.

(112) This does not mean that customers never change their burden. In particular, it appears that customers sometimes reduce or increase the quantities of pellets which they use. However, the results of the Commission's investigation show that these changes are limited, as the proportion of the distinct iron ore products used in the individual burden can only vary to a limited extent (usually 3 to 5 %), at least in the short and medium term. Furthermore, it appears that these changes are seldom the result of competition between the various iron suppliers, but instead result from exogenous considerations like the evolution of demand for steel. For instance, in periods of high demand for steel, a steel mill's sintering capacity may be insufficient to cover production requirements. In such cases, the steel mill concerned may need to procure higher cost pellets in order to meet demand.

(113) As the parties indicate, the skill of an iron ore buyer is therefore not determined by his ability to shift orders between suppliers in accordance with price considerations. Instead, the skilful buyer is the one who extracts the maximum value from his existing suppliers, in terms of timing of supply, product quality and consistency, and price.

B. **Supply-side substitution**

(114) Fines, pellets and lump are generally not substitutable from a supply-side perspective. Iron ore mines produce both lump and fines (some of which is sold to steel mills as sinter feed, and some of which is converted by the mine into pellets). However, the ratio of fines and lump ore production of each mine is determined by the geology of the iron ore deposits. Mines located in Australia, India and South Africa, for example, produce relatively more lump than mines located in Brazil and Venezuela. Mines producing ore with a low ferrous content, such as those located in the United States, Canada and China, produce little or no saleable lump.

(115) Fine ore cannot be converted into lump. While it is theoretically possible to convert lump into fines, this does not make economic sense owing to the higher value of lump ore. As regards the possibility of converting lump into feedstock for pelletising plants (pellet feed), it would be theoretically possible to crush the lump in order to yield such feed. However, the Commission's market investigation has indicated that this would not be economically viable.

([31]) The parties dispute that conclusion, on the basis that the Commission did not sufficiently specify the 'permanent' character of the price rise concerned. However, prices are established on an annual basis. It is therefore obvious that any price rise mentioned by the Commission would be for at least one year. As NERA indicated, 'in general, the competitive assessment of mergers considers time periods of at least one year and in some instance up to two years. Considering the scope for switching over this time period is particularly appropriate in assessing competition in the iron ore industry, given that most competition in this industry takes place on an annual basis'. Finally, the parties claim that switching can occur within a limited time period. It is therefore not easy to explain why customers would only react to a price increase in the long term, if, as the parties claim, they can switch between iron ore types within a few months.

(116) As regards the possibility of converting fines to pellets, this possibility is constrained by the fact that it requires the construction of a pelletising plant, a major investment which can only be justified for mines which produce a significant proportion of fine ore suitable for use as pellet feed. Because of the nature of most Australian ore, for example, it is currently not economical to make pellets from that ore.

C. **Price differences**

(117) As indicated above, prices differ significantly for the three product types: sinter fines are typically priced at around 37 US-cent/fe-dmt cif; lump at around 45 US-cent/fe-dmt and pellets at around 65 US-cent/fe-dmt ([32]). That results in a differential of 22 % between sinter fines and lump and of 76 % between fines and pellets.

(118) The parties argue that these differences do not indicate the presence of different product markets, but instead reflect the different value in use of each form of iron ore. However, this is not confirmed by the trends in prices and quantities. First, benchmark prices for fines, lump and pellets follow somewhat different movements, as indicated on the following table. This suggests that the conditions of demand and supply are specific to each form of iron ore, and therefore that fines, lump and pellets constitute distinct product markets.

Changes in the benchmark prices for lump, sinter and fines in Europe

(in %)

	1995	1996	1997	1998	1999	2000	2001
Fines	5,8	6,0	+ 1,1	2,8	– 11,0	4,3	4,3
Lump	7,9	5,0	0	2,9	– 11,0	5,8	3,2
Pellets	12,6	7,5	– 1,0	2,8	– 12,5	6,0	1,7

([32]) Average price for seaborne sales into western Europe, according to parties' answer to questionnaire of 15 June, question 4; cif price is the most meaningful in this context (demand-side substitutability), as it reflects the horizon of the customers.

(119) The fact that there is a high degree of correlation between the evolution of these various prices does not affect this conclusion. First, it is quite normal to find a correlation between these prices, since the various products are often produced in the same mining areas with the same equipment. They therefore share a high proportion of their costs. Second, […]*and thirdly, it should be noted that the distribution of quantities sold does not follow what one might expect should the three forms of iron ore be entirely substitutable. For instance, in 1999, each of sinter fines, pellets and lump basically followed the same price movement (with a minor additional decrease for pellets). However, during that year, the seaborne quantities did not follow the same pattern: demand for fines was 6 % less than in 1998, while that for lump increased by 11 % and that for pellets decreased by 2 %. If the three forms of iron ore were part of the same product market, one would have expected demand for each of sinter fines, lump and pellets to follow the same evolution (with possibly a slighter higher demand for pellets than for the other two forms of iron ore), which was clearly not the case.

(120) Secondly, the vast majority of customers responding to questionnaires during the course of the Commission's market investigation have indicated that — should the price of one ore type increase by 5 to 10 % — this would not result in substitution of one ore type for another.

D. **The parties' response**

(121) In their response, the parties do not dispute the Commission's findings. However, they contest the product market definition described above, on the ground that customers could switch to a significant extent between the various forms of iron ore. In particular, the parties rely on the study produced by their economic consultant, which considers that steel mills can switch between the various forms of iron ore.

(122) First, the economic consultant considers that iron ore is a homogeneous product, and that it is possible for steel mills to achieve equivalent productivity levels using burdens of quite different composition. According to the economic consultant, this is demonstrated by the fact that different steel mills use substantially different burden.

(123) The Commission does not share this opinion. The fact that iron ore is not a normal commodity is clearly reflected in the results of the Commission's investigation. As indicated above, the physical and chemical characteristics of the iron ore produced in

different mining areas may significantly differ from one another, both in terms of ferrous content and in terms of impurity levels. Although products of different origin belong to the same product market, there are limits to substitutability between products mined in different areas, and it appears in particular from the Commission's investigation that Australian and Brazilian suppliers could not easily gain market share from each other, in particular due to the different characteristics of their products.

(124) In addition, the Commission does not agree with the parties' economic consultant that differing burden conditions in the various steel mills demonstrate those steel mills' ability to switch between the various products. As indicated above, the burden and process conditions for each steel mill are optimised for the specific characteristics and productivity requirements of that particular steel mill, so that the different process conditions observed by the economic consultant may simply reflect the (sometimes widely) varying configurations of different blast furnaces. Although each individual steel mill could theoretically operate with a burden other than the one which they currently use, this does not prove (and the Commission's investigation dismisses this possibility) that steel mills could in practice substantially alter their burden. First, drastic changes are not an option for blast furnace managers, because of the risks involved and because of the high investment and time period required for the necessary testing. As the parties have indicated, clients are conservative in their purchasing behaviour and some steel companies have difficulties fully understanding blast furnace technology. Secondly, although risks might be reduced if the contemplated change simply concerned switches between sinter fines and pellets, there nonetheless remain strong economic barriers (such as the much higher price of pellets, the presence of the sinter plant, etc.). All this is further confirmed by the fact that, even among the plants operated by an individual steel manufacturer, different blast furnaces frequently use different burdens.

(125) Second, the parties' economic consultant has also observed 'significant fluctuations in the proportion mix between fines, lump and pellet ore from one year to the next' as well as 'fluctuations in the source of supplies within the various categories of iron ore from one year to the next', at the level of individual steel mills. In the economic consultant's opinion, these data, combined with the customers' tendency to reduce the duration of their supply contracts, confirm the customers' ability to switch between the various forms of iron ore.

(126) The Commission does not dispute that even individual blast furnaces may somewhat modify their burden under certain conditions. As described in detail above, blast furnace managers run their sintering plants at capacity, then maximise the use of lump (subject to technical limitations), and then fulfil the rest of their needs with pellets. Obviously, different productivity requirements will lead to different burdens. For instance, in times of high demand, steel mills need to increase the proportion of pellets (despite the higher price of that product), because they cannot increase the absolute volume of sinter (because of capacity constraints), and they cannot increase the level of lump above technical limits. As a steel mill indicated, 'demand for pellets is directly depending on the capacity level of the blast furnaces. Sinter plant works on maximum capacity. When the iron ore production decreases, the pellets demand will first decrease (higher price)'. Customers may also change their burden when a new quality of iron ore is introduced and/or an existing mine is depleting. In those cases, customers progressively examine to what extent they may introduce the new quality, by substituting that quality to others within the same type of ore. Although the substitution is essentially confined to a single form of ore, it may have effects on the burden, for instance by affecting the productivity of the sinter plant.

(127) However, the Commission maintains that these changes do not affect its conclusion that customers would not effectively alter their burden if only the relative prices for the various forms of iron ore change. As the investigation indicates, these latter changes, which would mean altering the burden and process conditions while maintaining similar productivity requirements, are subject to substantial barriers, due both to technical risks and economic reasons (maximum use of sintering plant, sinter fines being much cheaper than lump, itself much cheaper than pellets). In that context, it appears that relative price movements in the order of 5 to 10 % are not sufficient to affect the economics of the plant and to make blast furnace managers take significant risks.

(128) The parties also dispute the fact that the Commission's investigation proves the existence of significant barriers to switching from one form of iron ore to another. In particular, the parties have provided quotations from customers demonstrating, in their opinion, the ability of customers to switch between iron ore types.

(129) However, the Commission does not agree with the parties' interpretation of these quotations. First, the

Commission considers that some of these quotations are inconclusive (such as statements by several customers on switches between qualities within one form of iron ore, or the statement of a customer making switches subject to operational feasibility) and that many actually support the conclusions drawn by the Commission. For instance, the parties cite a reply by a customer, saying 'we will not change our blending ratio of sinter, pellets and lump; however, we may change the blending ratio when repairing the sintering machine is required. Even in that case, we will reduce sinter ration slightly and increase pellets ration for a balance, though, this repair may occur once in several years'. Similarly, the parties cite another steel mill, which indicated that 'the proportion of lump is limited to 20 % due to operation reasons. So, the proportion of sinter and pellet is more than 80 %. Since sinter is regarded as more economical than pellet, sinter is used as much as possible. Pellet is a buffer ore.' More generally, it clearly appears that the only real technical opportunity to switch is between pellets and sinter fines. But there are very substantial economic and operational barriers to switching (such as very high price differences, and the utilisation of sintering plants at capacity).

(130) In addition, it should be noted that most of the quotations made by the parties concern statements about theoretical technical limits to switching. These statements may not take into account sintering capacity constraints, operational constraints (blast furnace operations need to be stable, which hampers frequent changes), logistical considerations, contractual arrangements or economic barriers to switching, which are addressed in other parts of their reply. For instance, the parties quote a European customer, who stated that it could theoretically change 5 to 10 % of its blend. However, later in its reply, that customer indicated that it is operating its sintering plant at capacity, and that in the event of a relative price movement between sinter fines, lump and pellets, it would not change the proportions in its burden.

(131) In that context, the Commission therefore maintains that, if one takes a broader view combining all relevant factors, it clearly results from the enquiry that each form of iron ore constitutes a relevant product market. In particular, it should be recalled that a quasi-unanimity of customers confirmed that, once all relevant elements are integrated, they would not change their proportions of sinter feed, lump and pellets should the price of one of these iron ore forms increase by 5 to 10 % relative to the other forms.

(132) The Commission also notes that the parties implicitly admit that each form of iron ore constitutes a distinct market, since they acknowledge in their response that the pellet premium (and, to some extent, the lump premium) for a particular year may expand somewhat relative to the prior year when there is a markedly higher level of demand for pellets (or lump) in that particular year, and therefore lead to a price rise for that form. If all forms of iron ore were part of the same market, a higher price in one form should lead to lower demand for that form (and higher demand for the other forms). In addition, the parties' statement indicates that switching is not an economical option. If a hypothetical dominant supplier for one form of iron ore (say, sinter fines) attempts to increase the price for that form by 5 to 10 %, and assuming that customers could switch to another form of iron ore (say, pellets) to an extent sufficient to make the attempted price rise unprofitable, this would markedly increase demand for that other form. According to the statement made by the parties, this increased demand would result in higher prices for the latter form (in the example just provided, pellets). This seems all the more likely because seaborne iron ore excess capacity is limited. It follows that customers would have little incentive to switch, since this would give rise to significant economic, technical and logistical difficulties for customers and still lead to higher prices.

E. **Direct reduction iron ores**

(133) Iron ore is also sold in forms suitable for conversion into direct reduction iron (DRI), which can in turn be fed into an electric arc furnace for the production of steel. DR iron ore comes in three forms: DRI lump, DRI pellets, and DRI fines (including DRI pellet feed). However, given that there is no demand in western Europe for DRI fines/pellet feed, these products will not be discussed further, and this Decision will focus on DR lump and pellets instead.

(134) As regards substitutability between DR lump and pellets, on the one hand, and BOF lump and pellets, on the other, this is a one-way substitution process: the latter are replaceable by the former but not vice versa,

principally on account of the higher iron content and lower level of impurities of DR ore. However, in view of the higher price of DR iron ore, this substitutability of DR ore for BOF ore is of a theoretical nature.

(135) The parties also suggest that DR lump does not form a separate product market, because it can be entirely replaced by pellets (for the sake of clarity, it should be noted that the parties admit that, by contrast, DR lump is not a substitute for DR pellets). According to the parties, the use of DR lump traditionally had in the past been mandatory, because pellets tend to stick at high temperatures (when DR operators want to increase productivity), and because lump prevents that sticking. However, new coating technologies for pellets would prevent sticking and therefore would no longer make lump ore an indispensable input. Altogether, the parties therefore suggest that, if DR iron ore has to be separated from BF iron ore, then two markets should be considered: a market for DR pellets on the one hand, and a market combining DR lump and DR pellets on the other.

(136) The Commission agrees that, from a technical point of view, DR pellets can fully replace lump ore. In addition, the results of the investigation suggest that the economic barriers to switching within the DR sector may be lower than in the BF sector. In particular, the only western European customer for DR lump and DR pellets indicated that if lump prices were to increase by between 5 and 10 % while pellet prices remained constant, there probably would be significant substitution of pellet for lump. Overall, it therefore appears that there is a one-way substitutability between DR lump and DR pellets, in that DR lump cannot replace DR pellets over a certain proportion of the burden (for technical reasons) but DR pellets can fully replace DR lump. The competitive impact of the transaction in DR iron ore should therefore be measured on the basis of two product markets: (i) DR pellets, and (ii) DR iron ore (combining lump and pellets).

(137) In their response, the parties suggest that DR ores do not form a relevant market, on the ground that DRI (resulting from the direct reduction of DR ore) could be replaced by scrap or pig iron. This does not stand up to scrutiny. The parties do not contest that only DR ore is suitable for the production of DRI. Their argument is that DRI, the product offered by DR iron ore customers (and not DR iron producers) is replaceable by other products. In other words, the parties' claim is that DR ores do not form a separate product market because, on the downstream market, DRI (resulting from the processing of DR iron ore and fed into electric arc furnaces) may be replaced by other products. The Commission considers that the presence of competitive alternatives on a downstream market does not prevent the existence of market power on an upstream market. The fact that DRI producers may compete with suppliers of scrap or pig iron does not necessarily prevent a hypothetical monopolist supplier of DR iron ore from imposing monopoly prices for its iron ore supplies to DRI producers (who in turn will sell DRI to EAF steel mills). The only consequence of the presence of alternatives to DRI is that DRI producers will have both to incur high supply costs (through high iron ore prices) and low sale prices (owing to the presence of substitutes for its DRI production).

(138) In any event, the results of the investigation do not confirm substitutability between scrap, DRI and pig iron. In particular, as the parties acknowledge, scrap is not a high quality material. It follows that low value added products such as rebar can be made using 100 % scrap, but that high value added long products, or flat-rolled products produced through the EAF route, require a significant proportion of much cleaner raw materials such as pig iron or DRI. It should also be noted that, although scrap is usually cheaper than DRI (so that EAF steel mills try to maximise the proportion of scrap), this is not always true, especially in times of peak demand for scrap. While DRI theoretically competes with solid pig iron, there are indications that this substitutability is also limited, because pig iron contains 4 % or more carbon and therefore requires additional oxygen for processing. It follows that it can only be used at the beginning of the melting process, and that subsequent charges have to be made with either scrap or DRI.

(139) However, whether iron ore suitable for DRI production belongs to distinct product markets can be left open, since the competitive assessment of the transaction remains unchanged in all alternatives considered.

F. **Conclusion**

(140) In view of the above, it is concluded that sinter fines, lump and pellets constitute three separate product markets. Moreover, there are strong indications that iron ore suitable for DRI production belongs to distinct

product markets, and that the competitive impact of the operation on a hypothetical product market for DR pellets and on a hypothetical product market combining DR pellets and DR lump should accordingly also be examined.

VI. **RELEVANT GEOGRAPHIC MARKETS**

(141) The parties submit that the relevant geographic markets for iron ore should be viewed as total world production. First, the parties emphasise that most of the largest steel mills in the world procure their iron ore supplies both from mines in their own countries and from mines in other countries. Secondly, the parties take the view that the global character of the iron ore markets derives from the global dimension of the downstream steel markets. Because of the global nature of the steel markets, iron ore producers would have to sell their products at a price which will allow their customers (the steel mills) to manufacture steel competitively. For a mine operator to seek to obtain a higher price for its ore from a nearby steel mill is a practice which would price the production of that steel mill out of the market, which in turn would severely harm the interests of that mine operator (due to the outright loss of a nearby customer).

(142) The Commission does not share this analysis. Based on the results of its detailed investigation, it considers that a distinction should be made between those customers based in countries with domestic iron ore production (who may in some cases have a choice between indigenous and seaborne supplies) on the one hand, and those customers with almost no indigenous iron ore production (such as western European and Japanese steel producers), on the other. The following analysis applies to all types of iron ore.

A. **Transport of iron ore**

(143) In order to be delivered to its customer, iron ore is transported either by rail (in the case of regions with large domestic production such as China, Russia or the United States) and/or by dedicated ships. Iron ore delivered by ship is designated 'seaborne sales'.

(144) In order to be economically transported, iron ore usually requires dedicated, high-capacity infrastructure. With regards to land transportation, it appears that conventional railways are not suited to the specific requirements of iron ore transportation. Iron ore is transported in large quantities on trains with a length of 2 to 3 km, and tracks have to be specifically designed to carry these very long and heavy trains. This is why iron ore is normally transported via dedicated railways. Similarly, seaborne transportation of iron ore cannot be economically achieved by container ships (i.e. similar to the larger oil tankers), but instead requires dedicated ships with a capacity up to200 000 t (equivalent to that of the larger oil tankers). It also follows that the shipping of iron ore can only be handled in certain deep-water ports with specific infrastructure, equipped to handle iron ore vessels.

(145) These considerations indicate that not all iron ore producers can supply all customers worldwide. In practice, the capacity of a given iron ore supplier to deliver its products to a given customer will be determined by the existence (or the absence) of sufficient transport infrastructure between them. Existing transport links will therefore condition which suppliers can approach which customers and vice versa.

B. **Distinction between 'domestic' and 'seaborne' customer areas**

(146) In much of the world, customers usually purchase most of their iron ore requirements from 'domestic' suppliers connected to them either by rail or by inland waterways. This is for instance the case in the United States, where 88 % of demand is met by North American mines (the rest being essentially procured from Brazilian suppliers), or in eastern Europe, where 80 % of supplies are from domestic iron ore producers. The conditions of competition in those areas are therefore primarily determined by local market characteristics (such as the relative competitiveness of domestic suppliers and the structure of demand in those areas). Furthermore, demand in those areas has frequently been adjusted to the types and the qualities of the products offered by 'domestic' mines, and therefore may concern a specific product mix. For example, customers in Brazil or in Australia almost exclusively use the iron ore quality produced locally. Similarly, North American steel mills almost exclusively use pellets, because this corresponds to the local characteristics of iron ore deposits in that region. This markedly differs from traditional purchase patterns in western Europe or East Asia, where most of the demand is for sinter fines and lump.

(147) By contrast, a specific situation exists in western Europe, in East Asia (Japan, Taiwan and South Korea) and, to a lesser extent, in China (where domestic supply is widely insufficient or non-competitive). Customers in those areas are therefore obliged to purchase their products from distant suppliers with an access to relevant

transport infrastructure. In practice, transport is primarily undertaken by ship, because land transportation cannot compete with seaborne deliveries for those customers. Japan and Taiwan can physically only be reached by ship, and there are no suitable land links in place that could connect western European customers with continental supply areas (such as China, the former USSR or India). In addition, the Chinese and Russian iron ore reserves are characterised by low iron content (approximately 30 % compared to 60 % in Brazilian and Australian mines), which further increases transport costs (because more 'gangue' and non-ferrous content have to be shipped for every unit of iron).

(148) Domestic supplies being either non-existent or marginal, customers in western Europe or East Asia depend almost totally on seaborne supplies from Brazil, Australia, Canada, India and Africa. It follows that customers have to purchase only the product types and qualities available from those suppliers, and that they procure their iron ore needs from a different supplier set than that which exists in other regions. In that context, it is clear that, should a hypothetical monopolist seaborne supplier raise prices by 5-10 % in those regions, customers would not be able to defeat that price rise by finding alternative sources of supply. This is clearly confirmed by the fact that, although the western European benchmark price for lump has increased by 11,8 % in 2000, no new supplier has started selling lump in western Europe during that year. This is also further indicated by the fact that prices in seaborne areas do not follow the same pattern as in other regions. For instance, the data provided by the parties indicate that, between 1997 and 1998, prices rose by 6 % in the United States but decreased by 1 % in western Europe.

(149) In the light of the above, it is concluded that the conditions of competition in seaborne areas (regions dependent, or partly dependent, on seaborne supplies) are specific to those regions, and therefore that the supply of the different types of iron ore to those regions constitute geographic markets distinct from the supply of ores to non-seaborne areas. This is broadly confirmed by the results of the Commission's investigation.

C. **Single seaborne market**

(150) It is necessary to determine whether a distinction should be made between seaborne areas, and especially between western Europe, on the one hand, and East Asia, on the other. It should be noted that there are arguments for including western Europe in a wider 'Atlantic' seaborne market, on account of the similarities in the conditions of supply and demand in this wider region (and notably transport costs). However, it is not necessary to decide upon the existence of such a geographic market, as the competitive assessment would be almost identical in that hypothesis as for a western European market: the only significant 'Atlantic' consumers of seaborne iron ore outside western Europe are in the Gulf of Mexico region of the United States and in eastern Canada. However, only relatively small quantities of seaborne iron ore are consumed there.

(151) There is no need to further delineate the scope of the seaborne markets for DR iron ore products, since (i) there is only one western European customer for DR iron ore, (ii) this customer is part of a larger group with DRI production plants in several continents, and (iii) the operation would create a dominant position whatever the geographic market definition retained. DR iron ore will therefore not be further discussed in this section.

(152) In the statement of objections, the Commission took the preliminary view that there might be a western European market for iron ore, on the grounds that (i) customers in western Europe have a different demand from customers in other areas (in particular, the proportions of sinter fines, lump and pellets are different from those in East Asia); (ii) transport costs affect the competitiveness and the competitive incentives for suppliers to sell in western Europe, thereby making the conditions of supply in western Europe different from what they may be in the other seaborne areas; and (iii) […]*.

(153) In their response, the parties no longer maintain their original position, namely that the relevant geographic market should be viewed as total production, and they now admit that it is at least as wide as the worldwide market for seaborne sales. However, they do contest the existence of a western European/Atlantic market, mostly on the basis of the economic study performed by their economic consultant.

(154) First, the parties (and their economic consultant) submit that the Commission has failed to apply properly the standard principles applicable when defining a relevant geographic market as set out in the Commission's notice. According to the economic consultant, the definition of the geographic market is based on the

identification of regions of production that customers consider as effective sources of supply. This methodology they point to is set out in paragraph 13 of the Commission Notice on the definition of relevant market for the purposes of Community competition law ([33]), where it is said 'basically, the exercise of market definition consists in identifying the effective alternative sources of supply for the consumers of the undertakings involved, in terms both of products/services and of geographic location of suppliers'.

(155) Second, the parties provide indications that Brazilian, Canadian, Australian, South African, Mauritanian and other iron ore producers are effective competitors in seeking to win sales to western European steel mills. In particular, the parties refer to the fact that all of these producers supply significant volumes to western European steel mills, that they are able to sell profitably in western Europe, and that there is some switching between suppliers.

(156) And third, the parties state that the basis on which the statement of objections defines a narrow market definition has little or no relevance to the assessment of the competitive constraints that operate between Brazilian and non-Brazilian iron ore producers when competing for sales to particular steel mills. In particular, the differences presented in the statement of objections (such as the basis on which prices are agreed, the differences in demand, etc.) affect all iron ore producers equally, regardless of where they are located.

(157) Altogether, the parties' argument is that all seaborne suppliers (as well as certain domestic producers in western Europe) can effectively compete for sales in western Europe. This, the parties submit, shows that western Europe is part of a global market.

(158) The approach followed by the Commission consisted in verifying whether the prices and the contractual conditions for supplies to western Europe are determined by demand and supply features which are specific to that region, or whether they are fixed on the basis of the conditions of competition at a wider level ([34]).

([33]) OJ C 372, 9.12.1997, p. 5.

([34]) This method corresponds to the definition of 'relevant geographic market' as described in paragraph 8 of the Notice: 'The relevant geographic market comprises the area in which the undertakings concerned are involved in the supply and demand of products or services, in which the conditions of competition are sufficiently homogeneous and which can be distinguished from neighbouring areas because the conditions of competition are appreciably different in those areas'.

(159) After a careful examination of the parties' response, the Commission notes that, despite somewhat different demand and supply conditions in western Europe, these differences are not sufficient to justify the existence of narrow geographic markets. As the parties submit, most seaborne suppliers sell in most seaborne areas, and most seaborne customers buy from the larger iron ore producers (mostly Australian, Brazilian and Canadian companies). Narrower geographic markets can therefore only exist if iron ore suppliers have the ability and incentives to discriminate between customer areas. The results of the Commission's detailed investigation show that, despite somewhat different supply and demand conditions in western Europe, there is insufficient evidence of discrimination to justify the existence of narrow geographic markets within areas dependent on seaborne supplies.

(160) A decisive element is that price levels and contractual conditions are effectively based on and result from the overall market conditions in the seaborne market, and are not significantly determined by local factors. First, as indicated above, benchmark prices are established on the basis of the negotiations held in both major seaborne areas (western Europe and East Asia). These negotiations take into account the competitive situation at the global seaborne level, and the benchmark prices therefore reflect the overall balance of supply and demand in the seaborne sector.

(161) […]*

(162) In addition, one of the main sources of competition in the iron ore sector (finding sufficient outlets for capacity expansion projects) strongly militates against narrower geographic markets. The Commission's investigation shows that one of the main challenges faced by iron ore suppliers consists in obtaining sufficient customer support for the considerable investment required for capacity expansion schemes. This is all the more so as new projects do not necessarily concern the same quality iron ore as that currently offered ([35]), so that iron ore companies need to convince customers to

([35]) For instance, most new mines opened by Australian mining companies are for pisolitic iron ore, which has different characteristics from traditional Australian ores.

overcome their reluctance and change their blend. In that context, iron ore suppliers have strong incentives to compete for all possible customers. Given the high capital costs of capacity expansion schemes, it would not be profitable for them to accept losing volumes in a major customer area in exchange for a moderate price increase in that region.

(163) Altogether, the Commission therefore concludes that, while there are indications that supply and demand conditions are somewhat different in western Europe than in East Asia, these indications do not amount to differences which are sufficient to enable the western European market to be characterised as distinct for the purposes of defining the geographic scope of the relevant markets. There is therefore no need to further categorise between seaborne customer areas.

D. **Conclusion**

(164) It is therefore concluded that the relevant geographic markets for the purposes of the present case are the various markets for sale of the different types of iron ore to all seaborne customer areas. For the purpose of market share calculation, the Commission will look at total seaborne sales, which, despite including (limited) seaborne sales to domestic customer areas, provide an acceptable proxy for sales to all seaborne customer areas.

VII. **COMPETITIVE ASSESSMENT**

(165) In accordance with Article 2(3) of Regulation (EEC) No 4064/89, a concentration which creates or strengthens a dominant position as a result of which effective competition would be significantly impeded in the common market or in a substantial part of it is to be declared incompatible with the common market.

(166) The Court of Justice ([36]) has defined the concept of dominance as a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition from being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers and, ultimately, of consumers.

(167) The existence of a dominant position may derive from several factors which, taken separately, are not necessarily determinative; amongst these factors, a highly important one is the existence of large market shares. In addition, the relationship between the market shares of the undertakings involved in the concentration and their competitors, especially those of the next largest, is relevant evidence of the existence of a dominant position ([37]).

(168) The factors which are taken into account for concluding, on a preliminary basis, that the notified concentration will create or strengthen dominant position in the markets for the sale of iron ore pellets and fines in the EEA are set out below. Given that the Commission has no objections about the effect of the operation in lump, this product will not be discussed further in this Decision.

Market Shares

(169) Based on total seaborne iron ore sales in 2000, the market shares of the parties and of their main competitors may be calculated as follows:

([36]) Case 85/76 — Hoffmann-La Roche, (1979) ECR 461, at paragraphs 38 and 39; see also CFI, case T-102/96 — Gencor, (1999) ECR II-753, at paragraph 200.

([37]) See ECJ, Case 85/76 — Hoffmann-La Roche, (1979) ECR 461, at paragraph 39; see also CFI, case T-102/96 — Gencor, (1999) ECR II-753, at paragraphs 201 and 202.

(in %)

	Total seaborne			
	Fines	Lump	Pellets	All iron ore
CVRD ([38])	[25-35]*	[10-20]*	[35-45]*	[25-35]*
Caemi ([39])	[< 10]*	[< 10]*	[< 10]*	[< 10]*
Merged entity	[35-45]*	[10-20]*	[40-55]*	[35-45]*
BHP ([40])	[10-20]*	[10-20*	[10-20]*	[10-20]*
Rio Tinto	[25-35]*	[25-35]*	[10-20]*	[25-35]*
LKAB	[< 10]*	[< 10]*	[10-20]*	[< 10]*
SNIM	[< 10]*	[< 10]*	[< 10]*	[< 10]*
ISCOR	[< 10]*	[10-20]*	[< 10]*	[< 10]*

Source: […]*.

Share of worldwide seaborne capacity

(170) The following table describes the share of total seaborne iron ore mining capacity of each of the main suppliers:

(in %)

	2000				2005			
	Fines	Lump	Pellets	All iron ore	Fines	Lump	Pellets	All iron ore
CVRD	[30-40]*	[20-30]*	[45-55]*	[30-40]*	[30-40]*	[10-20]*	[45-55]*	[30-40]*
Caemi	[5-15]*	[< 10]*	[5-15]*	[< 10]*	[5-15]*	[< 10]*	[< 10]*	[< 10]*
Merged entity	[45-60]*	[40-50]*	[45-60]*	[40-50]*	[45-60]*	[20-30]*	[45-60]*	[40-50]*
BHP	[10-20]*	[20-30]*	[5-15]*	[10-20]*	[10-20]*	[10-20]*	[10-20]*	[10-20]*
Rio Tinto	[20-30]*	[20-30]*	[5-15]*	[20-30]*	[20-30]*	[20-30]*	[10-20]*	[20-30]*
LKAB	[< 10]*	[< 10]*	[10-20]*	[< 10]*	[< 10]*	[< 10]*	[10-20]*	[< 10]*
SNIM	[< 10]*	[< 10]*	[< 10]*	[< 10]*	[< 10]*	[< 10]*	[< 10]*	[< 10]*
ISCOR	[< 10]*	[< 10]*	[< 10]*	[< 10]*	[< 10]*	[< 10]*	[< 10]*	[< 10]*

Source: […]*.

([38]) The CVRD market share includes the output of any company over which it has joint control or sole control. This includes the wholly owned subsidiaries Samitri, Socoimex and Ferteco, as well as the joint ventures GIIC (a joint venture with financial investors) and Samarco (a joint venture with BHP). The calculation of market volume (and market shares) excludes sales to CVRD's joint venture partners in the following pelletising plants: Hispanobras, Itabrasco, Nibrasco, and Kobrasco. Quantities from those joint venture pelletising plants sold by CVRD to third parties are included in the CVRD market shares.

([39]) The Caemi market share includes the output of the Brazilian mining company MBR and of the Canadian mining company QCM, which Caemi controls jointly with a Canadian steel producer. The calculation of market volume (and market shares) excludes internal sales to the joint venture partner.

([40]) Includes 100 % of Samarco output.

A. **Dominance in pellets**

(171) The operation will create overlaps in pellets, since each of CVRD (directly and through controlling stakes in other companies such as Ferteco, Samarco and GIIC) and CAEMI (through its joint controlling interest in QCM, a pellet producer in Canada) are active in that market and sell to seaborne customers worldwide.

Market shares

Market shares for pellets (BF and DR qualities)

(in %)

Seaborne sales	Country	Sales 1997	Sales 2000	Capacity	Capacity 2005
CVRD ([41])	Brazil	[25-35]*	[25-35]*	[25-35]*	[30-40]*
Samarco (CVRD/BHP) ([42])	Brazil	[5-15]*	[10-20]*	[10-20]*	[10-20]*
Caemi (QCM) ([43])	Canada	[5-15]*	[5-15]*	[10-20]*	[5-15]*
Merged entity		[30-40]*	[45-55]*	[50-60]*	[50-60]*
Rio Tinto (IOC)	Canada	[10-20]*	[10-20]*	[10-20]*	[10-20]*
LKAB	Sweden	[10-20]*	[10-20]*	[10-20]*	[10-20]*
SNIM	Mauritania	[< 5]*	[< 5]*	[< 5]*	[< 5]*
ISCOR	South Africa	[< 5]*	[< 5]*	[< 5]*	[< 5]*

Source: […]*.

(172) In their response, the parties have contested the market share calculations used by the Commission in the statement of objections. An examination of the parties' submission shows that the difference between the parties' and the Commission's calculations are due to the fact that the parties have failed to remove from the total market those internal sales made by the Brazilian joint ventures (jointly controlled by CVRD) to their parent companies. Given that these internal sales have not been subject to market conditions or to any competition, the Commission considers that these sales should be excluded from the market volume. Furthermore, it would not be consistent to exclude those sales from CVRD's sales volume and to include them in the total market volume. The resulting figures appear in the above table.

([41]) The CVRD market share includes 100 % of the output of any company over which it has joint control or sole control. This includes the wholly owned subsidiaries Samitri, Socoimex and Ferteco, as well as the joint ventures GIIC (a joint venture with financial investors) and Samarco (a joint venture with BHP). The calculation of market shares excludes sales to CVRD's joint venture partners in the following pelletising plants: Hispanobras, Itabrasco, Nibrasco, and Kobrasco. Quantities from those joint venture pelletising plants sold by CVRD to third parties are included in the CVRD market shares.

([42]) Samarco is a 50/50 joint venture between BHP and CVRD. It is jointly controlled by CVRD and BHP.

([43]) The Caemi market share includes the output of the Brazilian mining company MBR and of the Canadian mining company QCM, which Caemi controls jointly with a Canadian steel producer. The calculation of market shares excludes sales to the joint venture partner.

(173) On the basis of the above market shares, there are strong indications that the operation would give rise to competition concerns in relation to the seaborne supply of iron ore pellets. CVRD's [40 to 50]* % market share would be added to Caemi's [5 to 15 %]* % share (accounted for by the pellet sales of its Canadian subsidiary, Quebec Cartier Mining), to yield a market share of [45 to 60]* %. CVRD/Mitsui/Caemi would moreover control all Brazilian pellet production, and consequently pellets exported from Brazil to all seaborne destinations. The merged entity's closest competitors would have considerably smaller shares of the pellet market: Rio Tinto ([44]) ([10 to 20 %]*); LKAB (13 %).

(174) This apparent dominance is also reflected at the capacity level, since the newly-merged entity would furthermore control [50 to 60]* % of current worldwide seaborne pellet production capacity (2000) and would control [50 to 60]* % of the worldwide seaborne pellet production capacity forecast for 2005. The new entity's capacity share is far in excess of those of its closest competitors and will remain so for the foreseeable future: the current worldwide pellet production capacity of Rio Tinto is estimated at some [10 to 20]* %, and is forecast to rise to some [10 to 20]* % in 2005; the current worldwide pellet production capacity of LKAB is estimated at some 18 %, and is forecast to fall to some 17 % in 2005. BHP's current and future capacity ([10 to 20]* % today and [10 to 20]* % in 2005) are largely accounted for by its 50 % stake in Samarco, its joint venture with CVRD.

(175) On this basis alone, the operation would seem at least to create a dominant position in the market for the sale of iron ore pellets to all seaborne customer areas, if not to the strengthening of an already existing dominance for CVRD in that market.

Limited competitive constraints from existing seaborne suppliers

(176) The results of the Commission investigation clearly demonstrate that existing competitors will not be in a position to sufficiently constrain the competitive behaviour of the merged entity.

Competitive advantages of the merged entity

(177) First, the merged entity will benefit from a number of competitive advantages enabling it to tame its competitors. In particular, it will have the largest reserve base and the lowest production costs in the industry.

(178) According to the AME report ([45]), the cash cost structure of the main pellet producers can be summarised as is done in the following table. The costs given in the table exclude the depreciation of assets, and therefore provide an appropriate proxy for marginal costs:

Average pellet costs 1997-2000

(in USD/t)

	Production fob cost
CVRD ([46])	16,8
QCM (Caemi)	[…]*
IOC (Rio Tinto)	22,7
LKAB	23,3

Source: AME report.

(179) As indicated in this table, CVRD already has the lowest cost base in the industry, both on an fob and on a cif basis. Given that it also has the largest reserve base in Brazil, this provides CVRD with the ability to significantly jeopardise the viability of other pellet suppliers, should they threaten CVRD's interests. The acquisition of QCM will further add to its range of possible retaliation tools, by enabling CVRD to acquire a significant share of Canadian quality pellet capacity — that is to say, more or less the same quality pellet as supplied by IOC, CVRD's main competitor (together with LKAB). This could enable CVRD to engage in selective competitive actions against IOC. The merged entity could also exploit to its benefit the fact that IOC/Rio Tinto and LKAB do not deliver pellets to customers located outside the Atlantic region.

([44]) Rio Tinto's sales of pellets in Europe are accounted for almost exclusively by the sales of its Canadian subsidiary, IOC.

([45]) AME Consulting: Mining costs of the world iron ore industry, 1997 to 2000 (May 2001).

([46]) Including Samarco.

(180) In their response, the parties (and their economic consultant) indicate that the above analysis has two flaws: (i) it relies on the assumption that CVRD can tame its competitors by increasing capacity, a notion which is not economically sustainable (as the new capacity would have depressing effects on prices for a long period, and not only for the short period that any 'taming' action would require); and (ii) retaliatory actions designed to jeopardise the viability of other suppliers requires that these firms can be driven out of the market, which cannot happen given the sunk cost nature of iron ore production.

(181) The Commission does not share those views. There is no indication that 'retaliatory actions' (or disciplinary actions) are effective only in those situations where competitors may be driven out of the market. For instance, should certain competitors exert significant price competition on the merged entity, an effective retaliatory measure by CVRD could consist in exercising a downward pressure on the annual benchmark prices in such a way as to force competitors to suffer losses while CVRD would remain profitable (thanks to its low-cost structure). It follows that CVRD does not need to expand capacity or to drive competitors out of the market in order to keep competitors disciplined. In any event, it should be noted that, according to the parties' estimates, total seaborne pellet demand is expected to increase substantially ([47]) in the near future. In that context, a capacity expansion by CVRD would not be economically irrational, as increasing demand would quickly reduce the excess capacity (and therefore the downward effect on prices) generated from that expansion.

(182) Prior to the operation, CVRD's competitive leadership was already reflected in the fact that it was usually the price-setter of the benchmark price for pellets. According to data provided by the parties ([48]), CVRD and Samarco have set the benchmark price on four occasions during the last seven years (the other three having been set by IOC).

High capacity utilisation

(183) Should CVRD attempt to raise pellet prices, either through higher benchmark prices or through lower discounts, customers could only defeat that price rise by obtaining larger quantities from other producers. However, the results of the Commission's investigation indicate that this is to a large extent not possible, principally because no new pellet plants were opened during 1999 or 2000, and the worldwide average pellet production capacity utilisation rate was at 92 % during 2000 (an increase from 85 % in 1985) ([49]). Indeed, two major European steel companies contacted by the Commission during the course of its market investigation reported having experienced occasional difficulties in obtaining supplies of pellets, at least in order to meet short-term or emergency requirements.

(184) In their response, the parties indicate that the year 2000 was a year of unexpected and exceptionally high demand, and that the demand for pellets in 2001 and 2002 is expected to be significantly lower. This, in the parties' view, indicates that the demand for pellets is unlikely to be supply constrained in the coming years. These assertions are not confirmed by the results of the investigation. In particular, a presentation made by CVRD and JP Morgan in November 2000 indicated that seaborne demand for pellets was expected to increase continually between 2000 and 2005, due to structural factors such as (i) the increasing share of EAF in global steel capacity, (ii) growing DRI production, (iii) the closure of sintering plant and the construction of blast furnaces without sintering capacity, (iv) and the increase in the use of pulverised coal injection. Similarly, CVRD's first- and second-quarter results for 2001 show an increase in pellet sales when compared to 2000. Finally, a presentation by Merrill Lynch and CVRD in May 2001 explains that 'new trends in iron and steelmaking are boosting the demand for pellets'.

(185) It is also expected that this situation of tight supply will continue and even further deteriorate in the foreseeable future. Although capacity is expected to increase in the near future, this will do no more than meet the expected growth in demand. For instance, data provided by the parties indicate that, because of an expected increase in demand for pellets, total seaborne demand could exceed total seaborne capacity by 2005.

(186) In that context, it seems highly unlikely that customers could switch suppliers should CVRD attempt to raise prices or reduce discounts. It is, moreover, questionable whether competing suppliers have incentives to challenge CVRD, since these other suppliers already operate at close to full capacity and since they might be subject to retaliatory actions on the part of CVRD.

(187) Furthermore, the results of the Commission's investigation indicate that, while CVRD can increase capacity and has access to high-quality, low-cost

([47]) For instance, in a common presentation made in November 2000, CVRD and JP Morgan indicated that seaborne demand for pellets was expected to increase from 75 Mt in 2000 to 95 Mt in 2005.

([48]) Iron Ore Manual 2000-2001, the Tex Report.

([49]) *Source:* The Iron Ore Market (2000-2002), May 2001 (UNCTAD).

reserves, this may not be true for its existing competitors. CVRD enjoys lower operating and capacity expansion costs than any of its competitors in the supply of pellets to western Europe, giving it a distinct competitive advantage over those other suppliers. Following the acquisition, CVRD/Mitsui/Caemi would moreover control most of the best quality reserves suitable for the production of pellet feed in the Atlantic region (all Brazilian reserves and much of Canada's relevant reserves). CVRD intends to expand its pellet production capacity by the construction of a pelletising plant near the deep-water port of São Luis in Brazil (serving CVRD's Carajas mines in the 'northern system'). The plant is scheduled to come into operation during 2002 and would increase the new entity's pellet capacity by some 6 Mt per year. Ferteco (now part of CVRD) is moreover planning to build a second pelletising plant. The plant would effectively double Ferteco's pellet production capacity, to some 8,5 Mt per year. The new plant is due for completion in 2004 ([50]).

(188) This planned additional capacity will enable the newly merged entity to meet the expected increase in demand for pellets in seaborne areas, and at a lower cost than will be possible for any of the company's competitors. In particular, CVRD benefits from economies of scale and scope, synergies and lower mining costs, which cannot be matched by its competitors in pellet supply to seaborne areas.

(189) By contrast, the only independent seaborne pellet suppliers of any size are IOC (Rio Tinto) and LKAB, whose mines are located in Canada and Sweden respectively, and who only deliver to customers in the Atlantic region. The current pelletising capacity levels of both these companies would limit their ability to respond to greater demand for pellets. First, IOC and LKAB's rates of capacity utilisation rates have approached 90 % in 2000. Taking into account possible disruptions (due, for instance, to thunderstorms or bottlenecks in the supply chain), this suggests that they effectively operate at capacity. Secondly, even if they did seek to expand capacity, for example in response to a hypothetical price increase by the newly merged entity, the Commission's market test has indicated that this would take at least three years (two years' construction time, plus one year for a feasibility study). Furthermore, a decision to invest in new capacity would most likely only be made once these competitors were convinced of the sustainability of any such hypothetical price increase (a further delay).

(190) According to one of the main iron ore suppliers contacted by the Commission during its market investigation, LKAB 'would struggle to justify' expanding capacity due to its own high costs. In particular, LKAB's location in Sweden places it at a disadvantage in terms of labour costs, and the cost of compliance with environmental protection requirements. LKAB itself has indicated that it would be prepared to invest in new capacity in the medium and long term, if it were to 'recognise an increased long-term demand with an acceptable return on investment'. LKAB has confirmed, however, that it does not currently have sufficient spare capacity to challenge a hypothetical price increase by CVRD/Mitsui/Caemi.

(191) The Commission's market investigation has also revealed that, while IOC (Rio Tinto) is scheduled to have 4,5 Mt of additional capacity (resulting from the renovation of one of its existing pelletising plants) coming on stream by 2004 (1,3 Mt by 2002), this will do little more than meet the expected increase in demand from its existing customers; it would therefore be very unlikely to be sufficient to defeat a hypothetical price increase by the newly-merged entity.

(192) In their response, the parties indicate that most excess capacity is not held by CVRD, but by QCM, LKAB and IOC. In that context, the parties submit, and despite the fact that individual pellet producers (such as LKAB) do not have sufficient spare capacity to replace CVRD entirely, that those individual competitors do have the capacity to take significant volumes from CVRD and therefore to constrain the competitive behaviour of the merged entity. The Commission does not share this view. First, only two of the three main independent sources of capacity cited by the parties (QCM, LKAB and IOC) will remain after the operation, since QCM is jointly controlled by Caemi. Second, and as indicated above, any excess capacity currently held by IOC and LKAB is expected to decrease in the near future when demand increases. And third, the parties' argument does not take into account the competitive advantages enjoyed by the merged entity and its ability to discipline the market. The fact that CVRD benefits from a higher capacity utilisation rate than its competitors demonstrates the competitive advantages already held by CVRD. Since CVRD's position will be further strengthened by the proposed acquisition of QCM, the situation of existing competitors (and their ability to challenge CVRD's behaviour) is likely to further deteriorate.

([50]) *Source:* The Iron Ore Market (2000-2002), May 2001 (UNCTAD).

(193) On the basis of the above, it is concluded that existing seaborne pellet suppliers will not be able to exert a sufficient competitive constraint on the market behaviour of the merged entity.

High barriers to entry

(194) In addition, the results of the Commission's investigation demonstrate that new entry to the seaborne pellet market would be unlikely to occur to a sufficiently significant extent, or in a sufficiently timely manner, to deter the possible exercise by the new entity of market power in the market. As an independent iron ore producer (with currently no pellet production) indicated to the Commission, it would only consider investment in pellet production capacity in the long term ([51]); in the meantime, this company is of the view that the merged entity would be free to raise prices, and that no current supplier has the capacity to constrain such a move. For the same reasons, market entry (to the supply of pellets in seaborne areas) by other iron ore producers seems highly improbable.

(195) As indicated above, the barriers to entering the seaborne iron ore markets are exceptionally high. The costs of constructing new mines, together with accompanying transport infrastructure, render new entry other than by acquisition more or less impossible. While the expansion of existing iron ore production capacity, notably — in this context — by the construction of pelletising plants, is more feasible, the costs associated with constructing such plants are nevertheless very considerable, running to several hundred million USD per plant. For operators other than CVRD contemplating the construction of a pelletising plant suitable for supplying the seaborne customer areas, those costs would be even higher, and it can therefore be concluded that any such potential competitors would be very reluctant to undertake the investment, at least in the short or medium term.

(196) Moreover, the nature of Australian iron ore renders almost all of it unsuitable for pelletising. The Commission's market investigation has revealed that a 10 % increase in pellet prices relative to fines would not be sufficient to justify investment in pellet plant capacity in Australia; such investment costs would be expensive due to the geographical remoteness of Australian mines, and because Australian ore tends to require a high level of energy to crush on account of its hardness. There is therefore no actual, nor any likely potential, competition from Australian mines in the supply of pellets to seaborne customer areas. This fact notably excludes BHP as a potential competitor to the newly merged entity, at least for the foreseeable future ([52]). BHP does not have pellet production capacity in Australia, and so could not substitute Brazilian ores, at least not in the short and medium term: customers would have to make substantial adjustments to their furnaces in order to take the altered burden.

(197) For the reasons indicated above in the context of defining the relevant geographic market, market entry (to the sale of pellets in seaborne customer areas) by pellet suppliers in the United States, Russia, Ukraine or China is also highly improbable, and certainly will not occur in the short or medium term.

Limited countervailing buying power, and strong customer concerns

(198) As noted above, the steel industry is markedly less concentrated than the iron ore industry. In Europe alone, there are seven consumers of iron ore.[…]*. An examination of the relative performances of the steel producers (losses or low margins) and the seaborne iron ore producers (high profits and increasing prices in each of the last two rounds of negotiations) shows clearly that, even before the reduction in the number of first tier iron ore producers, the steel producers have been unable to exert much influence.

(199) The responses received from customers during the course of the Commission's market investigation confirm the limited buyer power of steel mills located in seaborne customer areas in relation to the purchase of pellets. Almost all of the steel companies contacted by the Commission indicated that they would be unable to resist a hypothetical pellet price increase by the newly-merged entity, at least in the short or medium term. Most respondents confirmed that there is a tight market for pellets, with little or no spare capacity on the supply side, thereby rendering any hypothetical exertion of buyer power impossible ('not without buying alternatives', as one customer put it); customers also confirmed that any new capacity would be slow to come on stream.

([51]) Another iron ore producer (with no current pelletising capacity) said it would not be prepared to invest in pellet capacity in the event of a 5 % to 10 % pellet price increase by CVRD/Mitsui/Caemi.

([52]) The same applies to Rio Tinto's Australian operations: these mines are not potential competitors in the supply of pellets to seaborne customer areas.

(200) In their response, the parties contest the Commission's conclusion regarding limited buyer power of steel manufacturers. In particular, the economic consultant retained by the parties has identified two threats which, in its opinion, would confer on customers with significant power over their pellet suppliers. Those are (i) the ability of steel mills to switch between pellet suppliers, and (ii) the ability of steel mills to sponsor the development of new production capacity with rival pellet producers.

(201) The Commission does not consider those elements as giving any material buyer power to customers. Customers can obviously change suppliers, just like in any industry. However, the buyer power which they may derive from this behaviour depends on the individual importance of each of those customers vis-à-vis the merged entity. It is only if customers represent a substantial proportion of the merged entity's sales, and if the merged entity cannot easily find alternative outlets, that the threat of switching may be regarded as significant. The results of the investigation demonstrate that this is not the case, both because the steel industry is much less concentrated than the iron ore industry and because the existence of low excess capacity means that pellet producers could relatively easily find new outlets for their production.

(202) It is also true that customers can decide to sponsor the development of pellet capacity with rival suppliers. However, as indicated above, it appears that this will not occur to a significant extent, because (i) it would take a significant number of customers to finance sufficient new capacity to constrain the competitive behaviour of the merged entity; (ii) CVRD is already planning to add new capacity, which reduces the incentives for customers to finance additional pellet plants; (iii) as the creation of the Brazilian joint ventures between CVRD and seaborne customers indicates, those customers willing to add new capacity would prefer to do so in areas of lowest production costs (Brazil) so as to maximise their return on investment; and (iv) pellet capacity may not be expanded as easily as the parties submit, especially because of the need for sufficient volumes of pellet feed.

(203) Finally, the Commission reiterates that customers have expressed significant concerns about the effects of the transaction. The high profit margins enjoyed by iron ore producers ([53]), when compared with the low profit margins achieved by customers, also clearly indicate where the balance of power between suppliers and customers lies. As a customer indicated during the hearing, what customers see is that steel prices tend to decrease, iron ore production costs have been significantly reduced over the last few years, but iron ore prices do not fall.

([53]) CVRD's net margin approaches 50 %, and its return on capital employed exceeds 20 %.

Effects of the transaction

Elimination of QCM as an independent supplier

(204) By acquiring Caemi, CVRD is removing Quebec Cartier Mining as a competitive force in the supply of pellets to the EEA. QCM has a market share of [10 to 20]* % in the relevant market, and its removal reduces the number of actual competitors from four to three. This comes on top of the recent (2001) removal by CVRD of Ferteco, […]*, as a competitive force CVRD's acquisition of Ferteco had reduced the number of independent seaborne pellet suppliers from five to four.

(205) […]*

Capacity to engage in selective competitive actions against IOC

(206) CVRD currently has no production of Canadian quality pellets. Following the notified transaction, CVRD will control QCM (together with IOC/Rio Tinto, the main supplier of Canadian quality pellets). The new entity would hence be in position to engage in selective competitive actions against IOC, aimed at restraining the latter's incentive to expand pellet capacity. Such actions could take the form of […]* or of cross subsidisation between CVRD's and QCM's pellet activities. This would significantly affect IOC's competitiveness in pellet supply to the EEA. The Commission's market investigation did reveal evidence of some switching by customers between IOC and QCM for pellet supply, on account of having received a more competitive offer from one or the other supplier.

CVRD likely to act as a price leader

(207) CVRD is already the price leader in the sale of pellets to seaborne customer areas; in most recent years, benchmark prices have been fixed on the basis of prices agreed with CVRD. The leadership role is likely to be strengthened following the acquisition by CVRD of QCM (which follows closely upon its recent acquisition of Ferteco) in view of the larger share of pellet sales to seaborne customer areas which the new entity will account for, of the reduction in the number of independent pellet suppliers from five to three in a

matter of months, and of the competitive advantages and new sources of market power to be held by the merged entity. The Commission's enquiry has confirmed the likelihood of such an evolution. Both competitors and customers have indicated that other pellet suppliers to seaborne customer areas would be likely to follow CVRD/Mitsui/Caemi's lead in increasing prices. These suppliers, on account of their higher cost levels and their inability to expand capacity in the short term, would have a greater incentive to raise prices to the 'new market level' than to seek to compete at price levels lower than those offered by CVRD/Mitsui/Caemi.

Higher prices [...]*

(208) As a result of its new position of increased market power, the new entity is likely to be able to increase real prices. [...]*

Conclusion

(209) The Commission has therefore reached the conclusion, for the reasons outlined above, that the transaction would give rise at least to the creation of a dominant position, if not to the strengthening of an existing dominance, in the supply of iron ore pellets to all seaborne customer areas.

B. **Dominance in hypothetical markets for direct-reduction ore**

(210) As indicated above, there are strong indications that DR iron ore may belong to distinct product markets; and that, within DR iron ore, the impact of the transaction should be measured in two markets, namely (i) a market for DR pellets, and (ii) a market combining DR pellets and DR lump (because of the existence of a one-way substitutability between DR lump and DR pellets).

Dominance in DR pellets

(211) The market shares for DR pellets appear in the following table. Owing to the limited amount of public information about those sales, the market share calculations have been made on the basis of total merchant sales worldwide. These figures include the production of companies not having access to the seaborne market, and they may therefore underestimate the actual market position of the merged entity. According to the data provided by a third party, the parties' combined market shares would exceed 62 % on the basis of seaborne capacity in 2001.

Market shares for DR pellets

	Country	Merchant sales 1997	Merchant sales 2000	Capacity
		Merchant (%)	Merchant (%)	2000 (Mt)
CVRD	Brazil	39	38	9,2
Samarco (CVRD/ BHP)	Brazil	16	19	6,0
QCM (Caemi)	Canada	[< 10] *	[< 10] *	4,0
Merged entity		[60-70]*	[60-70]*	19,2
IOC (Rio Tinto)	Canada	0	4	2,5
LKAB	Sweden	13	14	8,3

Source: Midrex report 2000.

(212) The Commission has reached the conclusion, for most of the same reasons outlined above in relation to pellets, that the transaction would give rise at least to the creation of a dominant position, if not to the strengthening of an existing dominance, in the supply of direct reduction pellets to all seaborne customer areas. The market shares are moreover comparable to (if not higher than) those for total pellet sales.

(213) In their response, the parties indicate that there is currently no demand for DR iron ore in the EEA, since the only direct reduction plant in that region (owned by Ispat and located in Hamburg) is closed. However, although it is true that Ispat's plant has been closed for several months in 2001 (owing to exceptionally high natural gas prices affecting its profitability ([54])), this plant has been operating for the last 30 years without interruption, and is expected to resume operations soon.

(214) Finally, the parties state in their response that DR pellets do not need to be produced from the highest quality fines, so that all pellet plants could easily enter the DR market. Even if that were so, this would not affect the competitive assessment of the transaction, since, as shown above, the merged entity would be dominant on the overall seaborne pellet market.

([54]) There are, moreover, strong indications that natural gas prices will not remain at these exceptionally high levels over the next few years.

Dominance in DR lump and pellets

(215) The above section has shown that the operation will create or strengthen a dominant position by the merged entity in DR pellets. This already points towards similar conclusions on the overall market for DR lump and pellets, since DR pellets account for 78 % of merchant DR iron ore sales. However, there are also strong indications that the situation in DR lump is very similar to that in DR pellets.

(216) In the DR sector, a distinction is traditionally made between 'captive' sales (meaning internal sales of vertically integrated companies) and 'merchant' sales to third party DRI producers. This distinction is also relevant for the calculation of market shares: only 'merchant' sales appropriately reflect the actual market power of those suppliers active on the merchant market, because 'captive' sales correspond to quantities which are not really put on the market, which are not available for non-integrated DRI producers and for which no real competition takes place.

(in Mt)

Sales of DR lump	Country	Sales 1997		Sales 2000		Capacity
		Captive	Merchant	Captive	Merchant	2000
CVRD	Brazil	0	0,7	0	1,0	3,7
MBR (Caemi)	Brazil	[< 5] *	[< 10] *	[< 5] *	[< 5] *	[< 5] *
Merged entity		[< 5] *	[< 5] *	[< 5] *	[< 5] *	[< 10] *
MCR (Rio Tinto)	Brazil	0	0	0	0	1,5
NMDC	India	0	4,2	0	2,0	6,2
CVG	Venezuela	0,6	0	0,9	0	2,5
ISCOR	South Africa	0	1,8	0	4,0	4,0
Las Encinas	Mexico	0	0	0,2	0	0,3
World Total		[…] *	[< 15] *	[< 5] *	[< 15] *	20,7

Source: Midrex report 2000.

(217) As can be seen from the above table, there are currently only four suppliers active on the merchant market worldwide: those are CVRD, MBR, NMDC and ISCOR. By combining CVRD and MBR, the operation reduces that number to three suppliers. Furthermore, not all of these three suppliers should be considered to have a similar position: while CVRD and MBR export a significant proportion of their DR lump, it appears that NMDC does not sell outside India, ISCOR already sells 100 % of its capacity. NMDC's inability to sell on the export market is further indicated by the fact that, although having a significant capacity (in excess of 6 Mt), it has only been able to sell 2 Mt in 2000.

(218) The Commission's investigation shows that demand for DRI (and thus DR iron ore) is expected to increase dramatically in the near future (from 43,2 Mt in 2000 to 60 Mt in 2005), in line with the average 8 % annual growth rate observed between 1995 and 2000. In that context, competition will be largely determined by the lump suppliers' capacity to meet that extra demand.

(219) While the merged entity already has significant excess capacity enabling it to meet that higher demand, there are strong indications that NMDC cannot competitively sell outside India. Furthermore, ISCOR is already constrained in its capacity, and its planned capacity expansion (by 10 %) will not match the 38 % expected increase in demand for DR iron ore. Moreover, the Commission's market investigation has revealed that the capacity figure for ISCOR quoted by Midrex above may be somewhat exaggerated. It follows that these suppliers will not be able to sufficiently constrain the competitive behaviour of the merged entity.

(220) The parties submit that the industry as a whole still has significant excess capacity, and therefore that other suppliers could enter the merchant market should the merged entity raise prices or reduce discounts. However, the results of the Commission's investigation suggest otherwise. First, it appears that MCR does not have access to such infrastructure as to allow for seaborne shipments: MCR is not connected to any port, and its products are mostly transported by barge down the Paraguay and Paraná rivers to be sold to neighbouring Mercosur countries (primarily Argentina). Secondly, although CVG has access to seaborne infrastructure, it only has limited DR capacity (2,5 Mt) and it has a significant local demand in that all Venezuelan pig iron production is carried out by direct reduction methods (covering a total capacity of 8,8 Mt). In that context, and in view of CVG's interests in most Venezuelan DRI producers, it seems highly unlikely that CVG could add sufficient volumes on the seaborne market to significantly constrain the competitive behaviour of the merged entity. In addition, there is no indication that any new producer of lump could enter the market, owing to the very specific quality of lump ore suitable for direct reduction applications.

(221) It follows that, in practice, the conditions of competition on the merchant market for DR lump essentially depend on the rivalry between those suppliers with sufficient excess capacity and access to seaborne infrastructure, namely MBR and Ferteco. This is further confirmed by the leading DR iron ore customer (and the only customer in western Europe), who indicated that it was essentially dependent on supplies from these two companies. By combining these two companies, the proposed transaction will eliminate that rivalry, and therefore lead to the creation of a dominant position in that market. The parties' submission that MBR currently does not sell DR lump in western Europe cannot be accepted, because MBR could easily sell DR lump in western Europe (as past deliveries clearly demonstrate) and because MBR is the only credible alternative to CVRD for western European customers.

(222) In light of the above, the Commission has therefore reached the conclusion that the transaction would give rise at least to the creation of a dominant position, if not to the strengthening of an existing dominance, in the hypothetical market for the supply of direct reduction lump and pellets in all seaborne customer areas.

C. **No dominance in sinter fines**

(223) Each of CVRD (directly and through its controlling stakes in Ferteco, Samitri, Samarco, etc.) and Caemi (through its controlling interests in MBR and QCM) are active in that sector and sell products in seaborne customer areas. In its Decision adopted on 3 July 2001 pursuant to Article 6(1)(c) of Regulation (EEC) No 4064/89, the Commission raised serious doubts as to the compatibility of the operation with the common market on the grounds that it might create or strengthen a collective dominant position on this market. For the reasons described below, those serious doubts have been alleviated during the course of the detailed investigation.

Market shares

(in %)

Seaborne sales	Country	Sales 1997	Sales 2000	Capacity 2000	Capacity 2005
CVRD	Brazil	[20-35]*	[20-35]*	[30-40]*	[30-40]*
Caemi (MBR and QCM)	Brazil and Canada	[10-20]*	[5-15]*	[10-20]*	[10-20]*
Merged entity ([55])		[30-40]*	[30-40]*	[40-50]*	[40-50]*
BHP	Australia	[10-20]*	[10-20]*	[10-20]*	[10-20]*
Rio Tinto	Australia and Canada	[20-30]*	[20-30]*	[20-30]*	[20-30]*
LKAB	Sweden	[1-10]*	[1-10]*	[1-10]*	[1-10]*
SNIM	Mauritania	[1-10]*	[1-10]*	[1-10]*	[1-10]*
ISCOR	South Africa	[1-10]*	[1-10]*	[1-10]*	[1-10]*

Source: Midrex report 2000.

No single dominance

(224) There is no indication that, despite the relatively high market shares of the merged entity, the operation could create or strengthen a single dominant position by the merged entity on the market for sinter fines sold in seaborne customer areas. The merged entity will remain subject to the competitive pressure of other large suppliers, especially Rio Tinto ([20 to 30]* % of sales) and BHP ([10 to 20]* % of sales). The competitiveness of those two suppliers also appears from their cost structures, which are not substantially different from those of CVRD (and are lower than those of MBR). This is further confirmed by the high capacity utilisation rates enjoyed by BHP ([…]* %) and Rio Tinto ([…]* %), which exceed those of CVRD ([…]*) and Caemi ([…]* %); and by the occurrence of significant switches from customers between products of different origin, as emphasised by the parties in their response.

No collective dominance

(225) In its decision of 3 July 2001, the Commission raised serious doubts as to the compatibility of the operation with the Common market on the grounds that it might result in collective dominance by the three main seaborne suppliers, namely CVRD, BHP and Rio Tinto.

(226) In that decision, the Commission in particular referred to (i) the high and increasing combined market shares of these three market players ([…]* % of total seaborne demand after the proposed transaction); (ii) their low and comparable cost structures, especially when compared with other seaborne suppliers; (iii) high market transparency in terms of benchmark prices and volumes; and (iv) stability of demand.

([55]) The merged entity's market share figures also include the output of the Indian mine Sesa Goa, which is controlled by Mitsui.

(227) In that context, the Commission identified risks that the three major iron ore suppliers could have similar incentives, and that this might lead to parallel anti-competitive behaviour. In practice, the Commission investigated three different mechanisms possibly leading to a situation of collective dominance: (i) parallel negotiating behaviour during the benchmark price negotiations (CVRD, Rio Tinto and BHP are usually the price setters in western Europe and Japan); (ii) concentration of those companies on their 'natural' market (the region where they enjoy transport cost advantages, namely East Asia for the Australian suppliers and western Europe for the merged entity); and/or (iii) restrictions in capacity expansion.

(228) The investigation has revealed a number of structural reasons making collective dominance difficult to sustain. First, customers and competitors have consistently indicated that there is substantial competition between the two Australian suppliers, who sell the same types of products and who effectively compete with each other for larger volumes and for new capacity expansion projects.

(229) Second, as indicated above, sinter fines are a differentiated product. In particular, Brazilian ores have substantially different product characteristics from Australian ores. This difference creates asymmetric competitive incentives for Brazilian and Australian suppliers. They also reduce the risks of deviating from a coordinated outcome, by making retaliatory actions less effective.

(230) Thirdly, the asymmetric competitive incentives of Brazilian suppliers and Australian producers are further intensified by significant differences in their respective cost structures. In particular, it appears from the following table that Brazilian suppliers have a significant advantage in western Europe while Australian suppliers are more competitive in East Asia. These differences mean that Brazilian suppliers and Australian producers pursue distinct profit-maximising strategies, which in turn make it very difficult for the three major producers to arrive at similar pricing or capacity objectives.

Average fines costs 1997-2000

(in USD/mtu)

	fob cost	Transport to Asia	Total cost to Asia	Transport to Europe	Total cost to Europe
CVRD	10,7	13,1	23,8	8,3	19,0
Caemi	[10-20]*	[10-20]*	[20-30]*	[5-15]*	[20-30]*
Rio Tinto	[10-20]*	[5-15]*	[10-20]*	[10-15]*	[20-30]*
BHP	[10-20]*	[5-15]*	[20-30]*	[10-15]*	[20-30]*
ISCOR	20,5	10,4	30,9	8,6	29,1
SNIM	22,6	N/A	N/A	5,7	28,3
LKAB	20,9	N/A	N/A	4,3	25,2

Source: AME report.

(231) Altogether, the presence of substantial competition between the two Australian producers and of asymmetric competitive incentives between Australian mining companies and Brazilian producers, collectively contribute to effectively preventing the creation of collective dominance in general. This is all the more so as CVRD, BHP and Rio Tinto have also materially different market shares, ranging from 38 % (CVRD) to [10 to 20]* % (BHP). In that respect, the present transaction will further add to that asymmetry (by strengthening the current market leader), and therefore tends to further hinder parallel behaviour. The existence of significant differences in capacity utilisation ratios is a further indication against collective dominance, since it reinforces the conclusion that different incentives exist among firms in the industry.

(232) In addition, there are also specific reasons why each of the three mechanisms discussed above cannot effectively operate. The following paragraphs present these reasons in detail.

Parallel pricing

(233) The results of the detailed investigation have negated the risk of parallel pricing behaviour, for three major

reasons. First, they have shown that there is significant competition between the two Australian suppliers, who produce the same quality of iron ore and therefore compete for the same volumes.

(234) Secondly, parallel behaviour during the annual benchmark price negotiations may be difficult to realise, because (i) customers could defeat that behaviour by settling with 'fringe' suppliers (as western European customers did in 2000 when they reached an agreement with SNIM); and (ii) suppliers have incentives to be the first settlers, and therefore not to be too demanding during the negotiations, because this 'customer friendly' attitude is usually rewarded by steel mills in the form of higher volumes […]*.

(235) […]*.

Geographic split ('chacun chez soi')

(236) The results of the detailed investigation have also negated the risk of a 'geographic split' of the market between western Europe (to be essentially supplied by Brazilian suppliers) and East Asia (to be essentially supplied by Australian suppliers). Firstly, as indicated above, seaborne demand growth is not expected to be equally shared between the various seaborne areas. In particular, it appears that western European demand will stagnate during the next 10 years, while East Asian sales will significantly grow during the same period (essentially due to soaring seaborne purchases by customers in China). This asymmetry eliminates the incentives for suppliers to concentrate on a given region (especially western Europe) and, by contrast, provides incentives for all suppliers to vigorously compete for East Asian sales. This is confirmed by CVRD's presence in East Asia (where it already achieves one third of its seaborne sales), and by the sale of significant quantities of Australian ore in western Europe.

(237) In addition, it appears that one of the main challenges faced by iron ore suppliers consists in obtaining sufficient customer support for the considerable investment required for capacity expansion schemes. For instance, according to the figures provided by the parties, […]*. Comparable issues are raised for BHP and Rio Tinto's new projects. In that context, projects can only be financed if sufficient outlets are guaranteed. Iron ore suppliers can therefore not approach customers in one seaborne region only, they need to vigorously compete for all possible steel mills. This makes a 'geographic split' even more unlikely.

Restriction of capacity

(238) Finally, the results of the Commission's detailed investigation have not highlighted much risk of the three big suppliers engaging in parallel restriction of capacity. It is true that the market shows certain features which might facilitate that sort of behaviour: (i) Rio Tinto, BHP and the merged entity might effectively control capacity expansions, because only they have access to significant relevant reserves; (ii) there is currently very little excess capacity, and demand will increase in the near future, which calls for capacity expansion; and (iii) it would be in the collective interests of the major suppliers to keep supply tight, so as to achieve higher prices.

(239) However, in order to be effective, such a scheme would need to overcome major obstacles. Even if some sort of common objective could be discerned by each of the producers independently, it could not be achieved because it would be in the individual interest of each supplier to renege on that objective and to add extra seaborne capacity (so as to benefit from both large volumes and high prices). It follows that the mechanism described above can only effectively operate if the iron ore suppliers' incentives to deviate can be counterbalanced by other factors. The most likely way in which this could be done would be through the threat of retaliation. This threat can be summarised as follows: (i) in view of the high transparency of capacity expansion schemes (and of the individual capacity of each supplier), the major suppliers could easily and quickly detect any addition of extra capacity; and (ii) once this is done, the major suppliers could harm the supplier of that extra capacity by adding capacity on their own (since this would create a situation of excess capacity and therefore lower prices and profits). If the reduced, discounted profits achieved during the period of excess capacity would be sufficient to offset the higher discounted profits made by the 'maverick' during the period when it benefits from both larger volumes and higher prices, then iron ore suppliers would effectively have little incentive to deviate.

(240) It has been suggested that capacity-restrictive parallel behaviour is not possible. The main reason for this, the argument goes, is that the 'punishment' period (of excess capacity) is not credible, because (i) it harms all

suppliers (so that it needs to be relatively short for the threat to be credible) and (ii) capacity is there to stay in the long term. More specifically, it has been indicated that, in that context, any retaliatory action would have no effect on the maverick's behaviour, since the maverick would be 'committed' to using the capacity which it has installed. Retaliation would therefore be both useless and painful to all suppliers. In addition, the excess capacity which would result from any retaliation would also last for a long time, which would in turn do considerable harm to all suppliers. In other words, the retaliation mechanism would be so futile, disproportionate and harmful to all suppliers, as not to be credible. The Commission considers that, in the present case, this is not necessarily true because of the expected market growth. Although capacity would indeed remain in the long term, the expected growth in demand (8 % between 2000 and 2005) could quickly absorb the added capacity, so that the period of excess capacity would not last long.

(241) However, the results of the investigation show that parallel strategies involving capacity restriction would not be likely to work effectively in the market under consideration. In particular, the investigation has revealed that independently identifying and pursuing collective objectives on capacity restrictions would be extremely difficult. In particular, it appears that capacity cannot be finely tuned. Capacity expansion schemes consist of large projects leading to the development of entire mining areas in a given deposit, and they therefore concern lumpy quantities. In that context, it would not be easy for suppliers to independently concur on capacity expansion strategies.

(242) It should also be noted that iron ore is a differentiated product. This factor, combined with the fact that Brazilian sinter fines are substantially different from those extracted in Australia, further complicates the stability of any coordinated outcome between Rio Tinto, CVRD and BHP.

(243) Furthermore, customers have repeatedly indicated that BHP and Rio Tinto significantly compete with each other, especially as far as new capacity expansion projects are concerned. In that context, it seems difficult to imagine that those two suppliers could engage in parallel behaviour regarding capacity expansion.

(244) In addition, there remains the fact that, as indicated above, the seaborne market growth is not expected to be homogeneously shared in all regions, but instead will essentially come from East Asia (and principally China). In that context, all suppliers have strong incentives to compete for larger volumes in China, and future seaborne market positions cannot be easily derived from what they are in mature markets (such as western Europe or Japan). In such a climate it would therefore be extremely difficult for producers to form similar views on optimal capacity sharing, and suppliers would probably have incentives not to pursue any independent capacity-restriction strategies which might limit their sales in China.

(245) Finally, it has been consistently stated that new projects are only undertaken when a sufficient number of customers have indicated their willingness to purchase the product concerned. It follows that the possibility for producers to pursue capacity restriction strategies would strongly depend on the customers' acceptance of the iron ores concerned, something which cannot be assumed. This also indicates that customers could seriously endanger the stability of any parallel strategies.

(246) For all of these reasons, a vast majority of third parties has stated that the three major iron ore suppliers could not reasonably engage independently in such a common capacity-restriction strategy. It is therefore concluded that the operation will not create or strengthen a dominant position on sinter fines sold to seaborne customer areas, as a result of which effective competition in the common market and the functioning of the EEA Agreement would be significantly impeded.

D. **No dominance in lump**

(247) The operation will create overlaps in lump, where each of CVRD and Caemi (through MBR) are active and sell in all seaborne customer areas. The parties' and their competitors' shares of sales and capacity appear in the following table:

(in %)

Seaborne sales	Country	Sales 1997	Sales 2000	Capacity 2000	Capacity 2005
CVRD	Brazil	[5-15]*	[5-15]*	[20-30]*	[20-30]*
Caemi (MBR)	Brazil	[5-15]*	[5-15]*	[5-15]*	[5-15]*
Merged entity ([56])		[5-15]*	[10-20]*	[20-30]*	[20-30]*
BHP	Australia	[20-30]*	[10-20]*	[20-30]*	[10-20]*
Rio Tinto	Australia	[30-40]*	[30-40]*	[20-30]*	[20-30]*

Source: […]*.

(248) There is no indication that the operation could create a single dominant position by the merged entity, since it will only be the third-largest seaborne supplier. The transaction nonetheless raises many of the same collective dominance issues in lump as it does in relation to sinter fines. However, the results of the Commission's detailed investigation also show that these risks can be dismissed, on the basis of the same analysis as that described above in detail for sinter fines.

(249) It is therefore concluded that the operation will not create or strengthen a dominant position in lump sold to all seaborne customer areas, as a result of which effective competition in the common market and the functioning of the EEA Agreement would be significantly impeded.

E. **Conclusion**

(250) On the basis of the above analysis, the proposed concentration would risk bringing about the creation or strengthening of a dominant position in the market for the supply of iron ore pellets to all seaborne customer areas, in the hypothetical market for the supply of direct reduction pellets to all seaborne customer areas, and in the hypothetical market combining direct reduction pellets and direct reduction lump to all seaborne customer areas, as a result of which effective competition in the common market and the functioning of the EEA Agreement would be significantly impeded.

VIII. **REMEDIES**

(251) On 5 October 2001, the parties offered certain commitments to remove the competition concerns which the Commission had identified in its statement of objections. The relevant part of the final commitments is set out in the Annex to this Decision.

A. **Summary of the undertakings**

(252) These commitments consist, in brief, of:

— an undertaking to dispose of Caemi's 50 % interest in QCM, a Canadian producer of sinter fines and pellets,

— the establishment of 'New CAEMI', incorporating MBR, Caemi's Brazilian iron ore mining operation, and Ferteco, an iron ore mining company that CVRD recently acquired from Thyssen Krupp.

B. **Assessment of the undertakings**

(253) The first of these undertakings completely eliminates the overlap between CVRD and Caemi in iron ore pellets. In addition, the results of the Commission's market investigation clearly indicate that QCM is a stand-alone business which operates independently from the rest of Caemi and which, if divested to a suitable purchaser, has the ability to act as a competitive and independent force on the market. It follows that this undertaking resolves the competitive concerns identified by the Commission in pellets and DR pellets.

(254) Given that DR pellets account for approximately 80 % of the total hypothetical market for DR iron ore, it also appears that this undertaking is sufficient to resolve the competitive concerns relative to that hypothetical market as well. Although QCM does not produce any DR lump, MBR's sales of […]* Mt in 2000 represent

([56]) The merged entity's market share figures also include the output of the Indian mine Sesa Goa, which is controlled by Mitsui.

only a very small proportion of a combined market for both DR lump and DR pellets. In view of a trend towards the use of DR pellets in preference to DR lump, and in view of the fact that CVRD expects its current reserves of DR-grade lump ore to be exhausted in four to five years ([57]), these sales seem all the more insignificant. It should moreover be noted that the only European customer for DR iron ore is a single DR plant which is currently not operational and which accounted for only 0,3 % of EEA steel production. In the light of these factors, and in the absence of any proportionate remedy for this very small increment in DR iron ore share of sales, it is concluded that this minor overlap does not materially alter the conditions of competition on the market concerned.

(255) In that context, the second undertaking is not considered necessary for the purpose of the clearance of the notified transaction. The Commission therefore will not take it into consideration for the purpose of the present decision.

IX. **CONCLUSION**

(256) In the light of the above, and subject to compliance with the undertaking relative to the divestiture of Caemi's 50 % stake in QCM as set out in the Annex, the proposed operation does not create or strengthen a dominant position as a result of which effective competition would be significantly impeded in the EEA or in a substantial part of it. The operation should therefore be declared compatible with the common market and the functioning of the EEA agreement, pursuant to Article 8(2) of Regulation (EEC) No 4064/89,

HAVE ADOPTED THIS DECISION:

Article 1

The notified operation whereby Mitsui and CVRD acquire joint control over Caemi is hereby declared compatible with the common market and the functioning of the EEA Agreement, on condition that the commitment relative to the divestiture of Caemi's 50 % interest in QCM as set out in the Annex is fully complied with.

Article 2

This Decision is addressed to:

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2005-900 Rio de Janeiro
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Done at Brussels, 30 October 2001.

For the Commission
Mario MONTI
Member of the Commission

([57]) CVRD's only source of DR lump is the Feijas mine (formerly owned by Ferteco), which produced 1 Mt of DR lump ore in 2000 (*Source:* Midrex Report 2000).

ANNEX

The full original text of the conditions and obligations referred to in Article 1 may be consulted on the following Commission website:

http://europa.eu.int/comm/competition/index_en.html